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29 May 2023

Santos Reference: EQ23-02

Ms Denise Leon
Team Leader (Assessment), Energy and Extractive Resources
Energy, Extractive and South West Compliance | Environmental Services and Regulation
Department of Environment and Science
Level 7, 400 George Street
BRISBANE QLD 4001

Dear Denise,

Application to Amend Environmental Authority EPPG04323316

Santos CSG Pty Ltd (Santos) on behalf of their joint venture partners has prepared the attached application to amend Environmental Authority (EA) EPPG04323316 (Roma Backbone Project EA). The application has been prepared in accordance with Sections 226 and 226A of the *Environmental Protection Act 1994* (EP Act). The application has been prepared as a major amendment.

This EA amendment is seeking authorisation to construct and operate the following proposed infrastructure in relation to PPLs 2021 and 2061:

- produced water dam (PPL 2021);
- water pipeline with co-located overhead power line and fibre optic cable (PPL 2021);
- high voltage power substation (PPL 2021); and
- produced water tank and water pipeline extension (PPL 2061).

Further, the application seeks the following administrative amendments:

- update the disturbance area listed against regulated dams in '*Schedule A, Table 1 – Scale and Intensity for the Activities'* to correct an error in the disturbance area authorised for the existing Angry Jungle dam;
- removal of Condition B6 and Table 1 '*Significant residual impacts to prescribed environmental matters'* from Schedule B of the EA to ensure clarity and consistency with Section 15 of the *Environmental Offset Act 2014* (EO Act); and
- consolidation of disturbance for 'gas pipeline' listed under PPL 2020 in Schedule A, Table 1.

The following information is attached in support of the amendment application:

- Attachment 1– EA Amendment Application Form; and
- Attachment 2 – Supporting Information.

The application fee of $355.30 was paid upon lodgement of the application.

Please contact Bennett Warren should you have any questions in relation to the application.

Yours sincerely,

Bennett Warren

Team Leader Environment

Santos Limited

Attachment 1 – EA Amendment Application Form

Application form

Environmental Protection Act 1994

Application to amend an environmental authority

This approved form is to be used when applying to amend an environmental authority under sections 222 to 227A of the Environmental Protection Act 1994 *(EP Act) for an environmentally relevant activity (ERA).*

For applications to the Department of Environment and Science, you can apply through Online Services at: https://business.qld.gov.au/running-business/environment/online-services**.**

Note: For applications to the Department of Environment and Science, the only way to pay fees by credit card is by completing the application online using Online Services. For other fee payment options see Question 31.

It is recommended that prior to making an amendment application, you read the information on what to provide with an application. This information is located on the Business Queensland website at www.business.qld.gov.au (use the search term "Environmental licence"). This website includes a diagnostic tool called a "Forms and fees finder" which will help identify fees and supporting information you need to make an application.

You are encouraged to have a pre-lodgement meeting before applying to amend your environmental authority. If you would like to have a pre-lodgement meeting:

- for prescribed ERAs 2, 3 and 4—contact the Department of Agriculture and Fisheries by email at livestockregulator@daf.qld.gov.au or by phone on 13 25 23.
- for any other ERAs —please fill out and lodge the form *Application for pre-lodgement services* (ESR/2015/1664[1]), prior to lodging this application form.

If you require assistance in answering any part of this form, or have any questions about your application please contact the relevant department. Contact details are at the end of this form (Section 33).

Privacy statement
The Department of Environment and Science (the Department) is collecting the information on this form in accordance with and as authorised by Chapter 5 of the Environmental Protection Act 1994 *(EP Act). Some of the information may be disclosed to the Department of Resources and Queensland Treasury for the purpose of processing this application.*

Pursuant to section 540 of the EP Act, the Department is required to maintain a register of certain documents and information authorised under the EP Act. A copy of this document will be kept on the public register. The register is available for inspection by members of the public who are able take extracts, or copies of the documents from the register. Documents that are required to be kept on the register are published in their entirety, unless alteration is required by the EP Act. There is no general discretion allowing the Department to withhold documents or information required to be kept on the public register. For more information on the Department's public register, search 'public register' at www.qld.gov.au. For queries about privacy matters please email privacy@des.qld.gov.au or telephone 13 74 68.

[1] This is the publication number. The publication number can be used as a search term to find the latest version of a publication at **www.qld.gov.au**.

Section 1 – Environmental authority number	
Environmental authority number for this application	EPPG04323316

Section 2 – Applicant details	
Details of the applicant are to be provided in this section. If there is an agent acting on behalf of the environmental authority holder, details of the agent are to be provided. An agent could be a consultant or contactor for the environmental authority holder.	
NAME / COMPANY NAME Santos CSG Pty Ltd	TRADING NAME
REGISTERED / RESIDENTIAL ADDRESS 60 Flinders Street ADELAIDE SA 5000	POSTAL ADDRESS (WHERE DIFFERENT) PO Box 1010 BRISBANE QLD 4001
ABN / ACN 72 121 188 654	CONTACT NAME Bennett Warren
EMAIL Bennett.Warren@santos.com	TELEPHONE 07 3838 5830
☒ INDICATE IF YOU WANT TO RECEIVE CORRESPONDENCE VIA EMAIL ☐ INDICATE IF THIS FORM IS BEING COMPLETED BY AN AGENT FOR THE ENVIRONMENTAL AUTHORITY HOLDER	

Section 3 – Checklist questions An application to amend an environmental authority is not appropriate in all circumstances. If you answer **Yes** to any of the preliminary questions below, you cannot use this application form. If you answer **No** to all of the preliminary questions, you may continue to use this application form.	
Is the amendment to correct a clerical or formal error?	☐ Yes ☒ No
If yes, you cannot use this form. This request should be made in writing directly to the administering authority (no fees apply).	
Is the amendment to add an ERA to an amalgamated project authority and the proposed activity does not form part of the single integrated operation conducted under the authority?	☐ Yes ☒ No
If yes, you cannot use this form. You will need to apply for a new environmental authority.	
Is the amendment to add an ERA to the authority and the addition of the activity would result in the environmental authority applying to activities that were not being carried out as an ERA project?	☐ Yes ☒ No
If yes, you cannot use this form. You will need to apply for a new environmental authority.	
Is the amendment to amalgamate two or more environmental authorities?	☐ Yes ☒ No
If yes, you cannot use this form. Please use either the form *Application to amalgamate two or more environmental authorities into an amalgamated corporate authority* (ESR/2015/1734), or *Application to amalgamate two or more environmental authorities into an amalgamated project or local government authority* (ESR/2015/1735).	
Is the amendment to add an ERA to an amalgamated local government authority and there is not an appropriate degree of integration between the proposed activity and the existing activities on the authority?	☐ Yes ☒ No
If yes, you cannot use this form. You will need to apply for a new environmental authority.	

Is the amendment to amend the financial assurance or estimated rehabilitation cost only?	☐ Yes ☒ No
If yes, you cannot use this form. Please use the form *Application to amend or discharge financial assurance held for an environmental authority* (ESR/2015/1752) or *Application for a decision on the estimated rehabilitation cost* (ESR/2018/4426).	
Is the proposed amendment to add a resource activity to an environmental authority for a prescribed ERA project?	☐ Yes ☒ No
If yes, you cannot add the resource activity to the environmental authority. You will need to apply for a new environmental authority.	
Is the proposed amendment to add a prescribed ERA, other than an ancillary activity, to an environmental authority for a resource project?	☐ Yes ☒ No
If yes, you cannot use this form. You can apply using the standard, variation or site-specific application forms.	

Section 4 – Checklist questions for prescribed ERAs Is the application to amend an EA for a prescribed ERA?	☒ No – Go to next section
Does the proposed amendment involve changes to the relevant activity that require a new development application to be lodged under the *Planning Act 2016* and the application for the development application has not been lodged.	☐ Yes ☐ No
If yes, the development application must be lodged before an environmental authority amendment application can be made. Under EP Act, a development application for a material change of use of premises for an environmentally relevant activity is deemed to be also an application for an environmental authority. In this case, an environmental authority amendment application should not be lodged.	
Is the proposed amendment solely to add or remove vehicles for ERA 57 (Regulated waste transport)?	☐ Yes ☐ No
If yes, you do not need to submit this application form. You can update vehicle details online through Online Services or use the form *Details of regulated waste vehicles* (ESR/2015/1851).	
Is the amendment for the holder of the environmental authority to transfer all or part of the environmental authority to a person?	☐ Yes ☐ No
If yes, you cannot use this form. Please use the form *Request to transfer all or part of an environmental authority (prescribed environmentally relevant activities)* (ESR/2015/1718).	
Is the amendment for the surrender of an environmental authority?	☐ Yes ☐ No
If yes, you cannot use this form. Please use the form *Application to surrender an environmental authority for a prescribed ERA* (ESR/2015/1719).	

Section 5 – Checklist for resource activities Is the application to amend an EA for a resource activity?	☐ No – Go to next section
Is the amendment for a partial surrender of an environmental authority for a mining, geothermal or petroleum resource activity?	☐ Yes ☒ No
If yes, you cannot use this form. Please use the form *Application for surrender or partial surrender of an environmental authority (resource activity)* (ESR/2015/1751).	
Is the amendment for an EA that has a PRCP Schedule and approval of the amendment application would result in the EA to which the application relates being inconsistent with the relevant PRCP schedule?	☐ Yes ☒ No
If yes, you cannot use this form. The amendment to the EA must not be inconsistent with the PRCP Schedule otherwise you must apply to amend your PRCP Schedule. Please use the form *Application to amend a progressive rehabilitation and closure plan schedule (PRCP schedule) or joint PRCP schedule and environmental authority* (ESR/2019/4956).	

Section 6 – Major or minor amendment
Is the application for a major or minor amendment?

Your application is a minor amendment (condition conversion) if you want to convert all conditions of your environmental authority to the standard conditions for the environmentally relevant activities to which the environmental authority relates. By selecting this amendment type you are certifying that you have a complete and thorough understanding of, and can comply with, the ERA Standard (eligibility criteria and standard conditions).

For applications other than a minor amendment (condition conversion), the administering authority decides if an application is a minor amendment (threshold) or a major amendment and will send you a notice of the decision.

If the application is a major amendment, an assessment fee of 30% of the annual fee for your environmental authority is required to be paid. The assessment of your amendment application will not proceed until the assessment fee is paid.

No additional assessment fees apply if your application is determined to be a minor amendment.

By considering what type of amendment your application is likely to be, you will have a better idea of whether the assessment fee will be payable.

For further information see the guideline *Major and minor amendments* (ESR/2015/1684) and s223 of the EP Act. If you have questions regarding whether your amendment will be a minor or major amendment you are encouraged to arrange a pre-lodgement meeting with the administering authority. Only an indication can be given as to whether the proposed changes are likely to be a minor or major amendment, at a pre-lodgement meeting as this decision can only be made when the actual application is submitted.

☒ Major amendment

☐ Minor amendment (threshold)

☐ Minor amendment (condition conversion)
For minor amendment (condition conversion) go to Section 31 (Payment of fees).

For further information see the guideline on *Major and minor amendments* (ESR/2015/1684) and s223 of the EP Act. If you have questions regarding whether your amendment will be a minor or major amendment you are encouraged to arrange a pre-lodgement meeting with the administering authority. Only an indication can be given as to whether the proposed changes are likely to be a minor or major amendment, at a pre-lodgement meeting as this decision can only be made when the actual application is submitted.

Section 7 – Amendment options Complete this section for all applications, tick all that apply	
I would like to amend environmental authority:	☐ Activities – includes changes to threshold ☒ Conditions – includes conversion to standard conditions and variations ☐ Locations – removal/addition or activity locations

Section 8 – Development permits	
Is the activity a prescribed ERA?	☒ No – Go to next section ☐ Yes – Provide details below
Are there any development permits in effect or have any development applications been made under the *Planning Act 2016* to carry out the proposed amendment?	☐ No – Go to next section ☐ Yes – Provide details below

Provide a list of applicable development permits or applications below.

Development permit / application number	Development permit / application name	Assessment manager	Date of application or approval	Expiry date

☐ I HAVE ATTACHED ADDITIONAL DETAILS FOR THIS SECTION.

Section 9 – Amend activities

Do you wish to amend activities under the EA, including changes to threshold(s)?	☒ No – Go to next section ☐ Yes – Provide details below

Section 9.1 - Details of the ERA(s) to be removed.
Provide a list of all the ERAs that are to be removed from the EA and identify whether the ERA has commenced.

ERA number	Threshold	Name of ERA	Has the ERA commenced?
			☐ Yes ☐ No
			☐ Yes ☐ No
			☐ Yes ☐ No
			☐ Yes ☐ No
			☐ Yes ☐ No

☐ I HAVE ATTACHED DETAILS OF ADDITIONAL ERA(s) TO BE REMOVED.

Section 9.1.1 - Rehabilitation conditions Does the proposed amendment remove a prescribed ERA from the EA?	☐ No – Continue on below ☐ Yes – Continue on below
Does your EA contain any rehabilitation conditions that are applicable to the ERA(s) that are requested be removed from the EA?	☐ No – Go to section 9.2 ☐ Yes – Provide details below

A statement addressing compliance with environmental authority conditions is to be completed by, or on behalf of, the environmental authority holder. Attach a separate document to this application form which states the extent to which:

1. The ERAs being removed from the environmental authority have complied with each relevant condition of approval; and
2. The final rehabilitation report is accurate (include the date of the final rehabilitation report).

PROVIDE DETAILS OF THE DATE, METHOD AND EVIDENCE USED TO VERIFY COMPLIANCE:

PROVIDE DETAILS OF THE NAME, POSITION AND CONTACT NUMBER OF THE PERSON SIGNING THE STATEMENT:

DESCRIBE THE QUALIFICATIONS AND EXPERIENCE OF THE PERSON SIGNING THE STATEMENT:

☐ I HAVE ATTACHED THE REQUIRED STATEMENT ADDRESSING COMPLIANCE WITH CONDITIONS.

For guidance on what a rehabilitation report should contain you may use the final rehabilitation report template available at www.qld.gov.au using the publication number ESR/2015/1616 as a search term. Methods to verify compliance may include a desktop assessment of documentation, an interview with the landowner/holder or a field operator or a site inspection. Evidence used may include photographs, statements and other documents such as maps, plans, approvals, monitoring results etc.

Section 9.2 - Details of the ERA(s) to be added.
Provide details of which ERA(s) you wish to add. If the ERA has eligibility criteria and standard conditions[2], identify whether you can comply with them. Select "N/A" where there are no eligibility criteria and standard conditions for that ERA. If you cannot comply with all of the applicable standard conditions, select "no" and attach details of the standard conditions you cannot comply with.

ERA number	Threshold	Name of ERA	I can comply with the eligibility criteria	I can comply with all the standard conditions
			☐ Yes ☐ N/A ☐ No	☐ Yes ☐ No
			☐ Yes ☐ N/A ☐ No	☐ Yes ☐ No
			☐ Yes ☐ N/A ☐ No	☐ Yes ☐ No
			☐ Yes ☐ N/A ☐ No	☐ Yes ☐ No
			☐ Yes ☐ N/A ☐ No	☐ Yes ☐ No
			☐ Yes ☐ N/A ☐ No	☐ Yes ☐ No
			☐ Yes ☐ N/A ☐ No	☐ Yes ☐ No

☐ I HAVE ATTACHED DETAILS OF ADDITIONAL ERA(s) TO BE ADDED.
☐ I HAVE ATTACHED DETAILS OF THE STANDARD CONDITIONS THAT I CANNOT COMPLY WITH.

If you cannot comply with the eligibility criteria as a result of the proposed amendment, then an amendment to the relevant eligibility criteria condition will also be required. The department will only approve an amendment of the eligibility criteria condition if it is a result of factors beyond your control such as residential encroachment, rather than a change to the activity.

[2] ERAs with eligibility criteria and standard conditions are listed at: www.business.qld.gov.au (use the search term "eligibility criteria").

Section 10– Amend location(s)		
Will the area where the activity is conducted differ from the area currently designated in the existing environmental authority? (I.e.will the area where the activity is conducted increase or decrease?)		☒ No – Go to next section ☐ Yes – Provide details below
ERA number and threshold	Location (lot on plan(s), tenure(s) or mobile and temporary)	Add or remove

☐ I HAVE ATTACHED DETAILS OF ADDITIONAL LOCATIONS FOR THIS SECTION.

Section 10.1 - Rehabilitation conditions Does your EA contain any rehabilitation conditions that are applicable to the locations that are requested be removed from the EA?	☐ No – Go to next section ☐ Yes – Continue on below
Has a statement addressing compliance with EA rehabilitation conditions been attached as per section 9.1.1?	☐ No – Provide details below ☐ Yes – Go to next section

PROVIDE DETAILS OF THE DATE, METHOD AND EVIDENCE USED TO VERIFY COMPLIANCE:

PROVIDE DETAILS OF THE NAME, POSITION AND CONTACT NUMBER OF THE PERSON SIGNING THE STATEMENT:

DESCRIBE THE QUALIFICATIONS AND EXPERIENCE OF THE PERSON SIGNING THE STATEMENT:

☐ I HAVE ATTACHED THE REQUIRED STATEMENT ADDRESSING COMPLIANCE WITH CONDITIONS.

For guidance on what a rehabilitation report should contain you may use the final rehabilitation report template available at www.qld.gov.au using the publication number ESR/2015/1616 as a search term. Methods to verify compliance may include a desktop assessment of documentation, an interview with the landowner/holder or a field operator or a site inspection. Evidence used may include photographs, statements and other documents such as maps, plans, approvals, monitoring results etc.

Section 11 – Single integrated operation confirmation

Will the activities be undertaken as a single integrated operation?	☐ No – Go to next section ☒ Yes – Provide details below

PROVIDE DETAILS OF THE ERAS THAT WILL BE OPERATED AS A SINGLE INTEGRATED OPERATION AND SUPPORTING INFORMATION SHOWING THEY ARE A SINGLE INTEGRATED OPERATION:

Refer to Attachment 2 - Supporting Information

Single integrated operation occurs when all of the below criteria are met:

(a) the activities are carried out under the day-to-day management of a single responsible individual, for example, a site or operations manager;
(b) the activities are operationally interrelated;
(c) the activities are, or will be, carried out at one or more places; and
(d) the places where the activities are carried out are separated by distances short enough to make feasible the integrated day-to-day management of the activities.

Section 12 – Amend conditions

Do you wish to amend the condition(s) of the environmental authority?	☐ No – Go to next section ☒ Yes – Provide details below

Provide details of: (a) condition number(s); (b) proposed change; and (c) justification for the change.

Refer to Attachment 2 - Supporting Information

☒ I HAVE ATTACHED ADDITIONAL DETAILS FOR THIS SECTION.

If the activities were assessed as part of a coordinated project declared under the *State Development and Public Works Organisation Act 1971*, you are only able to amend Coordinator General conditions if the Coordinator General's evaluation report for the project has lapsed. If you are unsure if the Coordinator General's evaluation report has lapsed, contact the Department of State Development, Infrastructure, Local Government and Planning for more information.

Section 13 – Describe the proposed amendment
Provide a detailed description of your proposed amendment. Include justification of how your proposed amendment meets the criteria for a major or minor amendment and attach any supporting information to this application. If the amendment is to add or delete a location, tenure or activity, or to change the threshold of an activity, provide details below.
Refer to Attachment 2 - Supporting Information
☒ I HAVE ATTACHED ADDITIONAL DETAILS FOR THIS SECTION.

Section 14 – Describe the land that will be affected by the proposed amendment
Describe if the activity will be carried out within the existing designated areas of the environmental authority, a new area, or if the activity is mobile or temporary.
Refer to Attachment 2 - Supporting Information
☒ I HAVE ATTACHED ADDITIONAL DETAILS FOR THIS SECTION.

Section 15 – Compliance with any eligibility criteria	
Are there any eligibility criteria for the activity(s)?	☒ No - Go to next section ☐ Yes - Provide details below
State whether each relevant activity will, if the amendment is made, comply with any eligibility criteria for the activity.	
Include a declaration (below) that the above statement is correct	

I

(INSERT NAME, POSITON AND COMPANY NAME OF PERSON MAKING THE STATEMENT)

- make the statement by or for the holder of the environmental authority;
- confirm that, to the best of my knowledge, all information provided as part of this statement, including attachments, is true, correct and complete. I am aware that it is an offence under section 480 and 480A of the *Environmental Protection Act 1994*, to give the administering authority information that I know is false, misleading or incomplete;
- confirm that, to the best of my knowledge, this statement, including attachments, does not include false, misleading or incomplete information;
- confirm that, to the best of my knowledge, I have not knowingly failed to reveal any relevant information or document to the administering authority;
- confirm that, to the best of my knowledge, all information provided in this statement, including attachments, address the relevant matters and are factually correct;
- confirm that the opinions expressed in this statement, including attachments, are honestly and reasonably held; and
- understand that all information supplied as part of this statement, including attachments, can be disclosed publicly in accordance with the *Right to Information Act 2009* and the *Evidence Act 1977*.

SIGNATURE	DATE

Only a person with appropriate environmental expertise and/or experience in planning and executing site operations should sign this statement. This person may be the environmental authority holder, a full time employee of the environmental authority holder or a consultant to the environmental authority holder.

Section 16 – Environmental offsets

Will the ERA(s) being applied for cause, or be likely to cause, a significant residual impact to a prescribed environmental matter (other than a matter of local environmental significance)?	☒ No - Go to next section ☐ Yes - Provide details below

☐ Yes - Attach supporting information that:

- 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;
- demonstrates that all reasonable measures to avoid and minimise impacts on each of those matters will be undertaken;
- includes a notice of election, if it has not already been submitted; and
- if the activity is to be staged, details of how the activity is proposed to be staged.

An environmental offset 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 a 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 State Significant Impact Guideline at the Queensland Government website, at: www.qld.gov.au/environment/pollution/management/offsets/index.html.

Section 17 – Regional interest areas

Is the activity a resource activity located anywhere within an area of regional interest?	☒ No - Go to next section ☐ Yes - Provide details below

If yes - Which area of regional interest, has or will require a regional interest development approval (RIDA)?

- ☐ Priority agricultural areas (PAAs)
- ☐ Priority living areas (PLAs)
- ☐ Strategic environmental areas (SEAs)
- ☐ Strategic cropping area (SCA)
- ☐ No RIDA required, I am an exempt activity.

If you have applied or been approved for a RIDA, provide the application reference:	

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 State Development, Infrastructure, Local Government and Planning website at www.statedevelopment.qld.gov.au.

Section 18 – Matters of national environmental significance	
Would the carrying out of the proposed ERA, or where relevant the ERA project, be likely to have a significant impact on any matters of national environmental significance?	☒ No - Go to next section ☐ Yes - Provide details below
Has the proposal been referred to the Federal Government Environment Minister or a delegate for formal assessment and approval?	☐ No - Go to next section ☐ Yes - Provide details below
If Yes - Has an approval issued under the *Environmental Protection and Biodiversity Conservation Act 1999* (EPBC Act) required an environmental offset for the same, or substantially the same, impact and the same, or substantially the same, matters of national environmental significance?	☐ No - Go to next section ☐ Yes - Provide details below
If Yes - Are there any matters of national environmental significance which are assessed under the EPBC Act which are the same, or substantially the same as any matters of national environmental significance, but that were not conditioned in the approval?	☐ No - Go to next section ☐ Yes - Provide details below

☐ I HAVE ATTACHED DETAILS OF MATTERS OF NATIONAL ENVIRONMENTAL SIGNIFICANCE.
☐ I HAVE ATTACHED A COPY OF THE EPBC ACT APPROVAL.

There are currently nine matters of national environmental significance (MNES) which have been defined in the *Environmental Protection and Biodiversity Conservation Act 1999 (Cth)*. To determine whether the proposed ERA(s) 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 on www.australia.gov.au and www.environment.gov.au.

Section 19 – ANZSIC code	
Is the activity a resource activity?	☐ No - Go to next section ☒ Yes - Provide details below

Provide the ANZSIC code for the resource activity.

- ☐ 1101 Black coal mining
- ☐ 1102 Brown Coal Mining
- ☐ 1311 Iron ore mining
- ☐ 1312 Bauxite mining
- ☐ 1317 Silver-lead-zinc ore mining
- ☒ 1200 Oil and gas extraction
- ☐ Other (provide details): _____
- ☐ 1313 Copper ore mining
- ☐ 1314 Gold ore mining
- ☐ 1315 Mineral sand mining
- ☐ 1316 Nickel ore mining
- ☐ 1319 Metal ore mining (other metallic mineral ores)

The Australian and New Zealand Industrial Classification (ANZSIC) is used by the Australian Bureau of Statistics. It is required to be displayed in the public register.

Section 20 – Environmental impact statement (EIS)*	
Is the activity a resource activity?	☐ No - Go to next section ☒ Yes - Provide details below
Has an application been made for a decision on whether an EIS would be required for the proposed amendment activity?	☒ No ☐ Yes
Has a decision been made on the application on whether an EIS would be required for the proposed amendment activity?	☐ Yes, a decision was made that an EIS is required – Attach decision. ☐ Yes, a decision was made that an EIS is **not** required – Attach decision. ☐ No, a decision has not yet been made. ☒ NA – No application has been made.
☐ I HAVE ATTACHED THE DECISION.	
Has an environmental impact statement (EIS) process that includes the proposed amendment been completed?	☒ No - Go to next section ☐ Yes - Provide details below
If yes – I have assessed the environmental risks of the proposed amendment and consider them to be: ☐ The same as was assessed in the EIS ☐ Different to what was assessed in the EIS	
☐ I HAVE ATTACHED THE ASSESSMENT OF THE ENVIRONMENTAL RISKS OF THE PROPOSED AMENDMENT.	
* EIS in section 20 question refers to both the EIS process under the *Evironmental Protection Act 1994* and the EIS process under the *State Development and Public Works Organisation Act 1971*. * For further information about the EIS process is available at www.qld.gov.au, using the search term 'environmental impact statements'.	

Section 21 – Environmental impact statement triggers*	
Is the activity a resource activity?	☐ No - Go to next section ☒ Yes - Provide details below
Is the proposed ERA amendment for an increase in the annual extraction of more than 100% or 5 million tonnes per year (whichever is the lesser)? *NOTE: Only answer this question if the current ERA project is for an existing mine extracting between 2–10 million tonnes per year of run of mine (ROM) ore or coal; otherwise select N/A.*	☐ Yes ☐ No ☒ N/A
Is the proposed ERA amendment for an increase in annual extraction of more than 10% or 10 million tonnes per year (whichever is the lesser)? *NOTE: Only answer this question if the current ERA project is for an existing mine extracting over 10 million tonnes per year of ROM ore or coal; otherwise select N/A.*	☐ Yes ☐ No ☒ N/A
Is the proposed ERA amendment for an increase in annual extraction of greater than 25%? *NOTE: Only answer this question if the current ERA project is for an existing mine extracting over 20 million tonnes per year of ROM ore or coal extraction; otherwise select N/A.*	☐ Yes ☐ No ☒ N/A
Is the proposed ERA amendment for a mining activity that will extend into a Category A or B environmentally sensitive area, unless previously authorised by the state? *NOTE: Only answer this question if the activity is a mining activity; otherwise select N/A.*	☐ Yes ☐ No ☒ N/A

Is the proposed ERA amendment for a mining activity that would involve a substantial change in mining operations? For example: from underground to open cut, or (for underground mining) a change in operations that currently causes little subsidence but with the proposed ERA amendment, is likely to cause substantial subsidence?	☐ Yes ☐ No ☒ N/A
Is the proposed ERA amendment for a mining activity and a novel or unproven resource extraction process, technology or activity, is being proposed? *NOTE: Only answer this question if the activity is a mining activity; otherwise select N/A.*	☐ Yes ☐ No ☒ N/A
Is the proposed ERA amendment for a petroleum and gas activity that is likely to have a total disturbance area of greater than 2,000 hectares at any one 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? *NOTE: Only answer this question if the activity is a petroleum and gas activity; otherwise select N/A.*	☐ Yes ☒ No ☐ N/A
Is the proposed ERA amendment 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? *NOTE: Only answer this question if the activity is a petroleum and gas activity; otherwise select N/A.*	☐ Yes ☒ No ☐ N/A
Is the proposed ERA amendment for a petroleum and gas activity that is likely to involve the construction of a liquefied natural gas plant? *NOTE: Only answer this question if the activity is a petroleum and gas activity; otherwise select N/A.*	☐ Yes ☒ No ☐ N/A

☐ I HAVE ATTACHED DETAILS OF HOW THE CRITERION IS TRIGGERED INCLUDING DETAILS OF THE IMPACT.

* EIS in section 21 question refers to both the EIS process under the *Evironmental Protection Act 1994* and the EIS process under the *State Development and Public Works Organisation Act 1971*.

* There are numerous criteria used to make the EIS decision, for further information about the EIS process is available at www.qld.gov.au, using the search term 'environmental impact statements'.

Section 22 – Environmental values

Attach a document that provides an assessment of the likely impact of the proposed amendment on environmental values (EVs). Note: All fields below are mandatory, therefore a statement is required where there are no likely impacts to an EV.

Environmental Values

☒ Water	☒ Wetlands	☒ Land use	☒ Acoustic
☒ Groundwater	☒ Land	☒ Air	☒ Waste

☒ I HAVE ATTACHED A DOCUMENT THAT PROVIDES AN ASSESSMENT OF LIKELY IMPACTS ON EVs.

Note that the EP Act, s226A(1)(f) states the information required relating to impacts on EVs which include:

(i) a description of the environmental values likely to be affected by the proposed amendment; and
(ii) details of any emissions or releases likely to be generated by the proposed amendment; and
(iii) a description of the risk and likely magnitude of impacts on the environmental values; and
(iv) details of the management practices proposed to be implemented to prevent or minimise adverse impacts; and
(v) if a PRCP schedule does not apply for each relevant activity - details of how the land the subject of the application will be rehabilitated after each relevant activity ceases.

Section 23 – Waste
Attach a document that provides details of the proposed measures for minimising and managing waste generated by any amendment(s) to the relevant activity.
☒ I have attached a document that provides the required information; or ☐ If waste is to be managed according to an existing waste management plan, provide the name of the plan and the relevant page or section numbers below: ____

Section 24 – Coal seam gas (CSG) activities	
Does the application relate to an environmental authority for a CSG activity that is an ineligible ERA?	☒ No - Go to next section ☐ Yes - Provide details below
Does the amendment change the way that CSG water is managed?	☐ No - Go to next section ☐ Yes - Provide details below

If the amendment will change the way that CSG water is managed the following information must be provided with this application.

☐	The quantity of CSG water the applicant reasonably expects will be generated in connection with carrying out each relevant CSG activity.
☐	The flow rate at which the applicant reasonably expects the water will be generated.
☐	The quality of the water, including changes in the water quality the applicant reasonably expects will happen while each relevant CSG activity is carried out.
☐	The proposed management of water including, for example, the use, treatment, storage and disposal of the water.
☐	The measurable criteria ('management criteria') against which the applicant will monitor and assess the effectiveness of the management of the water, including, for example, criteria for each of the following: (i) the quantity and quality of the water used, treated, stored or disposed of; (ii) protection of the environmental values affected by each relevant CSG activity; and (iii) the disposal of waste, including, for example, salt, generated for the management of the water.
☐	The action proposed to be taken if any of the management criteria are not complied with, to ensure that the criteria will be able to be complied with in the future.
☐	If the application includes a CSG evaporation dam, an evaluation of the following must be provided: (i) best practice environmental management for managing CSG water; (ii) alternative ways for managing CSG water; and (iii) whether there is a feasible alternative to a CSG evaporation dam for managing the water. Note if the evaluation shows that there is a feasible alternative option, the CSG evaporation dam cannot form part of the water management for this amendment application.
☐	I HAVE ATTACHED A DOCUMENT THAT PROVIDES THE REQUIRED INFORMATION FOR THIS SECTION.

Section 25 – Underground water rights	
Is the activity a resource activity?	☐ No - Go to next section ☒ Yes - Provide details below
Is the activity proposed to be undertaken on a mineral development licence (MDL), mining lease (ML) or petroleum lease (PL)?	☒ No - Go to next section ☐ Yes - Provide details below
Does the proposed amendment involve changes to the exercise of underground water rights?	☐ No - Go to next section ☐ Yes - Provide details below

☐ I have attached a document that details:

a) The areas in which underground water rights are proposed to be exercised;

b) For each aquifer affected, or likely to be affected, by the exercise of underground water rights:
   a. a description of the aquifer;
   b. an analysis of the movement of underground water to and from the aquifer, including how the aquifer interacts with other aquifers and surface water and
   c. a description of the area of the aquifer where the water level is predicted to decline because of the exercise of underground water rights; and.
   d. the predicted quantities of water to be taken or interfered with because of the exercise of underground water rights during the period in which resource activities are carried out.

c) The environmental values that will, or may, be affected by the exercise of underground water rights and the nature and extent of the impacts on the environmental values;

d) Any impacts on the quality of groundwater that will, or may happen because of the exercise of underground water rights during or after the period in which resource activities are carried out; and

e) Strategies for avoiding, mitigating or managing the predicted impacts on the environmental values of the impacts on the quality of groundwater.

For more information about exercising underground water rights or the associated requirements refer to the guideline *Requirements for site-specific and amendment applications - underground water rights* (ESR/2016/3275)

Section 26 – Financial assurance / estimated rehabilitation cost	
Do you currently have financial assurance or scheme assurance held for the approved environmental authority?	☐ No – Go to next section ☒ Yes – Provide details below

☐ I will not need to change the financial assurance or scheme assurance in relation to this amendment.

☐ I will be changing the financial assurance and have attached the form *Application to amend or discharge financial assurance held for an environmental authority* (ESR/2015/1752).

☒ I will be applying for a new estimated rehabilitation cost decision if this amendment application is approved.

Section 27 – Environmental protection orders or site management plan	
Is this land currently subject to an environmental protection order (EPO) or a site management plan (SMP)?	☒ No – Go to next section ☐ Yes (EPO) - provide details below ☐ Yes (SMP) - provide details below
PROVIDE THE REFERENCE NUMBER AND BRIEF DETAILS INCLUDING: DESCRIPTION OF LAND; LOT AND PLAN NUMBERS; AND LOCAL GOVERNMENT AREA.	

Section 28 – Environmental management register	
Is any part of the land currently recorded in, or has previously been removed from, the environmental management register?	☐ No – Go to next section ☐ Yes – Provide details below
☐ The land is currently in the environmental management register. ☐ The land has been removed from the environmental management register. You must attach evidence (e.g. Notice) advising that the details have been removed.	

Section 29 - Website address		
Is the application for a mining activity on a mining lease, or a geothermal, petroleum, or greenhouse gas storage activity?	☐ No – Go to next section ☒ Yes – Provide details below	
Provide the website address for the application notice and application documents.	https://www.santos.com/about-us/corporate-governance/public-notices/	
Provide details of the contact person if technical assistance is required.	NAME Bennett Warren	TELEPHONE 07 3838 5830
	EMAIL Bennett.Warren@santos.com	

Section 30 – Site contact	
Would you like to nominate a site contact?	☒ No – Go to next section ☐ Yes – Provide details below
SITE CONTACT NAME	POSITION
EMAIL	TELEPHONE
☐ INDICATE IF YOU WANT THE SITE CONTACT TO RECEIVE CORRESPONDENCE VIA EMAIL	
A site contact is an alternative contact nominated by the legal entity which holds, or will in future hold, a relevant authority issued by the department. The department may direct correspondence relating to actual or potential compliance matters to the site contact.	

Section 31 – Payment of fees	
Application fee:	$ 355
Cheque or money order payments	
☐ Payment by cheque or money order made payable to the Department of Environment and Science (attached).	
☐ Payment by cheque or money order made payable to the Department of Agriculture and Fisheries (attached).	
Credit card payments	
☒ For credit card payments for applications to the Department of Environment and Science please lodge the application using Online Services at https://business.qld.gov.au/running-business/environment/online-services.	
☐ For credit card payments for applications relating to the Department of Agriculture and Fisheries please contact me (the applicant) for secure payment; Phone number: Insert phone no.	

An application fee is payable at the time the application is made. Information on the fee can be located in the information sheet *Fees for permits for environmentally relevant activities (ERAs)* (ESR/2015/1721). Where the proposed amendment is determined by the administering authority to be a major amendment, an assessment fee of 30% of the annual fee for the authority at the time of application, is also payable. The assessment fee is payable once notification of the assessment level decision is issued. The assessment fee must be paid before the assessment of the amendment application can proceed.

The supplementary annual fee is payable where the amendment is approved and results in the aggregate environmental score (and hence the annual fee) for the EA increasing. The supplementary annual fee is a pro-rata adjustment to the annual fee for the period from when the amended EA takes effect to the next anniversary day for the EA. This is payable within 20 business days after the approval date. The supplementary annual fee can be calculated using the *Fee calculator* (ESR/2015/1731).

Section 32 – Declaration

Note: If you have not told the truth in this application you may be prosecuted.

I declare that:

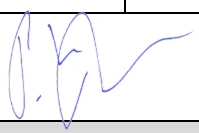
- I am the holder of the environmental authority, or authorised signatory for the holder of the environmental authority.
- If the proposed amendment is made, the relevant activities will continue to comply with the ERA Standard (eligibility criteria and standard conditions) for all eligible ERAs, or where they cannot comply, I have indicated otherwise in my application and provided the required supporting information.
- If the proposed amendment is a minor amendment (condition conversion), I can comply with the ERA Standard (eligibility criteria and standard conditions) for each of the ERAs authorised by the environmental authority.
- The information provided is true and correct to the best of my knowledge. I understand that it is an offence under section 480 and 480A of *the Environmental Protection Act 1994* to give the administering authority or an authorised person a document containing information that I know is false, misleading or incomplete in a material particular.

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 management practices proposed or implemented.

Where an agreement is in place between all holders of the environmental authority, one holder can sign on behalf of the other joint holders. Please tick the checkbox below.

☒ I HAVE AUTHORITY TO SIGN THIS FORM ON BEHALF OF ALL THE JOINT HOLDERS OF THE ENVIRONMENTAL AUTHORITY.

Applicant's signature

APPLICANT'S NAME	POSITION	COMPANY / ORGANISATION
Paul Wybrew	HSER Manager - Onshore	Santos CSG Pty Ltd
APPLICANT'S SIGNATURE 		DATE 29/05/2023

Joint holder(s) signature if applicable

NAME, POSITION AND COMPANY NAME	SIGNATURE	DATE
NAME, POSITION AND COMPANY NAME	SIGNATURE	DATE
NAME, POSITION AND COMPANY NAME	SIGNATURE	DATE

OR ☐ I HAVE ATTACHED A DOCUMENT THAT PROVIDES THE REQUIRED INFORMATION FOR ALL JOINT HOLDERS.

Where the environmental authority holder is a company, this form must be signed by an authorised person for that company. Where there is more than one holder of the environmental authority, this declaration is to be signed by all holders, unless there is an agreement between all holders that one can sign on behalf of the other(s).

Section 33 - Submission

Please submit your completed application to:

For ERA 2, ERA 3 or ERA 4:

Post:
Senior Environmental Scientist
Animal Industries
Department of Agriculture and Fisheries
PO Box 102
TOOWOOMBA QLD 4350

Enquiries
Phone: (07) 4688 1374
Fax: (07) 4529 4192
Email: livestockregulator@daf.qld.gov.au

For a mining ERA where the proposed amendment impacts upon the resource tenure:

Enquiries
Mining Registrar
Department of Resources
The Department of Resources has a list of office locations for mining registrars on its website www.resources.qld.gov.au/.

For all other ERAs:

Post:
Permit and Licence Management
Department of Environment and Science
GPO Box 2454
BRISBANE QLD 4001

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

The latest version of this publication and other publications referenced in this document can be found at **www.qld.gov.au** using the relevant publication number (ESR/2015/1733 for this form) or title as a search term.

Section 34 - Definitions to terms used in this form	
(Where there is inconsistency between the definition of terms used here and the terms used in the EP Act, the terms in the EP Act apply)	
Condition conversion	For an environmental authority, means an amendment replacing all the conditions of the authority with the standard conditions for the environmentally relevant activity which the authority relates. The relevant eligibility criteria and standard conditions must be able to be met.
Eligibility criteria	For an environmentally relevant activity, means eligibility criteria that are in effect for the activity under – (a) An ERA standard; or (b) A code of environmental compliance; or (c) A regulation in respect of a mining activity.
Environmentally relevant activity (ERA)	A resource activity or a prescribed ERA.
ERA project	A prescribed ERA project or a resource project.
ERA standard	For an environmentally relevant activity, means the eligibility criteria and/ or the standard conditions set by the administering authority.
Major amendment	For an environmental authority, means an amendment that is not a minor amendment.
Material change of use of premises for an ERA	A category of assessable development requiring a development permit under the *Planning Act 2016*. Refer Schedule 10, Division 2, Item 8 of the Planning Regulation 2017.
Minor amendment	For an environmental authority, means an amendment that is – (a) a condition conversion; or (b) a minor amendment (threshold).
Minor amendment (threshold)	For an environmental authority, means an amendment that the administering authority is satisfied— (a) is not a change to a condition identified in the authority as a standard condition, other than— (i) a change that is a condition conversion; or (ii) a change that is not a condition conversion but that replaces a standard condition of the authority with a standard condition for the environmentally relevant activity to which the authority relates; and (b) does not significantly increase the level of environmental harm caused by the relevant activity; and

	(c) does not change any rehabilitation objectives stated in the authority in a way likely to result in significantly different impacts on environmental values than the impacts previously permitted under the authority; and (d) does not significantly increase the scale or intensity of the relevant activity; and (e) does not relate to a new relevant resource tenure for the authority that is— (i) a new mining lease; or (ii) a new petroleum lease; or (iii) a new geothermal lease under the Geothermal Energy Act; or (iv) a new GHG injection and storage lease under the GHG storage Act; and (f) involves an addition to the surface area for the relevant activity of no more than 10% of the existing area; and (g) for an environmental authority for a petroleum activity— (i) if the amendment involves constructing a new pipeline—the new pipeline does not exceed 150km; and (ii) if the amendment involves extending an existing pipeline—the extension does not exceed 10% of the existing length of the pipeline; and (h) if the amendment relates to a new relevant resource tenure for the authority that is an exploration permit or GHG permit—the amendment application under section 224 seeks an amended environmental authority that is subject to the standard conditions for the relevant activity or authority, to the extent it relates to the permit.
Mobile and temporary ERA	A prescribed ERA, other than an activity that is dredging material, extracting rock or other material, or the incinerating of waste: (a) carried out at various locations using transportable plant or equipment, including a vehicle (b) that does not result in the building of any permanent structures or any physical change of the landform at the locations (other than minor alterations solely necessary for access and setup including, for example, access ways, footings and temporary storage areas) (c) carried out at any one of the locations: (i) for less than 28 days in a calendar year, or (ii) for 28 or more days in a calendar year only if the activity is necessarily associated with, and is exclusively used in, the construction or demolition phase of a project.
Prescribed ERA	An environmentally relevant activity that is not a resource activity and is prescribed under section 19 of the EP Act.
Prescribed ERA project	All prescribed ERAs carried out, or proposed to be carried out, as a single integrated operation.

Registered suitable operator	A person who, or a corporation which, under section 318I of the EP Act has been assessed as being suitable to carry out an ERA and has been listed on the suitable operator register.
Resource activity	An activity that is any of the following: (a) a geothermal activity (b) a greenhouse gas (GHG) storage activity (c) a mining activity (d) a petroleum activity.
Resource project	Resource activities carried out, or proposed to be carried out, under 1 or more resource tenures, in any combination, as a single integrated operation.
Single integrated operation	Occurs when all of the below criteria are met: (a) the activities are carried out under the day-to-day management of a single responsible individual, for example, a site or operations manager; (b) the activities are operationally interrelated; (c) the activities are, or will be, carried out at one or more places; and (d) the places where the activities are carried out are separated by distances short enough to make feasible the integrated day-to-day management of the activities.
Underground water rights	Means any of the following: (a) underground water rights within the meaning of the *Mineral Resources Act 1989*; (b) underground water rights within the meaning of the *Petroleum and Gas (Production and Safety) Act 2004*; (c) underground water rights within the meaning of the *Petroleum Act 1923*, section 87(3).

Attachment 2 – Supporting Information

Santos

Attachment 2

Supporting Information for an EA Amendment Application

Roma Backbone Project EA (EPPG04323316)

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Abbreviations and Units

Acronym	Description
CSG	Coal Seam Gas
DES	Department of Environment and Science, Queensland
DoR	Department of Resources
EA	Environmental Authority
EO Act	*Environmental Offset Act 2014*
EO Reg	*Environmental Offset Regulation 2014*
EP Act	*Environmental Protection Act 1994*
EPBC	*Environmental Protection Biodiversity Conservation Act*
EP Regulation	*Environmental Protection Regulation 2019*
EPC	Exploration Permit Coal
EPP	Environmental Protection Policy
ESA	Environmentally Sensitive Area
GES	General Ecological Significance
GHG	Greenhouse Gas
GLNG	Gladstone Liquified Natural Gas
GTP	Gas Transmission Pipeline
HES	High Ecological Significance
LRA	Land Resource Area
ML	Mega Litre
MNES	Matter of National Environmental Significance
MSES	Matter of State Environmental Significance
NC Act	*Nature Conservation Act 1992*
PL	Petroleum Lease
PPL	Petroleum Pipeline Licence
PPZ	Primary Protection Zone
RE	Regional Ecosystem
RoW	Right of Way
RSGPA	Roma Shallow Gas Project Area
RSGPAE	Roma Shallow Gas Project Area East
TIP	Tie In Point
TJ	Terajoule
TWA	Temporary Work Area
VM	*Vegetation Management Act 1999*

1.0 Introduction

Santos CSG Pty Ltd (Santos), on behalf of its joint venture partners (PAPL (Upstream) Pty Limited, Total E&P Australia, KGLNG E&P Pty Ltd and Total E&P Australia II) is seeking to amend the Roma Backbone Environmental Authority (EA) EPPG04323316 in relation to Petroleum Pipeline Licences (PPLs) 2021 and 2061.

Pursuant to Section 224 of the *Environmental Protection Act 1994* (EP Act), a holder of an EA may make an application to the assessing authority seeking an amendment to an EA. Santos has prepared this document in accordance with Sections 226 and 227 of the EP Act and considered the Department of Environment and Science (DES) Guideline *Application requirements for petroleum activities* (DEHP, 2013).

Santos considers the proposed amendment satisfies all requirements of the definition of a major amendment in accordance with Section 223 of the EP Act (refer to Section 7.1.4).

2.0 Application Description

2.1 Background

EPPG04323316 was granted 11th November 2016 to authorise construction and operation of the Roma East Gas Pipeline (PPL 2020) and the Roma East Water Pipeline (PPL 2021). These pipeline alignments also contain co-located power and communications infrastructure in the form of overhead power lines and fibre optic cabling, respectively.

The abovementioned pipelines and co-located infrastructure are collectively referred to as the "Roma Backbone" because they provide key linear transmission infrastructure for the Roma, Roma East project areas and other Santos project areas in the region.

The Roma Backbone is used to transport produced gas and water (and electricity and communications) from the Roma East Project Area East (RSGPAE) (authorised under EA EPPG00662213) to gas and water management facilities located at the Roma Hub (R-HCS-02).

R-HCS-02 is located on Petroleum Lease (PL) 314 in the Roma Shallow Gas Project Area (RSGPA) (authorised under EA EPPG00898213).

Figure 1 provides an overview of the Roma Backbone Project area and existing infrastructure locations.

The Roma Backbone EA (EPPG04323316) has been amended on several occasions for the following purposes:

- refinement of the Roma East Gas Pipeline (PPL 2020) and Water Pipeline (PPL 2021) alignments, and authorisation of temporary pipeline construction work areas;
- replacement of the original Category C Environmentally Sensitive Area (ESA) definition with the revised Streamlined Model Condition (SMC) definition (Amendment by Agreement);
- transfer of the existing Summerhill's Compression Station (R-NCS-01) and Angry Jungle regulated dam from the RSGPAE EA (EPPG00662213) to the Backbone EA to ensure consistent commercial ownership arrangements; and
- authorisation of new gas and water pipelines (Maisey East Gas and Water Pipelines) to facilitate transport and treatment of water associated with gas production from PL1021; and
- addition of PPL 2061 to authorise the abovementioned Maisey East Gas and Water Pipelines (Amendment by Agreement).

Further, ongoing gas field development activities in RSGPA and RSGPAE and other surrounding project areas will require further amendments to the Roma Backbone EA. These amendments are required to authorise construction and operation of additional gas, water, power and communications infrastructure to support new gas field development and associated supporting infrastructure.

This EA amendment is required to authorise proposed infrastructure and administrative changes in support of planned near term gas field development. Refer to Section 2.2 for further detail.

2.2 Description of the Proposed Amendments

This EA (EPPG04323316) amendment is seeking authorisation to construct and operate the following proposed infrastructure in relation to PPLs 2021 and 2061:

- produced water dam (PPL 2021) (refer to Section 2.2.1);
- water pipeline with co-located overhead power line and fibre optic cable (PPL 2021) (refer to Section 2.2.2); and
- high voltage power substation (PPL 2021) (refer to Section 2.2.3).
- produced water tank and water pipeline extension (PPL 2061) (refer to Section 2.2.4)

Further, this application seeks the following administrative amendments:

- update the disturbance area listed against regulated dams in '*Schedule A, Table 1 – Scale and Intensity for the Activities'* to correct an error in the disturbance area authorised for the existing Angry Jungle dam (refer to Section 2.2.5);
- removal of Condition B6 and Table 1 '*Significant residual impacts to prescribed environmental matters'* from Schedule B of the EA to ensure clarity and consistency with Section 15 of the *Environmental Offset Act 2014* (EO Act) (refer to Section 2.2.6); and
- consolidation of disturbance for 'gas pipeline' listed under PPL 2020 in Schedule A, Table 1 (refer to Section 2.2.7).

Further detail on the proposed amendments is provided in Section 2.2, and detail on specific changes to EA EPPG04323316 required to implement the amendments is provided in Section 3.0.

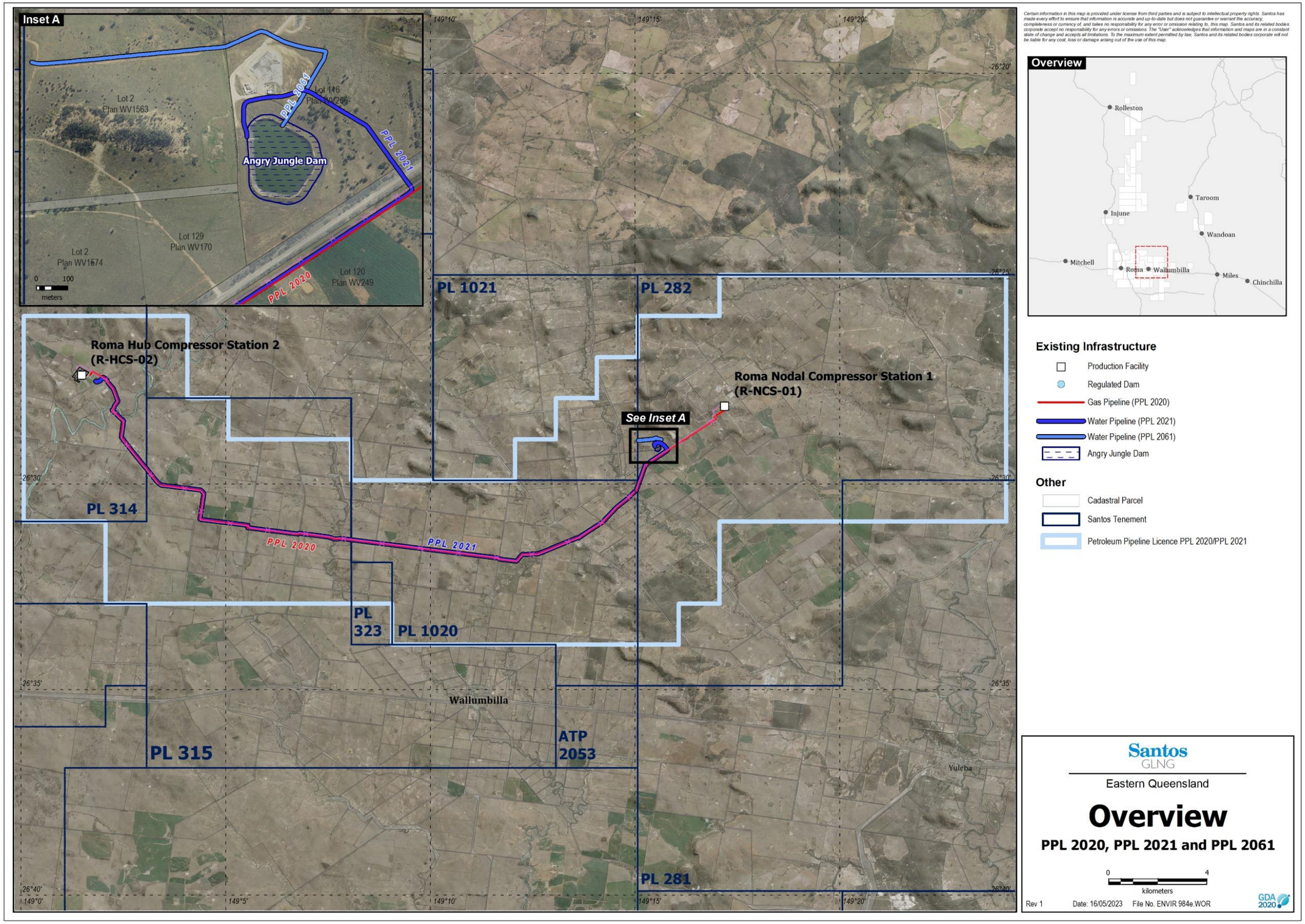

Figure 1: Overview Map - Roma Backbone Project Area - Existing Infrastructure

2.2.1 Produced Water Dam

Santos is proposing to construct and operate a new produced water dam and pump station located on the Reuben Downs property (Lot-Plan 643 WV452). The dam will be referred to by Santos as the "Reuben Downs Produced Water Dam" (henceforth referred to as the 'dam'). Reuben Downs is a Santos joint venture owned property (GLNG Operations Pty Ltd) (refer to Figure 2).

The dam is required to temporarily store produced water on Reuben Downs before being transferred via a new proposed water pipeline (refer to Section 2.2.2), and the existing Roma East Water Pipeline (PPL 2021, EA EPPG04323316).

Water from the dam will be transferred to the existing Roma Hub Compressor Station 2 (R-HCS-02) (RSGPA EA EPPG00898213, PL 314) for blending / processing. Processed water from R-HCS-02 is ultimately used for approved purposes such as irrigation, construction, drilling, and dust suppression where it meets appropriate quality requirements. Authorisation of the Reuben Downs produced water dam will ensure a continuous, fit for purpose, water management system is available to support near term gas field development activities.

The dam will feature dual high-density polyethylene (HDPE) liners and incorporate seepage detection monitoring. The dam will be designed to contain a 60 to 100 megalitre (ML) volume, with final volume to be confirmed following detailed engineering design. Notwithstanding, this amendment application conservatively assumes a disturbance footprint of approximately 14 hectares (ha) to accommodate a 100 ML capacity dam and associated pump station. The pump station will be located immediately adjacent to the dam.

The dam and pump station have been positioned in accordance with existing EA conditions. The dam and pump station will be located within a pre-existing cleared area i.e., no new disturbance to remnant native vegetation will be required for this development.

The dam will be designed and constructed under the supervision of a suitably qualified and experienced person in accordance with the *Manual for Assessing Hazard Categories and Hydraulic Performance of Dams* (DES, 2016). The operation, monitoring and reporting of the dam's condition and adequacy for dam safety will be undertaken in accordance with relevant EA (EPPG04323316) conditions.

To ensure consistent commercial infrastructure ownership arrangements, Santos is seeking to explicitly authorise the proposed Reuben Downs Produced Water Dam and pump station under EA EPPG04323316 on PPL 2021.

Schedule 3, item 6 of the *Environmental Protection Regulation 2019* (EP Regulation) defines the Environmentally Relevant Activity (ERA) "*a petroleum activity carried out on a site containing a high hazard dam or a significant hazard dam"*. This ERA is an existing authorised activity on PPL 2021 under EA (EPPG04323316). Therefore, amendment of the EA to add this ERA is not required as part of this application.

2.2.2 Water Pipeline, Fibre Optic Cable and Overhead Power Line

Santos is proposing to construct and operate a new 12 km buried water pipeline (henceforth referred to as the 'pipeline'). The pipeline will be co-located with a 66 kV high voltage overhead power line (OHL) and buried fibre optic cable (FOC).

The proposed pipeline is required to connect the Reuben Downs Produced Water Dam to the Roma East Water Pipeline (PPL 2021). The pipeline will enable produced water to be ultimately transferred from the Reuben Downs Produced Water Dam to R-HCS-02 for blending / processing via the Roma East Water Pipeline (as described in Section 2.2.1).

The location of the water pipeline is displayed on Figure 2 and pipeline tie-in point locations are detailed in Table 3 (refer to Terminal Points 1 and 2). Preliminary water pipeline design specifications are detailed in Table 1. The pipeline will be constructed in accordance with Australian Standard (AS) 2885: *The Standard for Gas and Liquid Petroleum Pipelines*.

Further, Santos proposes to co-locate an OHL and FOC within the water pipeline construction Right of Way (RoW). The OHL and FOC are required to provide electricity and communications to the proposed Reuben Downs high voltage substation (refer to Section 2.2.3). The substation will distribute electricity to the Reuben Downs Produced Water Dam pump station and other associated facilities located on PLs 281 and 282. Figure 2 displays the locations of proposed infrastructure, and tie-in point locations are detailed in Table 3). The water pipeline, FOC and OHL will be co-located within a single construction RoW corridor not exceeding 42 m wide (refer to Figure 3). This RoW width will also ensure sufficient area is available to install appropriate erosion and sediment control structures i.e. at drainage feature crossings.

The only exception to the abovementioned 42m wide RoW width and co-location arrangement is the Kleins Road crossing area (refer to Figure 4). Due to Maranoa Regional Council (MRC) road crossing requirements, the crossing of Kleins Road will require the single construction RoW to be split into two separate RoWs, before returning to a single RoW following the road crossing (refer to Figure 4). The MRC requires buried pipeline crossings of council managed roads to be constructed at 90-degree angles (refer to Figure 4). Kleins road is an MRC managed road. There are also other minor roads and landholder tracks that intersect the Kleins Road crossing area, which further complicates infrastructure placement at this location (refer to Figure 4).

The construction of 90-degree bends in pipelines is typically avoided because they compromise co-location of linear infrastructure. In this case, the buried water pipeline and FOC can be installed at 90-degree angles to Kleins Road; however due to technical engineering constraints, the OHL must be offset and installed in a separate RoW at an approximate 45-degree angle across the road.

Sufficient areas must also be available to allow for power pole stay placement and installation. Power pole stays consist of steel wire attached to the power pole, which are anchored to the ground via a buried block that is offset from the power pole. These stays ensure the power poles stay upright. With reference to the inset map contained in Figure 4, the void in the southern section of the road crossing has been split into two areas to ensure power pole stays can be installed in the 10m wide area between the voids.

For the abovementioned reasons, pipeline construction at the Kleins Road crossing will require two separate RoWs not exceeding approximately 25m wide each. Santos will minimise disturbance to the greatest extent practicable at this location, and will retain undisturbed areas between the separate RoWs as displayed on Figure 4.

Santos preferentially co-locates all linear infrastructure in a single RoW, however in this circumstance Santos must also comply with MRC requirements. The abovementioned RoW width requirements

comply with existing construction corridor widths as authorised under EA EPPG04323316, *Schedule D, Planning for land disturbance*, Condition D2, *construction corridor must not exceed a total of 53m in width).*

Table 1: Proposed Water Pipeline - Preliminary Design Specifications

Pipeline Name	Product	Tenure	Length	Material	Diameter	MAOP (MPa)
Reuben Downs Produced Water Pipeline	Produced Formation Water	PPL 2021	12 km	HDPE	400 mm	1.3

MAOP (MPa) = Maximum allowable operating pressure in Megapascals.

Table 2: Proposed Infrastructure - Terminal Points

Terminal Points	Tenure	Name / Description	Coordinates (GDA 94)	Lot on Plan	Total Length
Point 1 (Start Point)	PPL 2021	Roma East Water Pipeline - Myalla tie in point	Longitude: 149°13'38.79" Latitude: -26°31'17.67"	75 WV1887	12 km
Point 2 (End Point)		Reuben Downs Produced Water Dam	Longitude: 149°17'57.35" Latitude: -26°35'12.51"	643 WV452	
Point 3 (Start Point)		Roma East Transmission Line - Myalla tie in point	Longitude: 149°13'39.8" Latitude: -26°31'18.05"	75 WV1887	
Point 4 (End Point)		Reuben Downs HV Power Substation	Longitude: 149°17'50.25" Latitude: -26°34'55.45"	643 WV1528	

Further, Santos minimises construction disturbance widths for linear infrastructure, and co-locates multiple services together wherever practicable e.g. Santos typically co-locates gas or water pipelines with communication and/or power lines in a single construction corridor. It is not in Santos' interest to locate or construct linear infrastructure corridors to cause excessive or unnecessary disturbance.

Increased disturbance areas result in the following:

- increased environmental exposure and risk e.g. erosion and sediment risks, and ongoing management requirements;
- increased transitional and final rehabilitation obligations;
- increased estimated rehabilitation costs payable to Government;
- consumption of disturbance limits as prescribed by the EA (Schedule B, condition B6, Table 1) and Commonwealth approvals; and
- increased potential biodiversity offset requirements.

The proposed construction RoW has been located to minimise disturbance to landholder property, sensitive vegetation and other environmental and cultural heritage factors wherever practicable, whilst maintaining the most direct route. Figure 2 displays the proposed construction RoW alignment. This RoW area has been utilised to assess potential impacts to environmental values for this EA amendment application. The proposed construction RoW will require minor disturbance to Environmentally Sensitive Areas (ESAs), Primary Protection Zones (PPZs) and Protected Wildlife Habitat, as further detailed in Section 6.2.

The proposed water pipeline (and co-located OHL / FOC) is considered to be '*gas field gathering infrastructure'* and is an authorised activity under existing RSGPA EA EPPG00898213 and RSGPAE EA EPPG00662213 conditions, respectively. However, due to inconsistent commercial ownership arrangements across the underlying Petroleum Leases, Santos is seeking to explicitly authorise the proposed water pipeline (and OHL / FOC) under EA EPPG04323316 on PPL 2021.

2.2.2.1 Pipeline Construction Activities

Pipeline, OHL and FOC construction will be undertaken in general accordance with the activity description provided in the original Roma Backbone Project EA application, and subsequent EA amendment applications as summarised below.

For reference, Figure 3 displays a typical 42m pipeline construction RoW cross section that will be utilised during construction activities (with exclusion of the Kleins Road crossing area as discussed in Section 2.2.2, which will require two smaller separate RoWs).

Clear and Grade Activities

Clear and grade activities will be carried out to provide a safe working area for vehicular movement, trenching and other construction activities. The RoW will be reduced in width proximal to environmental and engineering constraints wherever practicable.

Graders and bulldozers will be used to clear the RoW of vegetation, which will then be stockpiled and used for erosion and sediment control structures, and rehabilitation activities. Large mature trees will be preserved where practicable. Topsoil will be graded and stockpiled separately from subsoil.

Temporary Ancillary Infrastructure

Ancillary infrastructure such as temporary work areas (TWA's), laydown areas and temporary accommodation camps will be utilised to facilitate construction. TWA's will be utilised to temporarily store vehicles, machinery and construction materials, including laydown of sections of pipe and trench fill.

The TWA's associated with construction of the proposed activities will be located and operated in accordance with the underlying gas field tenure and their respective EAs, those being the RSGPA EA (EPPG00898213) and RSGPAE EA (EPPG00662213). TWA's will be located in existing disturbed areas or within the RoW itself where practicable, and as such will not require clearing of vegetation.

Construction Activities

After the RoW is cleared for construction, a trench will be dug for buried pipeline and co-located OHL / FOC installation using a trenching machine, and/or rock saws and excavators as required. The minimum practicable length of trench will be left open at any one time to reduce potential erosion, safety hazards, and fauna entrapment risk.

Where required, padding machines will be used to sift the excavated spoils to remove coarse materials in order to protect the pipe coating during the backfilling stages. The remaining fine material is used to pad beneath and on top of the buried pipe. Additional materials for padding are typically required in areas that have had significant amounts of rock removed during trenching.

Compaction of backfill and padding material will be undertaken where required to minimise subsidence effects. Pipeline integrity will be verified using hydrostatic testing (hydrotesting). Hydrostatic test water will be managed using existing facilities, low hazard / non-regulated dams or above ground tanks.

Ancillary pipeline infrastructure will be generally constructed within the pipeline RoW as required, including signage, fencing and valves.

Progressive Rehabilitation

Disturbed areas no longer required for construction will be progressively rehabilitated / stabilised as construction progresses. Rehabilitation of disturbed areas will include:

- contouring to match surrounding landforms;
- re-establishment of surface drainage lines;
- re-spreading of stockpiled topsoil and establishment of groundcover; and
- placement of cleared vegetation as required.

Pipeline Operation

Following reinstatement of the construction RoW site, very little above ground infrastructure will be visible. Above ground infrastructure other than the overhead powerlines, will be limited to signage and marker posts to identify the location of the pipeline, fencing and valves. A routine inspection and maintenance program will be implemented, which will include leak detection surveys, ground and area patrols and ongoing rehabilitation of disturbed areas.

Decommissioning

If no longer required, the pipeline will be purged of water and remain in-situ. However, if it is considered that the pipeline may offer some future benefit, it will be filled with an inert material and maintained to prevent degradation.

2.2.3 High Voltage Power Substation

Santos is proposing to construct and operate a high voltage power substation (HVPS) located on the Reuben Downs property (Lot-Plan 638 WV1528). The HVPS will be located immediately north of the proposed Reuben Downs Produced Water Dam in a pre-existing cleared area. Figure 2 displays the location of the HVPS. The proposed OHL and FOC will connect into the HVPS to provide electricity and communications to the site, respectively (refer to Section 2.2.2 for further detail).

The HVPS is required to convert and distribute HV electricity to higher or lower voltages according to the different power needs of ancillary equipment. Further, the HVPS will provide electricity to the proposed Reuben Downs Produced Water Dam pump station, and other associated facilities / infrastructure located on PLs 281 and 282.

The HVPS will be located on a pre-existing cleared and disturbed area i.e., no new disturbance to remnant native vegetation will be required for this development. The substation will require an area of approximately 3.75 ha or less and will be positioned in the northern half of the existing cleared area.

As per the proposed water pipeline discussed in Section 2.2.2, the HVPS is considered an authorised incidental activity under existing RSGPA EA EPPG00898213 and RSGPAE EA EPPG00662213 conditions, respectively. However, due to inconsistent commercial ownership arrangements across the underlying Petroleum Leases, Santos is seeking to explicitly authorise the proposed HVPS under EA EPPG04323316 on PPL 2021. Authorisation of the HVPS will ensure electricity is available to support near term gas field development activities and ancillary infrastructure.

2.2.4 Produced Water Tank and Water Pipeline Extension

Santos is proposing to construct and operate a new produced water tank and pump station located on the Broandah property (Lot-Plan 116 WV266) on a pre-existing cleared area adjacent to the Angry Jungle Dam. The tank will be referred to by Santos as the "Maisey Produced Water Tank" (henceforth referred to as the 'tank' below). Broandah is a Santos owned property (DOCE Pty Ltd) (refer to Figure 2).

The proposed tank is required to connect into the existing Maisey East Water Pipeline (PPL 2061), and temporarily store produced water generated from the Maisey Field (PL 1021). Produced water will be temporarily stored in the tank before ultimately being transferred via the Angry Jungle pump station into the existing Roma East Water Pipeline (PPL 2021, EA EPPG04323316). The produced water will ultimately be transferred to water treatment facilities located at the existing Roma Hub Compressor Station 2 (R-HCS-02) (RSGPA EA EPPG00898213, PL 314) for blending / processing (refer to Figure 2). Processed water from R-HCS-02 is ultimately used for approved purposes such as irrigation, construction, drilling, and dust suppression where it meets appropriate quality requirements.

Two minor sections of new water pipeline totalling approximately 400m will be required to connect the proposed tank into PPL 2061 and PPL 2021. The location of new sections of water pipeline are displayed on Figure 2 and pipeline tie-in point locations are detailed in Table 3. Terminal Points 5 and 6 are the existing pipeline start and end points, and Terminal Point 7 is where the new section of pipeline will tie into PPL 2021 via the Angry Jungle Dam pump station.

The proposed tank will feature a high-density polyethylene (HDPE) liner and incorporate a leak detection and capture system. The tank will be designed to contain a 25 to 50 megalitre (ML) volume, with final volume to be confirmed following detailed engineering design. Notwithstanding, this amendment application conservatively assumes a disturbance footprint of approximately 5 ha to accommodate a 50 ML capacity tank and associated pump station. The pump station will be located immediately adjacent to the tank. The tank and pump station have been positioned in accordance with existing EA conditions. The tank, pump station and additional sections of water pipeline will all be located within a pre-existing disturbed and cleared area (existing laydown pad) located immediately adjacent to the Angry Jungle Dam i.e., no new disturbance to remnant native vegetation will be required for this development.

To ensure consistent commercial infrastructure ownership arrangements, Santos is seeking to explicitly authorise the proposed tank, pump station and additional sections of water pipeline under EA EPPG04323316 on PPL 2061. Authorisation of the tank will ensure a continuous, fit for purpose, water management system is available to support current operations and near-term gas field development activities.

Table 3: Proposed Infrastructure - Terminal Points

Terminal Points	Tenure	Name / Description	Coordinates (GDA 94)	Lot on Plan	Total Length
Point 5	PPL 2061	Start Point - Maisey tie in point (sectioning valve)	Longitude: 149°15'4.81" Latitude: -26°28'55.91"	2 WV1563	1.6 km
Point 6		Old End Point – Water HDPE outlet Angry Jungle Dam.	Longitude: 149°15'33.11" Latitude: -26°29'3.02"		
Point 7		New End Point - Tie in point at Angry Jungle Dam Pump Station	Longitude: 149°15'29.19" Latitude: -26°29'4.91"		

2.2.5 Regulated Dam – Angry Jungle Dam

The Angry Jungle produced water dam (henceforth referred to as the 'dam') was originally authorised under the RSGPAE EA (EPPG00662213) 14th December 2012. The dam was then transferred to the Roma Backbone EA (EPPG04323316) 14th February 2018 due to a change in commercial ownership of the dam. The dam is located on the Broandah property (Lot-Plan 116 WV266), which is a Santos owned property (DOCE Pty Ltd) (refer to Figure 2).

This EA amendment application to transfer Angry Jungle dam onto EA EPPG04323316 incorrectly sought a disturbance area of 3.96 ha for inclusion in *Schedule A, Table 1 – Scale and Intensity for the Activities*. This disturbance area only accounted for the dam perimeter rather than the full extent of construction disturbance (i.e., the toe of the batter for the dam wall), which is 6 ha (as originally allowed for under the RSGPAE EA).

Accordingly, this EA amendment application seeks to amend the disturbance area listed against regulated dams in *Schedule A, Table 1 – Scale and Intensity for the Activities* of EA EPPG04323316 to include the correct disturbance area. No new disturbance will be authorised by this EA amendment as the dam is existing, and was previously authorised under the RSGPAE EA (EPPG00662213).

Please note, the correct disturbance area (6 ha) for the dam was provided in the current Annual Environmental Return for the Roma Backbone EA (EPPG04323316).

2.2.6 Schedule B, Condition B6 and Table 1

As discussed in Section 2.2, this application seeks to remove Condition B6 and Table 1 '*Significant residual impacts to prescribed environmental matters*' from Schedule B of the EA.

This is required to ensure consistency with Section 15 of the *Environmental Offset Act 2014*, which states the following:

Section 15 – Restriction on imposition of offset condition

1. An administering agency may impose an offset condition on an authority only if—
   (a) the same, or substantially the same, impact has not been assessed under a relevant Commonwealth Act; and
   (b) the same, or substantially the same, prescribed environmental matter has not been assessed under a relevant Commonwealth Act.

Condition B6 and Table 1 in Schedule B relate to disturbances and environmental offsets that were acquitted in their entirety under the *Commonwealth Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act).

More specifically, these offsets and associated disturbances were captured in the approved Federal offset plan under EPBC Act Approval 2008/4059 (CSG Fields) – that being the *Santos GLNG Offset Plan and Acquittal Summary: EPBC Act Approval 2008/4059 (Stage 1).* Federal offset plans are available at https://www.santos.com/about-us/corporate-governance/glng/.

Condition B6 and Table 1 were included in the Backbone EA due to the prevailing regulatory processes at the time (2017), however, this inclusion in the EA was not appropriate, and Condition B6 and Table 1 should be removed from the EA to ensure clarity and consistency with Section 15 of the EO Act.

2.2.7 Consolidation of disturbance for 'gas pipeline' listed under PPL 2020

For simplicity, Santos proposes to consolidate disturbance values for 'gas pipeline' listed under PPL 2020 in Schedule A, Table 1 – Scale and Intensity for the Activities, of the EA. Refer to Section 3.0 for further detail.

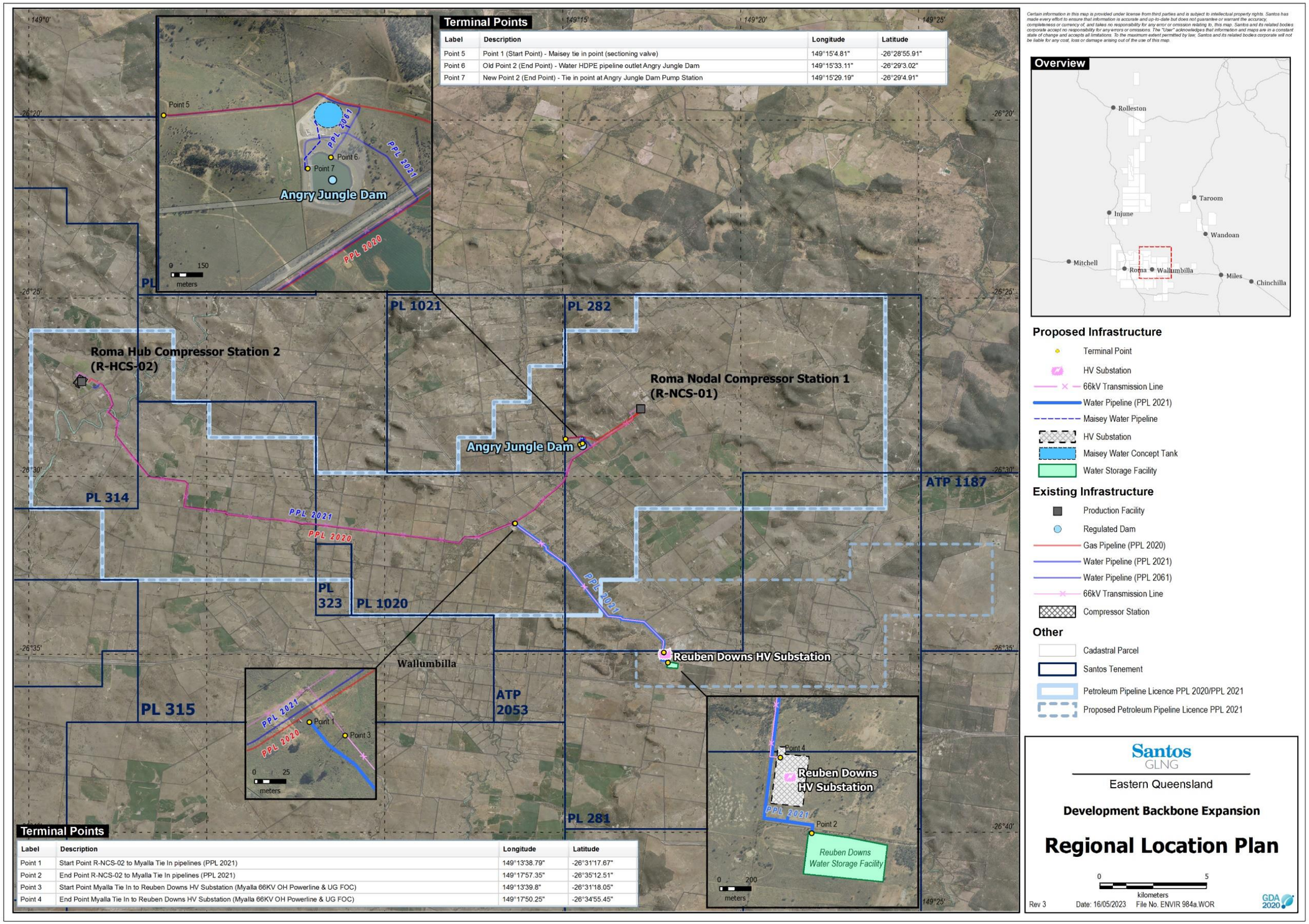

Figure 2: Overview Map - Roma Backbone Project Area – Existing and Proposed Infrastructure

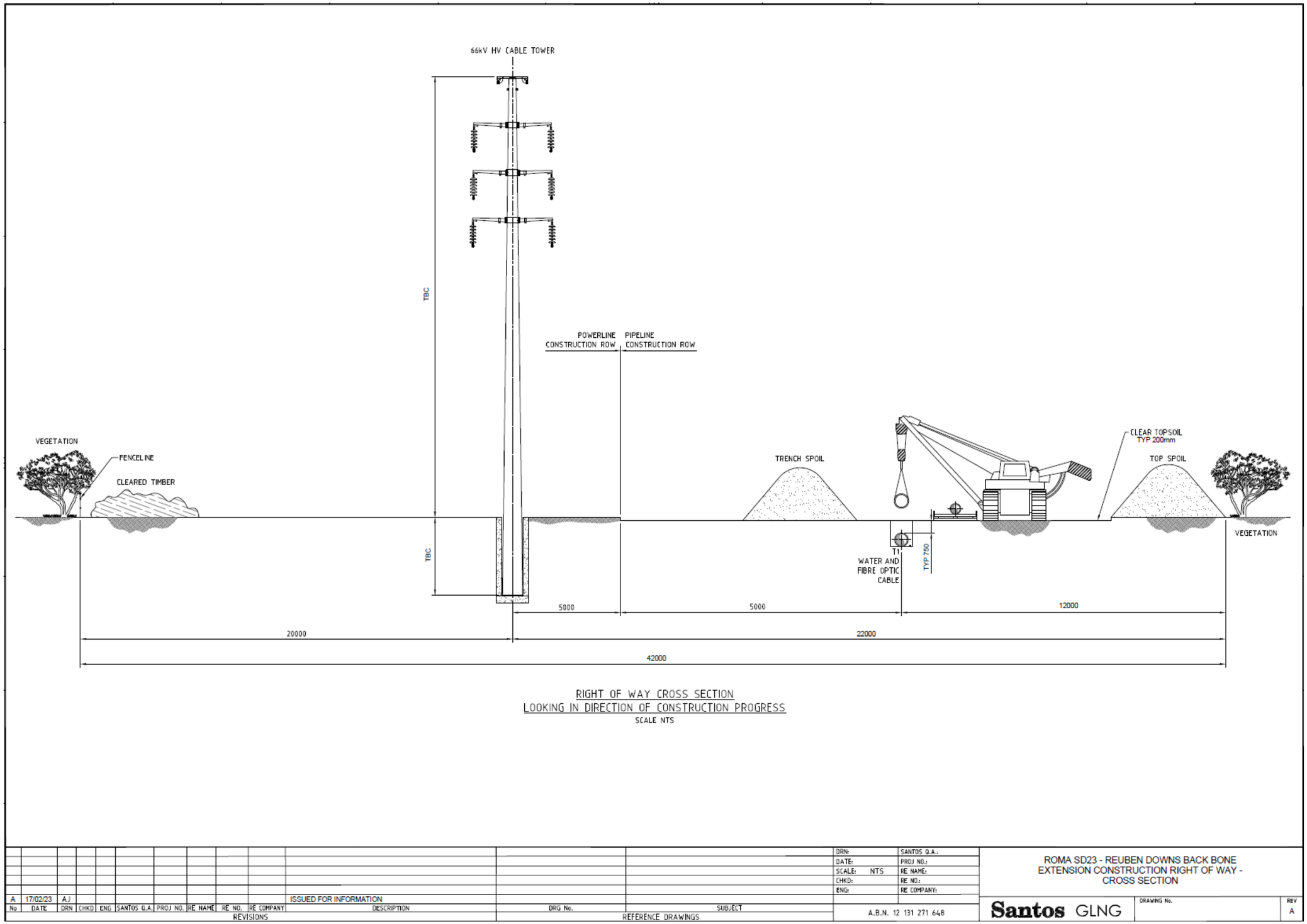

Figure 3: 42m Wide Pipeline Right of Way (RoW) Cross Section

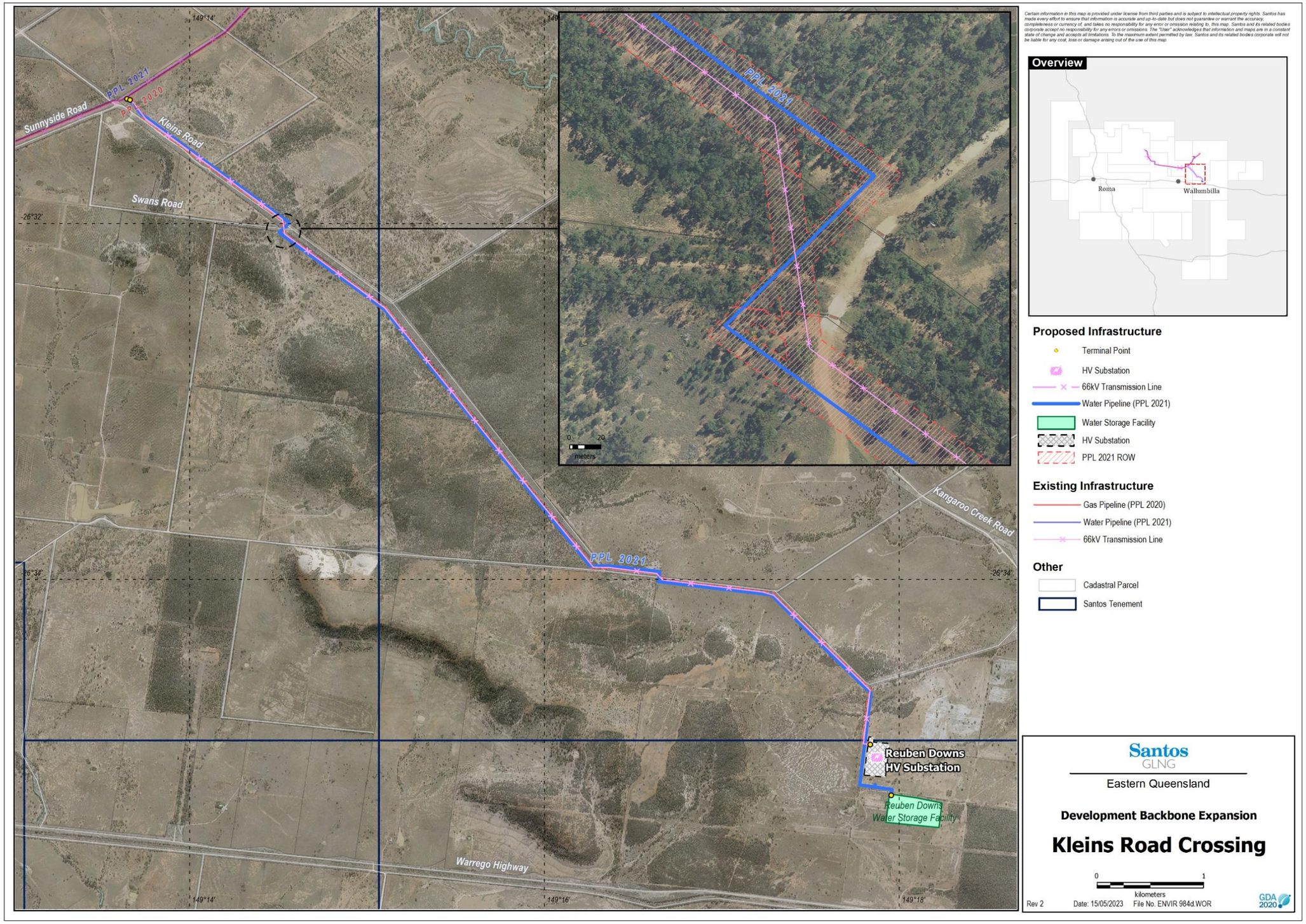

Figure 4: Proposed Pipeline Right of Way Split - Kleins Road Crossing

3.0 Proposed EA Amendments

As detailed in Sections 2.1 and 2.2, this application seeks to amend EA EPPG04323316 '*Schedule A, Table 1 – Scale and Intensity for the Activities'* to construct and operate the following proposed infrastructure / activities:

- produced water dam (14 ha) (PPL 2021);
- water pipeline (co-located with OHL and FOC) (12 km) (PPL 2021);
- high voltage power substation (3.75 ha) (PPL 2021); and
- produced water tank (5 ha) and water pipeline extension (400 m) (PPL 2061).

Further, this application seeks the following administrative amendments:

- update the disturbance area listed for Angry Jungle dam (3.96ha to 6 ha);
- removal of Condition B6 and Table 1 '*Significant residual impacts to prescribed environmental matters'* from Schedule B; and
- consolidation of disturbance for 'gas pipeline' listed under PPL 2020 in Schedule A, Table 1.

Proposed changes to 'Schedule A, Table 1 – Scale and Intensity for the Activities' identified in red below:

Schedule A, Table 1 – Scale and Intensity for the Activities

Tenures	Petroleum Activity	Scale (number of activities)	~~Scale and~~ Intensity (maximum size in total)
PPL2020	Gas pipeline	N/A	50.3 ~~34.1~~ km
	66kV high voltage powerline		
PPL2021	Water pipeline		
~~PPL2020~~	~~Gas pipeline~~	~~N/A~~	~~4.2 km~~
PPL2021	66kV high voltage powerline	N/A	12 km
PPL2061	Water pipeline	N/A	1.6 ~~1.2~~ km
PPL2061	Water tank	1	5 ha
PPL2020	Compressor station	1	15 ha
PPL2021	Regulated dam(s)	2	20 ~~3.96~~ ha
PPL2021	High voltage power substation	1	3.75 ha

Moreover, implementation of proposed amendments to *Schedule A, Table 1* will require update of '*Schedule A, Table 2 - Authorised Disturbances for the PPL2020, PPL2021 and powerline construction corridor*' to authorise proposed disturbances to ESAs and PPZs. Santos also proposes several administrative amendments to *Schedule A, Table 2* to simplify the EA. Please refer Section 3.1.1 for further information on proposed amendments.

3.1.1 Schedule A, Tables 2 and 3

Condition A3 of EA EPPG04323316 does not authorise significant disturbance to land within certain ESAs and PPZs as follows:

> *A3 Only low impact petroleum activities can be undertaken within Category A Environmentally Sensitive Areas (ESAs), or Category B ESAs or Category C ESAs other than state forests or timber reserves, or within the ESAs' primary protection zone.*

As discussed in Section 2.2.2, authorisation is sought to construct and operate new sections of PPL 2021 (proposed water pipeline, OHL and FOC). Construction of the pipeline will require minor disturbance to ESAs and/or their PPZ.

This application therefore seeks to amend '*Schedule A, Table 2 – Authorised Disturbances for the PPL2020, PPL2021 and powerline construction corridor'* to:

a) include proposed pipeline construction disturbance areas to ESAs and ESA PPZs (refer to Section 6.2 for further detail);

b) integrate existing authorised disturbances for TWAs listed in *Schedule A, Table 3* (refer to Section 3.1.1);

c) remove 'approximate location' longitude and latitude co-ordinates (refer to Section 3.1.1.2); and

d) remove Regional Ecosystem (RE) description for ESA PPZ (refer to Section 3.1.1.3).

Proposed amendments to '*Schedule A, Table 2 – Authorised Disturbances for the PPL2020, PPL2021 and powerline construction corridor'* are detailed in red below:

Schedule A, Table 2 – Authorised Disturbance~~s for the PPL2020, PPL2021 and powerline construction corridor~~ to ESA

ESA/PPZs	~~Approximate Location (GDA94)~~		RE	Area of disturbance (hectares)
	~~Longitude~~	~~Latitude~~		
Category C ESA	~~149.2036~~	~~-26.529~~	Of concern RE 11.9.7	~~4.64~~ 5.69
	~~149.1523~~	~~-26.525~~	Of concern RE 11.3.2	
	~~149.247~~	~~-26.5055~~		
	~~149.038~~	~~-26.4682~~	Of Concern RE 11.3.25	
	~~149.1277~~	~~-26.523~~		
PPZ of Category C ESA	~~149.038~~	~~-26.4682~~	~~Of Concern RE 11.3.25~~	~~28.45~~ 40.72
	~~149.1277~~	~~-26.523~~		
	~~149.2036~~	~~-26.529~~	~~Of concern RE 11.9.7~~	
	~~149.2559~~	~~-26.4909~~		
	~~149.1523~~	~~-26.525~~	~~Of concern RE 11.3.2~~	
	~~149.247~~	~~-26.5055~~		
	~~149.26257~~	~~-26.48664~~		
Category B ESA	~~149.0442~~	~~-26.4856~~	Endangered RE 11.9.5	~~4.38~~ 5.55
	~~149.1142~~	~~-26.5203~~		
	~~149.2261~~	~~-26.522~~		
	~~149.2386~~	~~-26.5133~~		
	~~149.263~~	~~-26.4866~~		
	~~149.1277~~	~~-26.523~~	Endangered RE 11.3.17	
			Endangered RE 11.9.10	
PPZ of Category B ESA	~~149.1277~~	~~-26.523~~	~~Endangered RE 11.3.17~~	~~50.8~~ 104.66
	~~149.2559~~	~~-26.4909~~	~~Endangered RE 11.9.10~~	
	~~149.0442~~	~~-26.4856~~	~~Endangered RE 11.9.5~~	
	~~149.0735~~	~~-26.5098~~		
	~~149.0729~~	~~-26.5154~~		
	~~149.0805~~	~~-26.5154~~		
	~~149.0936~~	~~-26.5177~~		
	~~149.1063~~	~~-26.5193~~		
	~~149.1142~~	~~-26.5203~~		
	~~149.2261~~	~~-26.522~~		
	~~149.2386~~	~~-26.5133~~		
	~~149.263~~	~~-26.4866~~		
	~~149.27204~~	~~-26.47917~~		

3.1.1.1 Schedule A, Table 3 - Temporary Work Areas:

To simplify the EA, existing authorised disturbances to ESAs for TWAs is proposed to be included in the renamed '*Schedule A, Table 2 – Authorised Disturbance to ESA'* i.e. remove Schedule A, Table 3 and integrate it with Schedule A, Table 2.

Given all listed disturbances in Schedule A Tables 2 and 3 are to ESAs, Santos is of the view that the additional level of detail provided by *Schedule A, Table 3* is redundant.

Please note, as discussed in Section 2.2.2.1, any TWAs required for construction of the proposed infrastructure will be located within existing disturbed areas or within the RoW itself where practicable, and as such will not require clearing of vegetation. No additional TWAs are sought to be authorised by this application.

Ancillary infrastructure such as temporary work areas (TWA's), laydown areas and temporary accommodation camps will be utilised to facilitate construction. TWA's will be utilised to temporarily store vehicles, machinery and construction materials, including laydown of sections of pipe and trench fill.

3.1.1.2 Schedule A, Table 2 – Approximate location, longitude and latitude co-ordinates:

To simplify the EA and remove unnecessary specificity, Santos proposes to remove longitude and latitude co-ordinates for disturbance to ESAs and PPZs listed in '*Schedule A, Table 2 – Authorised Disturbances for the PPL2020, PPL2021 and powerline construction corridor'.*

Proposed disturbance areas (hectares) to ESAs and PPZs will remain prescribed in *Schedule A, Table 2* and in the supporting Figures attached to the EA. Total disturbance area is the key authorisation that should be captured for impacts to environmental values.

Further, Santos provides DES with high accuracy spatial data in the form of Geographical Information Systems (GIS) shapefiles as per the requirements of EA Annual Return, Estimated Rehabilitation Cost (ERC) and Plan of Operations (PoO) regulatory reporting processes for EA EPPG04323316. Interrogation of this spatial data provides a significantly more accurate and transparent method to assess compliance against *Schedule A, Table 2.*

3.1.1.3 Schedule A, Table 2 – Regional Ecosystem description for ESA PPZ:

This amendment application seeks to remove RE description and disturbance location for all PPZs listed in *Schedule A, Table 2.*

This is because ESA PPZ REs listed in *Schedule A, Table 2* refer to the RE description of the ESA identified to be disturbed. This is not an accurate representation of the vegetation or value being disturbed. In many instances, the PPZ has been cleared for agricultural purposes and is not present.

As such, this application seeks to remove RE description and disturbance location for all PPZs listed in *Schedule A, Table 2*, while maintaining the disturbance area authorisation.

4.0 Site Description

PPLs 2021 and 2061 (henceforth referred to as the project area) are located approximately 10 km east of Wallumbilla in the Maranoa Regional Council area. Land within and surrounding the project area is predominantly used for agriculture and forestry, recreation and tourism, and oil and gas exploration and production.

The land has been subject to intensive agricultural activities over an extended period of time, and this is reflected in the fragmented nature of remnant vegetation and large areas of non-remnant vegetation present. The majority of land within and surrounding the project area is held under private ownership. However, the land on which the proposed activities will take place is held under various land tenures including, for example, freehold, State leasehold, reserves, unallocated State land and roads.

The proposed activities will not significantly impede land use for exploration or pastoral purposes in the project area. All landholders will be consulted prior to construction commencing.

Existing PPL 2021 and 2061 tenure blocks and sub-blocks are provided in Table 4. Further, PPL 2021 will require additional sub-blocks to be added to the tenure as listed in Table 5.

Table 4: PPLs 2021 and 2061 Blocks and Sub-Blocks

PPL	BIM	Blocks	Sub-Blocks
2021	CHAR	2149	F, G, H, J, L, M, N, O, Q, R, S, T, U, V, W, X, Y, Z,
	CHAR	2150	V, W, X
	CHAR	2151	P, T, U, X, Y, Z
	CHAR	2512	C, D, E, F, G, H, J, K, L, M, N, O, P, Q, R, S, T, U, V, W, X, Y, Z
	CHAR	2153	A, B, C, D, F, G, H, J, L, M, N, O, Q, R, S, T, V, W, X, Y
	CHAR	2221	A, B, C, D, E, H, J, K, N, O, P
	CHAR	2222	A, B, C, D, E, F, G, H, J, K, L, M, N, O, P, U
	CHAR	2223	A, B, C, D, E, F, G, H, J, K, L, M, N, O, P, Q, R, S, T, U,
	CHAR	2224	A, B, C, D, E, F, G, L, M, Q, R, S, T, U, V, W, X, Y, Z
	CHAR	2225	A, B, C, D, O, P, Q, R, S, T, U, V, W, X, Y
	CHAR	2226	L, M, Q, R
	CHAR	2296	C, D, E
	CHAR	2297	A, B, C, D
2061	CHAR	2151	U, V
	CHAR	2152	Q, Z

Table 5: Proposed PPL 2021 Blocks and Sub-Blocks

BIM	Blocks	Sub-Blocks
CHAR	2224	R, S, T, U, V, W, X, Y, Z
CHAR	2225	O, P, Q, R, S, T, U, V, W, X, Y
CHAR	2226	L, M, Q, R
CHAR	2296	C, D, E
CHAR	2297	A, B, C, D

5.0 Relevant Environmental Values

This section provides a description of the environmental values present within the project area where relevant to the scope of the proposed amendment. For clarity, the proposed activities are those activities / infrastructure described in Section 2.2.

Desktop and field-based methods were used to assess relevant environmental values within the project area. Field-based methods included ecological field surveys undertaken by suitably qualified ecologists to ground-truth government mapped vegetation within the project area. Where proposed activities are located on pre-existing disturbed areas not requiring disturbance to remnant vegetation, detailed ecological assessment has not been undertaken. The only aspect of the proposed amendment that will disturb remnant vegetation (i.e. REs, ESAs, Protected flora and fauna habitat) is the proposed water pipeline RoW (PPL 2021) as described in Section 2.2.2. Desktop methods included database searches and government environmental reports (refer to Appendix A for further information).

Based on the proposed amendment as detailed in Section 2.2, relevant environmental values include:

- land resources;
- regional ecosystems;
- environmentally sensitive areas;
- flora and fauna;
- Matters of State Environmental Significance;
- surface waters and wetlands;
- groundwater;
- air quality; and
- noise and vibration.

The proposed amendment will not result in changes to rehabilitation or waste management objectives (as defined in Schedules I, C and E of the EA, respectively). Disturbances will continue to be rehabilitated to meet existing final acceptance criteria prescribed in Schedule I of the EA. As such, the environmental values of rehabilitation and waste are not addressed further.

Potential impacts to identified values resulting from the proposed activities, and impact mitigation measures to be implemented are described Section 6.0.

5.1 Land Resources

General descriptions of topography, geology and soils occurring within the project area are summarised in Table 6. These descriptions were obtained from Land Resource Area (LRA) mapping and associated Technical Reports from Roma (DPI, 1987) and Taroom (Forster, 1985). The project area is predominantly located in LRAs 9, 8 and 2 with minor areas of disturbance located in LRAs 4 and 11, as detailed in Table 6.

Table 6: Topography and Soils within the Project Area

LRA	General Description
LRA 2 - Brigalow Uplands	Gently undulating plains (1-3%) and short segments to 8% associated with low hills and ridges; developed on weathered sandstones / shales. Predominantly cracking / non-cracking grey, brown / red clays; minor red-brown earths and other texture contrast soils. Skeletal soils present on ridges.
LRA 4 - Coogoon	Gently undulating plains (1-2%) and short slopes to 5% associated with ridges and crests; developed on weathered sandstones and old sandy alluvia. Predominantly red earths and re-brown earths- solodic intergrades. Some skeletal soils, texture contrast soils and massive earths also occur, along with minor grey and brown clays.
LRA 8 - Maranoa	Flat plains (0-1%) developed predominantly on sandy alluvia. Predominantly sandy test contrast soils and deep sands. Mainly confined to the major streams and their tributaries.
LRA 9 - Yuleba	Undulating plains (1-5%) to scarps and low hills. Developed mainly on coarse grained, quartzoze sandstones and poorly weathered sediments. Skeletal soils and shallow stony texture contrast soils. Minor areas of grey / brown cracking and non-cracking clays on interlayered mudstone beds.
LRA 11 - Struan	Undulating plains (0-4%) to low hills and escarpments; developed predominantly on quartzoze sandstones. shallow to moderately deep hard setting massive red earths and skeletal soils.

5.2 Regional Ecosystems

Third-party ecological consultants Terrestria Pty Ltd (Terrestria) undertook an ecological assessment of the project area (refer to Appendix A for further information). The assessment included on-ground and desktop-based assessments to confirm RE classification and status. The project area is located within the Brigalow Belt (South) Bioregion. Remnant REs identified to be present in the project area are detailed in Table 7 and displayed on Figure 5. Large sections of the project area also contain non-remnant vegetation, largely comprised of previously cleared grazing land.

Table 7: Regional Ecosystems within the Project Area

RE	Regional Ecosystem Description	VM Act Status	BD Status	Structural Category
11.5.1	*Eucalyptus crebra* and/or *E. populnea, Callitris glaucophylla, Angophora leiocarpa, Allocasuarina luehmannii* woodland on Cainozoic sand plains and/or remnant surfaces	LC	NCAP	Sparse
11.7.2	*Acacia spp.* woodland on Cainozoic lateritic duricrust. Scarp retreat zone	LC	NCAP	Sparse
11.9.7	*Eucalyptus populnea, Eremophila mitchellii* shrubby woodland on fine-grained sedimentary rocks	OC	OC	Sparse
11.9.10	*Eucalyptus populnea* open forest with a secondary tree layer of *Acacia harpophylla* and sometimes *Casuarina cristata* on fine-grained sedimentary rocks	OC	E	Mid-dense

Key: Non VM class and BD status under the *Vegetation Management Act 1999*: NCAP – No Concern at Present, LC – Least Concern, OC – Of Concern, E – Endangered

5.3 Environmentally Sensitive Areas

The project area supports several ESAs and their associated protection zones as detailed in Table 8 and presented in Figure 6.

Table 8: Environmentally Sensitive Areas within the Project Area

ESA Category	ESA Description
Category B	Endangered Regional Ecosystems
Category C	Of Concern Regional Ecosystems

5.4 Flora and Fauna

As discussed in Section 5.2, Terrestria undertook on-ground and desktop-based ecological assessments of the project area to determine presence of suitable habitat for Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act) and Nature Conservation Act 1992 (NC Act) listed flora and fauna (refer to Appendix A for further information).

Further, Terrestria undertook an EPBC Act Protected Matters Search Tool (PMST) report for the project area that identifies threatened wildlife habitat modelled to potentially occur within and around the project area. Further, Terrestria also undertook a WildNet Online database search report for the project area, and it lists threatened flora and fauna species recorded present within and surrounding the project area (refer to Appendix A for further information).

Terrestria found no evidence of the presence of listed flora or fauna species during field survey of the project area, however the project area may provide suitable habitat for a range of listed species based on RE association. Further, no high-risk areas as shown on the Protected Plants Survey Trigger Map are mapped to occur within the project area).

Listed species assessed to be potentially present and have suitable habitat within the project area are detailed in Table 9. Refer to Appendix A for further information.

Table 9: Potential Listed Species and RE Associations within the Project Area

Species	Common Name	NC Act	EPBC Act	Potentially Suitable Habitat by Regional Ecosystem
Nyctophilus corbeni	South-eastern long-eared bat	V	V	11.3.1, 11.3.2, 11.3.25, 11.5.1, 11.7.2, 11.7.7, 11.9.7, 11.9.10
Petauroides volans	Greater Glider	V	V	11.3.2, 11.3.25, 11.5.1, 11.7.7, 11.9.7, 11.9.10
Phascolarctos cinereus	Koala	V	V	11.3.2, 11.3.25, 11.5.1, 11.7.7, 11.9.7, 11.9.10
Calptorhynchus lathami	Glossy Black-Cockatoo	N/A	V	11.3.1, 11.3.2, 11.3.25, 11.5.1, 11.7.2, 11.7.7, 11.9.7, 11.9.10
Grantiella picta	Painted Honeyeater	V	V	11.3.1, 11.3.2, 11.3.25, 11.5.1, 11.7.2, 11.7.7, 11.9.7, 11.9.10
Hirundapus caudacutus	White-throated Needletail	V	V	11.3.1, 11.3.2, 11.3.25, 11.5.1, 11.7.2, 11.7.7, 11.9.7, 11.9.10
Acanthophis antarcticus	Common Death Adder	N/A	V	11.7.7, 11.9.7, 11.9.10

Species	Common Name	NC Act	EPBC Act	Potentially Suitable Habitat by Regional Ecosystem
Aspidites ramsayi	Woma	N/A	NT	11.3.1, 11.3.2, 11.5.1, 11.7.2, 11.7.7, 11.9.7, 11.9.10
Delma torquata	Collared Delma	V	V	11.3.2, 11.5.1, 11.7.2, 11.7.7, 11.9.7, 11.9.10
Egernia rugosa	Yakka Skink	V	V	11.3.2, 11.5.1, 11.7.2, 11.7.7, 11.9.7, 11.9.10
Furina dunmalli	Dunmalls Snake	V	V	11.3.1, 11.3.2, 11.5.1, 11.7.2, 11.7.7, 11.9.7, 11.9.10
Strophurus taenicauda	Golden-tailed Gecko	N/A	NT	11.3.1, 11.3.2, 11.5.1, 11.7.2, 11.7.7, 11.9.7, 11.9.10
Adclarkia dulacca	Dulacca Woodland Snail	E	E	11.7.2, 11.7.7, 11.9.5
Jalmenus eubulus	Pale Imperial Hairstreak butterfly	V	N/A	11.3.1, 11.9.10

Key: Qld *Nature Conservation Act 1992*; Cwth *Environment Protection and Biodiversity Act 1999:* CE = Critically endangered; E = Endangered; V = Vulnerable; NT = Near Threatened; SL – special least concern

5.5 Matters of State Environmental Significance

The Terrestria and a Matters of State Environmental Significance (MSES) reports identified several MSES to be present within the project area and surrounding region (refer to the Terrestria and MSES reports attached as Appendix A).

MSES identified to be present in the project area include:

- Protected wildlife (fauna) habitat;
- Regulated Vegetation (prescribed REs that are Endangered and Of Concern);
- Regulated Vegetation (a prescribed RE to the extent the ecosystem is located within a defined distance from the defining banks of a relevant watercourse);

5.5.1 Protected wildlife (fauna) habitat

Refer to Sections 5.4 and 6.2 for further detail on potential protected wildlife habitat (fauna) located in the project area.

5.5.2 Regulated Vegetation

Regulated vegetation is a prescribed RE that is:

- Endangered or Of Concern RE as defined under the *Vegetation Management Act 1999* (VMA);
- REs located within the defined distance from the defining banks of a watercourse as identified on the '*vegetation management watercourse map'*, as defined under the VMA; or
- a wetland identified on the '*vegetation management wetlands map*' as defined under the VMA.

A prescribed RE is an RE located in a Category B area on the '*regulated vegetation management map*' to the extent the RE contains remnant vegetation.

As discussed in Section 5.2, Terrestria undertook field and desktop based ecological assessment of the project area. Terrestria did not identify any areas of remnant vegetation that were also located within a Category B area as mapped on the 'regulated vegetation management map'. Remnant REs identified

to be present in the project area are provided in Table 7 and are displayed on Figure 5. Refer to Appendix A for further information.

5.6 Surface Water and Wetlands

The project area is located within the Balonne-Condamine catchment. The project area includes several watercourses that are lower order, ephemeral type streams.

The proposed pipeline alignment (PPL 2021 pipeline) will cross three mapped Stream Order (SO) 1 watercourses. All features are ephemeral, flowing only during times of rainfall and overland flow. These drainage features are highly ephemeral systems, and in the absence of any semi-permanent pools are expected to only contain fish during periods of high rainfall causing streamflow. Further, no General Ecological Significance (GES) or High Ecological Significance (HES) wetlands are intersected by the proposed activities.

The environmental values applicable to surface waters, as defined by the *Maranoa-Balonne River Basin Environmental Values and Water Quality Objectives* (DES, 2020) and *Condamine River Basin Environmental Values and Water Quality Objectives* (DES, 2020) are as follows:

- protection of the aquatic ecosystems;
- primary industries:
    - irrigation;
    - farm supply/use;
    - stock watering;
- human consumer;
- recreation and aesthetics:
    - primary and secondary recreation;
    - visual appreciation;
- drinking water;
- industrial use; and
- cultural, spiritual and ceremonial values.

5.7 Groundwater

For the purposes of this application, the environmental value of groundwater is only considered relevant to the operation of the proposed Reuben Downs Produced Water Dam.

The project area is located within the Balonne-Condamine catchment. Environmental values applicable to groundwater, as defined by the *Maranoa-Balonne River Basin Environmental Values and Water Quality Objectives* (DES, 2020) and *Condamine River Basin Environmental Values and Water Quality Objectives* (DES, 2020) include:

- protection of the aquatic ecosystems;
- primary industries:
    - irrigation;
    - farm supply/use;
    - stock watering;

- recreation and aesthetics:
    - primary and secondary recreation;
    - visual appreciation;
- drinking water; and
- cultural, spiritual and ceremonial values.

The underlying hydrogeology of the Reuben Downs Produced Water Dam project site comprises formations of the Great Artesian Basin (GAB). The GAB is a Jurassic to Cretaceous age hydrogeological basin comprising alternating aquifers and aquitards of various geologic formations of Surat Basin sediments and their equivalents.

The main aquifers are the Precipice Sandstone, Hutton Sandstone, Gubberamunda Sandstone, Mooga Sandstone, Bungil Formation and their equivalents. These aquifers are generally laterally continuous, have significant water storage and permeability and are extensively developed for groundwater use. Aquifers are recharged by infiltration of rainfall and leakage from streams into outcropping sandstone, mainly on the eastern margins of the basin, close to the Great Dividing Range.

The geological and hydrostratigraphic sequence at the produced water dam site comprises (formation depths taken nearby from well completion report for Wingfield Park 1):

- 0-150m depth. The Lower Cretaceous Bungil Formation comprises interbedded fine-grained lithic sandstone, siltstone and commonly carbonaceous mudstone with minor sublabile and quartzose sandstone. Regionally it is considered a partial aquifer however there is no evidence of economic groundwater based findings from nearby water bores;
- 150-250m depth. The Mooga Sandstone comprises fluvial quartzose to lithic sandstone with thinly interbedded dark-grey mudstone and siltstone. It is considered an aquifer at the location of the dam as it is the source formation for nearby bores; and
- 250-400m depth. The Orallo Formation consists primarily of sublabile to labile sandstones with lesser interbedded carbonaceous siltstone, mudstone, and minor coal. It is considered an aquifer at the location of the dam as it is the source formation for nearby bores.

The nearest registered groundwater bores (those located within a 4.5km radius) target a range of depths in the Mooga and Orallo Formations. These bores include:

- RN123503 (bore zone inlet 273-334m depth);
- RN123107 (bore inlet 295-327m depth);
- RN123619 (bore inlet 168-203m depth);
- RN123240 (bore inlet 230-272m depth);
- RN14821 (bore inlet 164-178m depth); and
- RN58085 (bore inlet 175-230m depth).

5.8 Air Quality and Noise

Air quality in the vicinity of the project area is representative of a rural area with a low population density and is likely to be largely influenced by activities such as:

- dust from agricultural and oil and gas exploration and production activities, including from stock and vehicle movements, land clearing, and cropping activities;

- particulates from naturally occurring events such as bushfires;
- vehicle and equipment exhaust fumes from roads, agriculture activities, industrial activities and towns; and
- emissions from resources activities operating in the area.

Consistent with the objectives of the *Environmental Protection (Air) Policy 2019* (EPP Air), the environmental values relevant to the project area are:

- the qualities of the air environment that are conducive to protecting the health and biodiversity of ecosystems;
- the qualities of the air environment that are conducive to human health and well being;
- the qualities of the air environment that are conducive to protecting the aesthetics of the environment, including the appearance of buildings, structures and other property; and
- the qualities of the air environment that are conducive to protecting agricultural use of the environment.

The existing noise environment for the project area is typical of rural areas, with low levels of background noise generally comprised of noises associated with rural based human occupation.

Noise levels in the vicinity of the project area are likely to be influenced by the following:

- the use of equipment and machinery during both agricultural activities and oil and gas exploration and production activities in the area;
- traffic noise from project vehicles and other traffic, including heavy transport vehicles associated with the Warrego Highway operating on a 24 hour basis;
- natural sources such as birds, insects, wind and other meteorological events;
- livestock; and
- resource exploration and development activities.

Consistent with the objectives of the *Environmental Protection (Noise) Policy 2019* (EPP Noise), the environmental values are:

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

6.0 Potential Impacts, Mitigation Measures and Environmental Risk Assessment

As discussed in Section 2.2, impacts associated with the proposed activities are not new and are consistent with activities and impacts authorised by the existing Roma Backbone EA (EPPG04323316).

Further, significant pre-planning has been undertaken by Santos to co-locate the proposed infrastructure to minimise disturbance to land and vegetation wherever reasonably possible (given safety and engineering restrictions discussed in Section 2.2).

Nonetheless, this section provides the following:

- a description of potential impacts to relevant environmental values (as described in Section 5.0);
- mitigation and management measures to minimise potential impacts to relevant environmental values; and
- an environmental risk assessment.

To assess environmental risks associated with the proposed activities, a risk assessment for each relevant environmental value has been completed. The environmental risk assessment is based on risk factors associated with both the initial construction and ongoing operational phases of the proposed activities.

Risk assessments for a proposed activity identify a wide range of risks and potential impacts to relevant environmental values as a result of carrying out the proposed activities. This does not mean all identified potential impacts will occur as a result of carrying out the proposed activities. Once initial unmitigated risks and potential impacts are identified as part of a risk assessment, appropriate control strategies are identified and implemented. Appropriately implemented control strategies will typically mitigate the likelihood of a potential impact occurring, and/or reduce the severity/consequences of the potential impact.

The risk assessment identifies initial (unmitigated) risks associated with the proposed activities for each relevant environmental value. Following identification of appropriate mitigation measures (control strategies), the residual (mitigated) risk posed to each environmental value has also been determined.

The risk assessment has been undertaken in accordance with the Santos Management System (SMS) Risk Management Standard. The SMS Risk Management Standard is based on accepted principles and applicable Australian standards. Further detail on the risk assessment process is provided in Appendix B.

The results of the risk assessment are summarised in Table 13, and further discussed in Sections 6.1 to 6.4. The risk assessment identified a range of potential impacts associated with the proposed activities. Following consideration of control strategies, a residual risk of 'Low' was assigned to all potential impacts to relevant EVs.

Potential impacts to MSES in context of the *Environmental Offset Act 2014* are discussed in Section 7.2.

6.1 Land Resources

Potential direct and indirect impacts to land resources will be predominantly short-term and associated with the initial clearing and construction phases pf the project. Following completion of the construction phase, large sections of land will begin regenerating to achieve stability and groundcover similar to that of surrounding areas. For example, as discussed in Section 2.2.2.1, the majority of the pipeline construction RoW will be rehabilitated, with the exception of a minor area to allow for mandatory routine inspections and maintenance via light vehicles i.e. an access track is required. Disturbed areas no longer required for construction will be progressively rehabilitated / stabilised as construction progresses. Rehabilitation of disturbed areas following construction will include:

- contouring to match surrounding landforms;
- re-establishment of surface drainage lines;
- re-spreading of stockpiled topsoil and establishment of groundcover; and
- placement of cleared vegetation as required.

Following reinstatement of the construction RoW, limited above-ground infrastructure will be visible. Above-ground infrastructure other than the OHL, will be limited to signage and marker posts to identify the location of the pipeline, fencing and valves. A routine pipeline inspection and maintenance program will be implemented, which will include leak detection surveys, ground and area patrols, and ongoing rehabilitation monitoring of disturbed areas. Further, the proposed pipeline RoW has been predominantly located adjacent to existing landholder fence lines to minimise disturbance to remnant native vegetation and assist in minimising disruption to existing land uses. Similarly, the low-risk characteristics of the proposed water line contents (i.e. produced water) largely reduces potential consequence to land associated with the unlikely event of any loss of containment.

Moreover, as discussed in Sections 2.2.1 and 2.2.3 to 2.2.4 respectively, the proposed Reuben Downs produced water dam and pump station, HVPS, and Maisey produced water tank and water pipeline extension will all be located within pre-existing cleared / disturbed areas (i.e., no new disturbance to remnant native vegetation will be required) on property owned by Santos (Reuben Downs).

The proposed activities may result in direct and indirect impacts to land resources (as described in Section 5.1), primarily as a result of:

- infrastructure construction (earthworks activities, including grading and trenching);
- vehicle and plant movements;
- minor spills or leaks of fuels and chemicals from vehicles and equipment;
- loss of containment;
- bushfire and flood (natural event); and
- fire (ignition sources resulting from activities).

Santos aims to minimise the operational footprint and significant disturbance associated with its activities as far as reasonably practicable. However, potential direct and indirect impacts to land resource environmental values resulting from the proposed activities may include:

- reduction in visual amenity;
- soil erosion, topsoil loss, inversion and compaction;
- disturbance to land use and suitability changes;

- reduction in agricultural productivity; and
- contamination of soil.

Management (control) strategies, risk sources, potential impacts and the level of risk associated with the proposed activities are summarised in Table 13. The results of the risk assessment indicate the residual risk to land resource environmental values as a result of the proposed activities is classified as 'Low'.

6.2 Regional Ecosystems, ESAs, and Flora and Fauna

The proposed activities may result in direct and indirect impacts to REs, ESAs, Flora and Fauna (as described in Sections 5.2 to 5.4) primarily as a result of:

- infrastructure construction (earthworks activities, including grading and trenching);
- entrapment in voids (trenches / bell holes), pipelines and the regulated dam;
- vehicle and plant movements; and
- fire (ignition sources resulting from activities).

Santos aims to minimise the operational footprint and significant disturbance associated with its activities as far as reasonably practicable. However, potential direct and indirect impacts to REs / ESAs and Flora and Fauna resulting from the proposed activities may include:

- damage to and/or loss of native vegetation and habitat;
- damage to and/or loss of high value flora;
- introduction and/or spread of weeds, pest plants, animals and pathogens;
- loss of species population, further endangerment and loss in species diversity; and
- disturbance, injury or loss of fauna.

Moreover, as discussed in Sections 2.2.1 and 2.2.3 to 2.2.4 respectively, the proposed Reuben Downs produced water dam and pump station, HVPS, and Maisey produced water tank and water pipeline extension will all be located within pre-existing cleared / disturbed areas i.e., no new disturbance to remnant native vegetation will be required.

The only aspect of the proposed activities that will disturb remnant vegetation (i.e. REs, ESAs, flora and fauna habitat) is the proposed PPL 2021 water pipeline RoW as described in Section 2.2.2. RE and ESA disturbance as a result of the proposed activities are detailed in Table 10 and Table 11, and are displayed on Figure 5 and Figure 6, respectively.

Please note, areas of regrowth vegetation were mapped within the proposed PPL 2021 disturbance area (these areas have been included in Table 10 for the purposes of transparency and completeness). All areas of regrowth vegetation mapped within the disturbance area were determined not to possess sufficient habitat attributes to be regarded as functional by Terrestria. These non-functional regrowth patches do not represent an ESA as they contain very little in the way of habitat factors for threatened species, and are very unlikely to support these threatened species. Refer to Section 3.2.2 in Appendix A for further information.

Further, there are no high-risk areas as shown on a Protected Plants Survey Trigger Map within the proposed disturbance area (refer to Appendix A for further information). Further, disturbance to potentially suitable habitat for listed species is detailed in Table 12.

Management (control) strategies, risk sources, potential impacts and the level of risk associated with the proposed activities are summarised in Table 13. The results of the risk assessment indicate that residual risks to REs / ESAs and Flora and Fauna environmental values as a result of the proposed activities are classified as 'Low'.

Table 10: Proposed Disturbance to Regional Ecosystems

RE	RE Description	VM Act Status	BD Status	Structural Category	Disturbance Area (ha)
11.5.1	*Eucalyptus crebra* and/or *E. populnea, Callitris glaucophylla, Angophora leiocarpa, Allocasuarina luehmannii* woodland on Cainozoic sand plains and/or remnant surfaces	LC	NCAP	Sparse	0.55 7.66 (non-functional regrowth)
11.7.2	*Acacia spp.* woodland on Cainozoic lateritic duricrust. Scarp retreat zone	LC	NCAP	Sparse	0.34 0.23 (regrowth)
11.9.7	*Eucalyptus populnea, Eremophila mitchellii* shrubby woodland on fine-grained sedimentary rocks	OC	OC	Sparse	1.05 1.65 (non-functional regrowth)
11.9.10	*Eucalyptus populnea* open forest with a secondary tree layer of *Acacia harpophylla* and sometimes *Casuarina cristata* on fine-grained sedimentary rocks	OC	E	Mid-dense	1.17 3.60 (non-functional regrowth)
Non-Remnant	Predominantly pre-cleared grazing land and associated agricultural activities	NA	NA	NA	25.47
Totals	**Remnant**				**3.11**
	Non-Functional Regrowth				**13.14**
	Non-Remnant				**25.47**
				Total Disturbance Area	**41.72**

Key: Non VM class and BD status under the *Vegetation Management Act 1999*: NCAP – No Concern at Present, LC – Least Concern, OC – Of Concern, E – Endangered

Table 11: Proposed Disturbance to ESA and PPZ

ESA Category	Type	Area of Disturbance (total RoW) (ha)[1]
B	Endangered RE (11.9.10)	1.17
	PPZ (Endangered RE)	52.02
C	Of Concern RE 11.9.7	1.05
	PPZ (Of Concern RE)	12.27
Total Disturbance Area		**66.51**

[1] *The areas quantified and total disturbance area for ESAs/PPZs will be an overestimate of impacts due to overlapping ESA values in the proposed disturbance area.*

6.1 Matters of State Environmental Significance

As discussed in Section 5.5, MSES have been identified present within the project area and immediate surrounds. Environmental values analogous to MSES (i.e. flora, fauna, Regional Ecosystems and water) have been assessed for the project area by this risk assessment, and relevant control measures to mitigate potential risks and impacts are detailed in Table 13. Refer to Section 7.2 for further information on potential impacts to MSES in the context of the *Environmental Offsets Act 2014.*

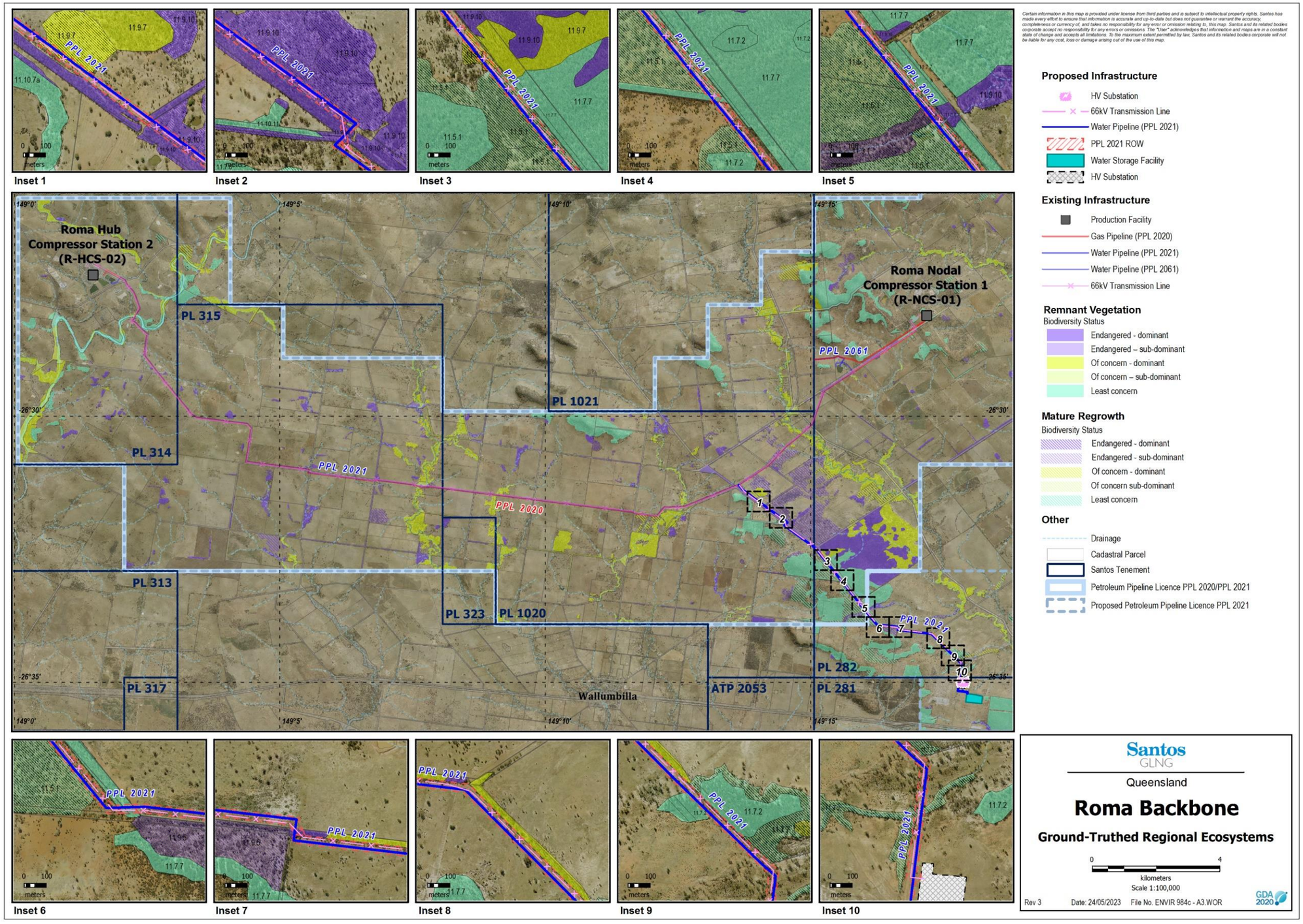

Figure 5: Proposed Disturbance to Regional Ecosystems

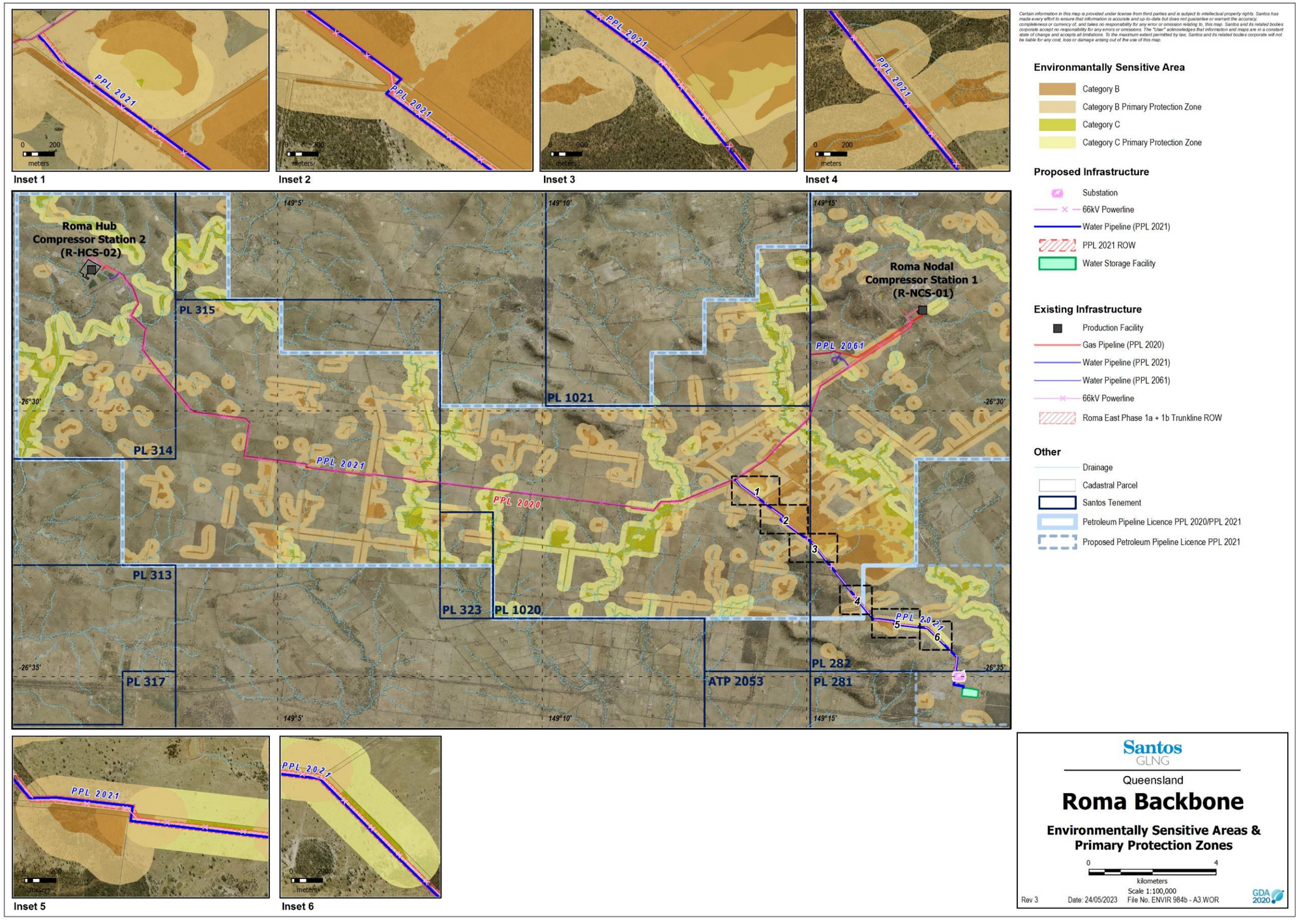

Figure 6: Proposed Disturbance to ESA and PPZ

Table 12: Proposed Disturbance to Potential Habitat for Listed Species

Species	Common Name	Conservation Rating		Potentially Suitable RE	Disturbance Area (ha)	% Disturbance (relative to available habitat in PPL 2021)
		EPBC Act	NC Act			
Nyctophilus corbeni	South-eastern long-eared bat	V	V	11.3.1, 11.3.2, 11.3.25, 11.5.1, 11.7.2, 11.7.7, 11.9.7, 11.9.10	2.3	0.06%
Petauroides volans	Greater Glider	V	V	11.3.2, 11.3.25, 11.5.1, 11.7.7, 11.9.7, 11.9.10	2.9	0.11%
Phascolarctos cinereus	Koala	V	V	11.3.2, 11.3.25, 11.5.1, 11.7.7, 11.9.7, 11.9.10	2.3	0.11%
Calptorhynchus lathami	Glossy Black-Cockatoo	V	N/A	11.3.1, 11.3.2, 11.3.25, 11.5.1, 11.7.2, 11.7.7, 11.9.7, 11.9.10	2.3	0.06%
Grantiella picta	Painted Honeyeater	V	V	11.3.1, 11.3.2, 11.3.25, 11.5.1, 11.7.2, 11.7.7, 11.9.7, 11.9.10	2.3	0.06%
Hirundapus caudacutus	White-throated Needletail	V	V	11.3.1, 11.3.2, 11.3.25, 11.5.1, 11.7.2, 11.7.7, 11.9.7, 11.9.10	2.3	0.06%
Acanthophis antarcticus	Common Death Adder	V	N/A	11.7.7, 11.9.7, 11.9.10	2.4	0.20%
Aspidites ramsayi	Woma	NT	N/A	11.3.1, 11.3.2, 11.5.1, 11.7.2, 11.7.7, 11.9.7, 11.9.10	3.3	0.09%
Delma torquata	Collared Delma	V	V	11.3.2, 11.5.1, 11.7.2, 11.7.7, 11.9.7, 11.9.10	3.3	0.09%
Egernia rugosa	Yakka Skink	V	V	11.3.2, 11.5.1, 11.7.2, 11.7.7, 11.9.7, 11.9.10	3.2	0.09%
Furina dunmalli	Dunmalls Snake	V	V	11.3.1, 11.3.2, 11.5.1, 11.7.2, 11.7.7, 11.9.7, 11.9.10	3.2	0.09%
Strophurus taenicauda	Golden-tailed Gecko	NT	N/A	11.3.1, 11.3.2, 11.5.1, 11.7.2, 11.7.7, 11.9.7, 11.9.10	3.3	0.09%
Adclarkia dulacca	Dulacca Woodland Snail	E	E	11.7.2, 11.7.7, 11.9.5	0.3	0.05%
Jalmenus eubulus	Pale Imperial Hairstreak butterfly	N/A	V	11.3.1, 11.9.10	1.4	0.12%

Key: Qld *Nature Conservation Act 1992*; Cwth *Environment Protection and Biodiversity Act 1999:* CE = Critically endangered; E = Endangered; V = Vulnerable; NT = Near Threatened; SL – special least concern

6.2 Surface Water and Wetlands

As discussed in Section 5.6, the project area includes several watercourses that are lower order, ephemeral type streams, and the proposed pipeline alignment (PPL 2021) will cross three minor SO 1 mapped watercourses. All features are ephemeral, flowing only during times of rainfall and overland flow. No GES or HES wetlands are intersected by the proposed activities.

The proposed activities have potential to result in direct and indirect impacts to surface water environmental values (as described in Section 5.6) primarily as a result of:

- infrastructure construction (earthworks activities including grading and trenching);
- vehicle and plant movements;
- minor spills or leaks of fuels and chemicals from vehicles and equipment;
- loss of containment; and
- flood (natural event).

Santos aims to minimise the operational footprint and significant disturbance associated with its activities as far as reasonably practicable. However, potential direct and indirect impacts to surface water values resulting from the proposed activities may include:

- disturbance to natural drainage patterns;
- degradation of downstream water quality from sediment releases / minor spills or leaks of fuels and chemicals;
- damage to and/or loss of native vegetation and habitat; and
- contamination of soil and/or watercourses.

As discussed in Section 2.2.2, the proposed pipeline (PPL 2021) will be constructed in a RoW width not exceeding 42 m (excluding the Kleins Road crossing area). This RoW width will also ensure sufficient area is available to construct appropriate erosion and sediment control (ESC) structures (where required). These ESC structure will assist to minimise potential for sedimentation to waters.

Management (control) strategies, risk sources, potential impacts and the level of risk associated with the proposed activities are summarised in Table 13. The results of the risk assessment indicate that residual risks to surface water environmental values as a result of the proposed activities are classified as ‘Low’.

6.3 Groundwater

The construction and operation of the Reuben Downs produced water dam has the potential to result in minor impacts to groundwater (as described in Section 5.7) due to seepage of stored produced water to groundwater. Long-term seepage of stored produced water, if undetected, could result in minor impacts to groundwater resources. As discussed in Section 2.2.1, the Reuben Downs produced water dam will be dual HDPE lined and incorporate seepage detection monitoring to ensure the effectiveness of control measures. In addition to seepage detection monitoring systems within the dam design, shallow groundwater monitoring bores will be installed to the uppermost surficial groundwater bearing unit to monitor for early signs of seepage from the dam.

The dam will be designed and constructed under the supervision of a suitably qualified and experienced person in accordance with the *Manual for Assessing Hazard Categories and Hydraulic Performance of Dams* (DES, 2016). The operation, monitoring and reporting of the dam's condition and adequacy for dam safety will be undertaken in accordance with relevant EA (EPPG04323316) conditions.

Management (control) strategies, risk sources, potential impacts and the level of risk associated with the proposed activities are summarised in Table 13. The results of the risk assessment indicate that residual risks to groundwater environmental values as a result of the proposed activities are classified as 'Low'.

6.4 Air Quality and Noise

The proposed activities may result in impacts to air and noise values (as described in Section 5.8), respectively), primarily as a result of:

- infrastructure construction;
- vehicle and plant movements;
- fire (ignition sources resulting from activities); and
- minor exhaust emissions generated from vehicles, equipment and machinery.

Santos aims to minimise the operational footprint and significant disturbance associated with its activities as far as reasonably practicable. However, potential direct and indirect impacts to air quality and noise values resulting from the proposed activities may include:

- air pollution and localised reduction in air quality;
- nuisance caused by vibration, noise and dust generation; and
- disturbance to fauna and livestock.

The majority of these potential air and noise impacts would be temporary and limited to the initial construction period. The proposed activities (and potential noise and air impacts) are also consistent with those associated with the existing petroleum activities authorised by the existing Backbone EA, underlying RSGPA and RSGPAE EAs, and existing land use (pastoral activities). Construction activities associated with the proposed activities would typically occur from 6am to 6pm, seven days per week for a relatively limited period of time i.e. limited to a number of weeks.

Background noise monitoring has not been undertaken for the proposed activities given that the development occurs within the existing operational GLNG tenure areas (RSGPA and RSGPAE EA tenure areas). The deemed background noise levels as prescribed in the DES guideline *'Prescribing noise conditions for environmental authorities for petroleum activities*' are considered to be representative of the ambient acoustic environment. The deemed background levels are as follows:

- day-time (7am to 6pm) – 35 dBA LA_{90}
- evening (6pm to 10pm) – 30 dBA LA_{90}
- night-time (10pm to 7am) – 25 dBA.

The primary air pollutants generated during construction and operations would be minor dust and exhaust emissions from operating vehicles, plant and machinery. These sources will be predominately temporary, occurring only during the construction period. These relatively minor dust and exhaust emissions would remain local to the source, and are unlikely to affect air quality environmental values of the broader project area provided that mitigation and management measures identified in Table 13 are implemented.

Management (control) strategies, risk sources, potential impacts and the level of risk associated with the proposed activities are summarised in Table 13. The results of the risk assessment indicate that residual risks to air quality and noise environmental values as a result of the proposed activities are classified as 'Low'.

Table 13: Environmental Risk Assessment

Identification				Unmitigated Risk			Control Strategies	Residual Risk		
Risk Event / Activity	Relevant EV	Potential Impact	Risk Source	Consequence	Likelihood	Risk		Consequence	Likelihood	Risk
Construction and operation of proposed infrastructure	Land Resources	Reduction in visual amenity Soil erosion, topsoil loss, inversion and compaction Disturbance to land use and suitability changes Reduction in agricultural productivity Contamination of soil	Infrastructure construction (earthworks activities, including grading and trenching) Vehicle and plant movements Minor spills or leaks of fuels and chemicals from vehicles and equipment Loss of containment Bushfire and flood (natural event) Fire (ignition sources resulting from activities)	III	d	Medium	**General** • Compliance with relevant EA conditions, and all relevant internal and external approvals are in place before work is undertaken. • All disturbance undertaken in accordance with Santos standards. Industry standards and good industry practices are followed. • Appropriate emergency response plans in place. **Land Resources** • The proposed infrastructure has been designed to be located in pre-disturbed, non-remnant areas or co-located to minimise the area of new disturbance to land and vegetation as much as is reasonably possible (given safety and engineering restrictions discussed in Section 2.2). • The proposed PPL 2021 RoW will be constructed to be within the width requirements stipulated by Condition D2 of EA EPPG04323316. • Surface disturbance will be restricted to the minimum area required to safely carry out activities (refer to discussion in Section 2.2). • Infrastructure will be located to minimise impacts to drainage patterns, soil, and vegetation. • Sensitive terrain is protected through appropriate construction and maintenance practices. • Management of sensitive areas (e.g. sloped areas) is detailed in scope of works, approval documents and company procedures. • Erosion and sediment control measures in place where appropriate (refer to additional Control Strategies listed under Surface Water). • Following gathering line installation, groundcover will be re-established along the operational right-of-way. • Any short-term reduction in the availability of existing land use would be offset by commercial agreements between proponents and the property owner. • <u>Vehicle and plant movements</u> - No unauthorised driving outside of the approved construction area. - Watering of disturbed areas and/or access tracks carried out as required / permitted to reduce dust generation. - Active promotion of appropriate road use behaviours, and the setting of appropriate speed limits for Santos personnel and contractors. - Work is scheduled to fit in with landholder's property management activities. • <u>Fire and Flood</u> - Activity planning will consider seasonal conditions and risk of fire and flood. - Water crossings scheduled to take into account seasonal conditions and rainfall / flood likelihood. - Construction activity not undertaken during or immediately prior to flooding. - Personnel are informed on the fire danger season and associated restrictions, and ignition sources are controlled via permit to work. - Measures undertaken to reduce potential impacts of fire and flood where appropriate (e.g. removal of fuels/chemicals/equipment prior to arrival of fire or flood event). • <u>Fuel, oil and chemical storage and handling</u> - Fuel, oil and chemical storage and handling undertaken in accordance with Australian standards / guidelines (i.e. in bunded areas). - Spill leak and drip trays provided to address minor drips and spills resulting from re-fuelling operations. Spill response equipment and materials kept on site and in operational vehicles (where appropriate). - Maintain a register of incidents and implement corrective actions based on outcome of investigations. - Vehicles and equipment are operated and maintained in accordance with specifications to minimise the potential for a spill or leak (e.g. oil leak or hydraulic hose failure). - Any waste generated during spill clean-up operations will be disposed of in accordance with manufacturer's guidelines and legislative / EA waste management requirements. • <u>Production operations</u> - Plant and equipment designed, constructed and operated in accordance with Santos Engineering Standards and relevant Australian/International standards. - Infrastructure design process to address location and non-location specific threats (e.g. pipeline corrosion) and develop adequate controls to mitigate environmental and public/third party safety risk. - Safety, testing, maintenance and inspection procedures implemented. - Prestart-up checklist prior to commissioning and decommissioning activities. - Pipeline construction integrity verification e.g. hydrotest. • <u>Loss of containment</u> - Infrastructure designed, constructed and operated in accordance with Santos Engineering Standards, relevant Australian/International standards, and Conditions E14 – E17 of EA EPPG04323316 in relation to dams.	III	c	Low

Identification				Unmitigated Risk			Control Strategies	Residual Risk		
Risk Event / Activity	Relevant EV	Potential Impact	Risk Source	Consequence	Likelihood	Risk		Consequence	Likelihood	Risk
							- Infrastructure design process to address location and non-location specific threats and develop adequate controls to mitigate environmental and public/third party safety risk. Safety, testing, maintenance and inspection procedures implemented. - Pipeline construction integrity verification (e.g. hydro test, or pneumatic test). - Regular monitoring of control systems (e.g. emergency shutdown valves) to ensure that protection levels are adequate. Emergency response training for emergency response personnel. - Loss of containment managed via appropriate Santos incident management system, and implementation of corrective actions is based on incident investigation. • <u>Rehabilitation</u> - Pipeline trenches are backfilled and topsoils reinstated within 3 months after pipe laying in accordance with condition E18 of EA EPPG04323316. - Gathering line RoWs are re-instated and revegetation commenced within 6 months after completion of petroleum activities for the purpose of pipeline construction in accordance with condition E19 of EA EPPG04323316. - Rehabilitation of significantly disturbed areas will commence within 12-months of no longer being required (unless an exceptional circumstance in the area to be rehabilitated (e.g. a flood event) prevents this timeframe being met). - Areas potentially exposed to contamination will be assessed and remediated where required. - Final rehabilitation of disturbed areas would be undertaken to achieve the final rehabilitation criteria conditions (as specified in the EA). - Rehabilitation aims to reshape and stabilise disturbed areas to provide appropriate site conditions to facilitate natural revegetation processes, and will include the following activities (where appropriate): ▪ ripping of areas of compacted soil (except on sensitive soils / environments). ▪ respreading of stockpiled topsoil, vegetation and seed stock (where available) to facilitate natural revegetation; and ▪ restoration of natural landform contours.			
Construction and operation of proposed infrastructure	Flora, Regional Ecosystems and ESAs	Damage to and/or loss of native vegetation and habitat Damage to and/or loss of high value flora Introduction and / or spread of weeds, pest plants, animals and pathogens	Infrastructure construction (earthworks activities, including grading and trenching) Vehicle and plant movements Fire (ignition sources resulting from activities)	III	c	Low	**General** • Compliance with relevant EA conditions, and all relevant internal and external approvals in place before work undertaken. **Flora, Regional Ecosystems and ESAs** • Use of pre-existing disturbance areas has been maximised wherever practicable (refer to Section 2.2). • Disturbance to sensitive areas including ESAs and watercourses has been minimised wherever practicable (refer to Section 2.2). • Extent of authorised clearing will be delineated. • Where practicable, clearing of mature trees will be avoided. • Where practicable, branches will be lopped rather than the removal of whole trees or shrubs. • Introduction and / or spread of weeds, pest plants, animals and pathogens: - Hygiene protocols implemented as appropriate to minimise the introduction, spread and persistence of weeds, pest plants, animals and pathogens. - Access to and from the site via designated access tracks only. - Vehicle and equipment wash-down when operations have been undertaken in areas of known weed infestations. - Monitor for presence of weeds within the construction area, and where necessary implement control measures. - Ensure that imported material is from an area or source considered to be pest plant/disease free. • Refer to Control Strategies listed under ‘Fire and Flood’ and “Vehicle and plant movements” under Land Resources.	II	c	Low

Identification				Unmitigated Risk			Control Strategies	Residual Risk		
Risk Event / Activity	Relevant EV	Potential Impact	Risk Source	Consequence	Likelihood	Risk		Consequence	Likelihood	Risk
Construction and operation of proposed infrastructure	Fauna	Damage to and/or loss of native vegetation and habitat Loss of species population, further endangerment and loss in species diversity Disturbance, injury or loss of fauna Introduction and/or spread of weeds, pest plants, animals and pathogens	Infrastructure construction (earthworks activities, including grading and trenching) Entrapment Vehicle and plant movements Fire (ignition sources resulting from activities)	III	c	Low	**General** • Compliance with relevant EA conditions, and all relevant internal and external approvals in place before work undertaken. **Fauna and Livestock** • A suitably qualified Fauna Spotter / Catcher will be present during vegetation clearing activities; and fauna found to be present within areas to be cleared shall be removed and relocated by the Fauna Spotter / Catcher. • Hollow logs (located on ground) within disturbance areas retained and shifted to adjacent undisturbed areas. • Measures implemented to reduce risks to fauna from earthworks, vegetation clearing, and entrapment in excavations. For example, checking of open trench for trapped fauna, use of trench ladders, ramps, sticks, ropes (or similar) to assist trapped fauna escape / survive until removed. • Refer to additional Control Strategies listed under Flora, Regional Ecosystems and ESAs. Vehicle and Plant Movements, and 'Fire and Flood' under Land Resources.	II	c	Low

Construction and operation of proposed infrastructure	Surface Water	Disturbance to natural drainage patterns
		Degradation of downstream water quality from sediment releases / minor spills or leaks of fuels and chemicals
		Damage to and/or loss of native vegetation and habitat
		Contamination of soil and/or watercourses
			Infrastructure construction (earthworks activities including grading and trenching)
			Vehicle and plant movements
			Minor spills or leaks of fuels and chemicals from vehicles and equipment
			Loss of containment
			Flood (natural event)
				IV	c	Medium	**General**
							• Compliance with relevant EA conditions, and all relevant internal and external approvals in place before work undertaken.
							Surface Water
							• Reuben Downs regulated dam will be designed, constructed and operated in accordance with conditions E14 to E17 of EA EPPG04323316.
							• Santos will develop site-specific erosion and sediment control plans (ESCP) or implement standard ESCPs for each scope of work e.g. gathering line installation.
							• Erosion and sediment controls installed where necessary prior to disturbance.
							• Watercourse crossings will be constructed to comply with the DAF Waterway Barrier Works Code where applicable.
							• Construction or maintenance of linear infrastructure activities in a watercourse will be conducted in the following preferential order:
							  ○ firstly, in times where there is no water present;
							  ○ secondly, in times of no flow; and
							  ○ thirdly in times of flow, but in a way that does not impede low flow.
							• Construction or maintenance of linear infrastructure activities in watercourses will comply with the turbidity limit of condition (E4) of EA (EPPG004323316).
							• Refer to Control Strategies listed under Flora, Regional Ecosystems and ESAs, Fire and Flood, Fuel, Oil and Chemical Storage and Handling, and Loss of Containment under Land Resources.
								IV	b	Low

Construction and operation of proposed infrastructure	Ground water	Contamination of groundwater resources	Seepage of stored produced water to groundwater	IV	c	Medium	**General**
							• Refer to general control strategies listed under the Land Resources EV.
							• Compliance with relevant EA conditions, and all relevant internal and external approvals in place before work undertaken.
							Groundwater
							• <u>Reuben Downs regulated produced water dam:</u>
							  ○ Constructed using dual HDPE liners and incorporate seepage detection monitoring.
							  ○ Will be located within a pre-existing cleared area i.e., no new disturbance to remnant native vegetation will be required for this development.
							  ○ Will be designed and constructed under the supervision of a suitably qualified and experienced person in accordance with the *Manual for Assessing Hazard Categories and Hydraulic Performance of Dams* (DES, 2016).
								IV	b	Low

Identification				Unmitigated Risk			Control Strategies	Residual Risk		
Risk Event / Activity	Relevant EV	Potential Impact	Risk Source	Consequence	Likelihood	Risk		Consequence	Likelihood	Risk
							○ Operation, monitoring and reporting of the dam's condition and adequacy for dam safety will be undertaken in accordance with relevant EA (EPPG04323316) conditions.			
Construction and operation of proposed infrastructure	Air Quality and Noise	Air pollution and localised reduction in air quality Nuisance caused by vibration, noise and dust generation Disturbance to fauna and livestock	Infrastructure construction (earthworks activities including grading and trenching) Vehicle and plant movements Fire (ignition sources resulting from activities) Minor air emissions generated from vehicles and equipment	III	c	Low	**General** • Refer to general control strategies listed under the Land Resources EV. • Fit for purpose equipment. • Conduct regular testing, inspections and maintenance of site equipment. **Air Quality and Noise** • Air and noise emissions will be managed in accordance with controls outlined in Section 6.4, including the following processes: ○ Identification of sensitive receptors during planning, and: ▪ Landholders consulted as required where activities may affect sensitive receptors and/or agricultural operations. ▪ Systems in place for logging stakeholder / landholder complaints to ensure issues are recorded and addressed as appropriate. ○ Noise managed in accordance with 'management hierarchy for noise' set out in the Environmental Protection (Noise) Policy 2019 (Noise). ○ Vehicles, engines and equipment operated and maintained in accordance with manufacturer specifications and planned maintenance systems. ○ Use of attenuation / suppression devices where required e.g. silencing equipment ○ Majority of vehicle movements will be limited to daylight hours. ○ Dust suppression measures carried out where required e.g. road watering. • Refer to control strategies for 'vehicle and plant movements' under the Land Resources EV.	II	c	Low

7.0 Legislative Considerations

7.1 *Environmental Protection Act 1994 (EP Act)*

7.1.1 General Requirements for an EA Amendment Application (s226 and s226A EP Act)

Section 226 and 226A of the EP Act specifies the requirements for an EA amendment application. Table 14 contains a summarised checklist of the EP Act general requirements against this proposed amendment application.

Table 14: General Requirements EA Amendment Application (s226 and s226A EP Act)

Section of the EP Act	Relevance to amendment application
s226(1)(a) be made to the administering authority	The EA amendment application has been lodged with DES who is the administering authority for the EP Act.
s226(1)(b) be made in the approved form	Refer to Attachment 1 of the application package, which includes the *Application to amend an environmental authority.*
s226(1)(c) be accompanied by the fee prescribed under a regulation	The application fee was paid upon lodgement of this application.
s226(1)(d) describe the proposed amendment	Refer to Section 2.2.
s226(1)(e) describe the land that will be affected by the proposed amendment	Refer to Sections 4.0 and 5.0.
s226(1)(f) include any other document relating to the application prescribed under a regulation.	Refer to the information provided throughout this supporting report.
s226A(1)(a) describe any development permits in effect under the Planning Act for the carrying out of the relevant activity for the authority; and	Not applicable - No development permits are in effect under the *Planning Act 2016* for the activities, which are the subject of this amendment application.
s226A(1)(b) state whether each relevant activity will, if the amendment is made, comply with any eligibility criteria for the activity	Not applicable – There are currently no eligibility criteria relevant to the activities proposed by the amendment application.
s226A(1)(c) if the application states that each relevant activity will, if the amendment is made, comply with any eligibility criteria for the activity— include a declaration that the statement is correct	Not applicable – There are currently no eligibility criteria relevant to the activities proposed by the amendment application.
s226A(1)(d) state whether the application seeks to change a condition identified in the authority as a standard condition	Not applicable - The respective EA does not contain any standard conditions.
s226A(1)(e) if the application relates to a new relevant resource tenure for the authority that is an exploration permit or GHG permit—state whether the applicant seeks an amended environmental authority that is subject to the	Not applicable - The application does not relate to a new relevant resource tenure that is an exploration permit or GHG permit

Section of the EP Act	Relevance to amendment application
standard conditions for the relevant activity or authority, to the extent it relates to the permit	
s226A(1)(f) include an assessment of the likely impact of the proposed amendment on the environmental values, including—	
s226(A)(1)(f)(i) a description of the environmental values likely to be affected by the proposed amendment;	Refer to Section 5.0
s226A(1)(f)(ii) details of any emissions or releases likely to be generated by the proposed amendment;	Refer to Section 6.0
s226A(1)(f)(iii) a description of the risk and likely magnitude of impacts on the environmental values;	Refer to Section 6.0
s266(A)(1)(f)(iv) details of the management practices proposed to be implemented to prevent or minimise adverse impacts;	Petroleum activities will be conducted in accordance with existing conditions of EA EPPG04323316 and the mitigation measures outlined in Section 6.0 and Table 13.
s226A(1)(f)(v) if a PRCP schedule does not apply for each relevant activity - details of how the land the subject of the application will be rehabilitated after each relevant activity ends;	The land subject to the proposed disturbances will be rehabilitated in accordance with the existing rehabilitation requirements of the EA EPPG04323316, namely Schedule I - Rehabilitation.
s226A(1)(g) include a description of the proposed measures for minimising and managing waste generated by any amendments to the relevant activity;	The activities and impacts associated with the proposed amendment are not new and are consistent with the activities and impacts already authorised under the EA. Waste generated will be managed in accordance with existing requirements of EA EPPG04323316, Schedule E - Waste.
s226A(1)(h) include details of any site management plan or environmental protection order that relates to the land the subject of the application;	Not applicable – There is no relevant site management plan or current Environmental Protection Orders relating to land located within the project area.

7.1.2 CSG Activities Requirements for EA Amendment Applications (s227 EP Act)

Section 227 of the EP Act specifies requirements for an amendment application for CSG activities as follows:

***Section 227* Requirements for amendment applications—CSG activities**

(1) This section applies for an amendment application if—

(a) the application relates to an EA for a CSG activity; and

(b) the proposed amendment would result in changes to the management of CSG water; and

(c) the CSG activity is an ineligible ERA.

(2) The application must also—

(a) state the matters mentioned in section 126(1); and

(b) *comply with section 126(2).*

The EA amendment application relates to PPLs. Produced water will not be generated as a result of the proposed amendment. Further, whilst the EA amendment application relates to a CSG activity, the amendment application will not result in changes to the management of CSG water as already authorised by EA EPPG04323316.

7.1.3 Underground Water Rights - EA Amendment Applications (s227AA EP Act)

Section 227AA of the EP Act specifies the requirements for an amendment application where the application involves changes to the exercise of underground water rights for a petroleum lease.

As described in Section 2.2, the proposed EA amendment application does not involve changes to the exercise of underground water rights.

7.1.4 Assessment Level Decision for Amendment Application (s228 EP Act)

This amendment application is considered to be a major amendment as defined by s223 of the EP Act. Refer to Table 15 for further information for the determination of this application being a major amendment.

Within 10 business days after receiving an EA amendment application, the administering authority must decide on the assessment level decision for the EA amendment application.

The assessment level decision will determine whether the EA amendment application is a major or minor amendment. Section 223 of the EP Act provides the minor amendment (threshold) assessment.

Table 15: Minor Amendment (Threshold) Assessment

Minor amendment (threshold), for an environmental authority, means an amendment that the administering authority is satisfied -	Relevance to amendment application	
(i) is not a change to a condition identified in the authority as a standard condition, other than	✓	EA EPPG04323316 does not identify any standard conditions.
(i) a change that is a condition conversion; or	✓	
(ii) a change that is not a condition conversion but that replaces a standard condition of the authority with a standard condition for the environmentally relevant activity to which the authority relates; and	✓	
(ii) Does not significantly increase the level of environmental harm caused by the relevant activity; and	☒	The proposed amendment seeks to authorise additional disturbance to ESA by more than 10% of the existing authorisations as prescribed in Schedule A Tables 1, 2 and 3 of EA EPPG0432216.
(iii) Does not change any rehabilitation objectives stated in the authority in a way likely to result in significantly different impacts on environmental values than the impacts previously permitted under the authority; and	✓	The amendment does not seek to change any rehabilitation objectives or conditions.
(iv) Does not significantly increase the scale or intensity of the relevant activity; and	☒	As detailed in Sections 2.1 and 2.2, this amendment application seeks to amend EA EPPG04323316 '*Schedule A, Table 1 – Scale and Intensity for the Activities*' to construct and operate the following proposed infrastructure / activities:

Minor amendment (threshold), for an environmental authority, means an amendment that the administering authority is satisfied -	Relevance to amendment application	
		• produced water dam (14 ha) (PPL 2021); • water pipeline (co-located with OHL and FOC) (12 km / ~51 ha) (PPL 2021); • high voltage power substation (3.75 ha) (PPL 2021); and • produced water tank (5 ha) and water pipeline extension (400 m / ~1 ha) (PPL 2061). • Further, this application seeks the following administrative amendments: • update the disturbance area listed for Angry Jungle dam (3.96ha to 6 ha); The abovementioned activities represent up to approximately 72 ha of additional disturbance to the existing disturbance area authorised by the EA (currently 176.2 ha). The proposed disturbances represent an approximate 41% increase in scale and intensity for relevant activities. Please note, large components of the proposed disturbance areas have been located in pre-disturbed areas or non-remnant vegetation to minimise new disturbance wherever practicable.
(v) Does not relate to a new relevant resource tenure for the authority that is – *(iii) a new mining lease; or* *(iv) a new petroleum lease; or* *(v) a new geothermal lease under the Geothermal Energy Act; or* *(vi) a new GHG injection and storage lease under the GHG storage Act; and*	✓	The proposed amendment does not relate to a new relevant resource tenure which is a new mining lease, petroleum lease, geothermal lease or GHG injection and storage lease.
(vi) Involves an addition to the surface area for the relevant activity of no more than 10% of the existing area; and	☒	As detailed in Sections 2.1 and 2.2, this amendment application seeks to amend EA EPPG04323316 '*Schedule A, Table 1 – Scale and Intensity for the Activities*' to construct and operate the following proposed infrastructure / activities: • produced water dam (14 ha) (PPL 2021); • water pipeline (co-located with OHL and FOC) (12 km / ~51 ha) (PPL 2021); • high voltage power substation (3.75 ha) (PPL 2021); and • produced water tank (5 ha) and water pipeline extension (400 m / ~1 ha) (PPL 2061).

Minor amendment (threshold), for an environmental authority, means an amendment that the administering authority is satisfied -	Relevance to amendment application	
		• Further, this application seeks the following administrative amendments: • update the disturbance area listed for Angry Jungle dam (3.96ha to 6 ha); The abovementioned activities represent up to approximately 72 ha of additional disturbance to the existing disturbance area authorised by the EA (currently 176.2 ha). The proposed disturbances represent an approximate 41% increase (248.2 ha) in the scale and intensity / surface area for relevant activities. Please note, large components of the proposed disturbance areas have been located in pre-disturbed areas or non-remnant vegetation to minimise new disturbance wherever practicable.
(vii) For an environmental authority for a petroleum activity – *(i) if the amendment involves constructing a new pipeline – the new pipeline does not exceed 150km; and*	✓	The amendment does not involve constructing a new pipeline more than 150 km in length.
(ii) if the amendment involves extending an existing pipeline – the extension does not exceed 10% of the existing length of the pipeline; and	☒	The amendment does involve extending an existing pipeline by approximately 400 m, which represents an increase of approximately 33% of the existing pipeline length (1.2 km existing) (PPL 2061).
(viii) If the amendment relates to a new relevant resource tenure for the authority that is an exploration permit or GHG permit - the amendment application under section 224 seeks an amended environmental authority that is subject to the standard conditions for the relevant activity or authority to the extent it relates to the permit.	✓	The amendment does not relate to a new relevant resource tenure that is an exploration permit or GHG permit.

7.1.5 The Standard Criteria (EP Act)

The standard criteria (as defined by Schedule 4 of the EP Act) are required to be considered by the administering authority for deciding an amendment application. Refer to Table 16 for consideration of the standard criteria.

Table 16: Standard Criteria (EP Act)

Schedule 4 EP Act	Relevance
a) the following principles of environmental policy as set out in the Intergovernmental Agreement on the Environment – *(i) the precautionary principle;* *(ii) intergenerational equity;* *(iii) conservation of biological diversity and ecological integrity; and*	The precautionary principle was considered for the application. It is considered that the proposed activities will use 'proven' technology and sufficient scientific data exists that a reverse onus does not exist. The principle of intergenerational equity was considered for the application. It is considered that the proposed activities would not impact the use of environmental values by future generations.

Schedule 4 EP Act	Relevance
	The principles of conservation of biological diversity and ecological integrity were considered for the application. The proposed application would not result in impacts to biological diversity or ecological integrity.
b) any Commonwealth or State government plans, standards, agreements or requirements about environmental protection or ecologically sustainable development	The proposed petroleum activities will be undertaken in accordance with the applicable requirements of the following: • EP Act; • *Environment Protection and Biodiversity Conservation Act 1999* (Cth); • *Nature Conservation Act 1992* (Qld); • *Vegetation Management Act 1999* (Qld); • *Environmental Offsets Act 2014* (Qld); • *Fisheries Act 1994* (Qld); and • *Planning Act 2016* (Qld).
c) any relevant environmental impact study, assessment or report	Not applicable – there is no environmental impact study relevant to this application.
d) the character, resilience and values of the receiving environment	Refer to Section 5.0. and 6.0.
e) all submissions made by the application and submitters	Where required by DES, Santos would consider any submissions made on the application.
f) Best Practice Environmental Management (BPEM) for activities under any relevant instrument, or proposed instrument, as follows- *(i) an environmental authority;* *(ii) a transitional environmental program;* *(iii) an environmental protection order;* *(iv) a disposal permit;* *(v) a development approval;*	BPEM of the petroleum activities would be achieved through compliance with the scheduled environmental objectives and existing conditions of the EA. Potential impacts to any environmental value will be managed in accordance with the existing conditions of EPPG04323316, as well as the Santos Management System.
g) 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;	Santos will continue to provide adequate funds, equipment and staffing to comply with the conditions of the amended EA.
h) Public Interest	Santos has operated in Queensland for over 50 years and we're proud of the economic and social benefits being delivered by the projects in the Coopers, Surat and Bowen basins. One such project is the GLNG Project, which is led by Australian company Santos, in partnership with three of the world's leading energy companies – PETRONAS from Malaysia, Total from France, and KOGAS from South Korea. This project is a pioneering venture which produces natural gas from Queensland's coal seams and converts it into LNG. It involves ongoing gas field development in the Surat and Bowen Basins, a 420-kilometre gas transmission pipeline and a two-train LNG plant on Curtis Island, near Gladstone which will have the capacity to

Schedule 4 EP Act	Relevance
	produce 7.8 million tonnes of LNG per year when fully operational. Santos GLNG is at the forefront of making Australia a world-leading LNG producer and will be worth billions of dollars to the Queensland and national economies over many decades. The billions to be paid in royalties will help pay for government frontline services across Queensland. It's one way the GLNG project is bringing renewed opportunities to Queensland. Project construction began in 2011 with the first shipment of LNG in October 2015. The project has taken more than 95 million work hours to date. More than 10,000 people have worked on the project which saw more than $15 billion invested Australia- wide, including $8 billion in Queensland alone of which $710 million was to the Maranoa, Toowoomba and Western Downs districts. To ensure the delivery of commitments to the domestic and export markets Santos is in the process of optimising activities on existing tenements, along with the active expansion of new fields. This includes the Santos GLNG Project and the Gas Field Development Project which is not a new activity but an extension of the existing work being undertaken by Santos GLNG. One area of expansion is the Roma field which covers approximately 3,000 km^2. Sales gas from the Roma field is transported by pipeline to Gladstone, where it is converted into LNG for export to overseas markets. The major Roma Hub compression facility can produce 145 TJ of gas per day with ongoing development and compression capacity, such as this project, to add to production rates. Santos is committed to meaningfully contributing to the future strength and prosperity of the communities where we operate, building deep, long-lasting relationships with positive intergenerational benefits. We do this through implementing our community investment framework and by providing employment, training, education and enterprise opportunities associated with our industry. As a socially responsible company, our investment in local communities is part of our broader commitment to minimising the impact of our project activities and supporting programs and initiatives that benefit those who live in the areas where we operate. The GLNG community handbook which is a summary of the Santos GLNG Social Impact Management Plan (SIMP) as developed to explain the possible social impacts of our activities and what we are doing about them. Our objective is to work proactively and collaboratively with our host landholders and landowners across all areas of operation. We have a long history of strong and supportive landholder relationships in which we seek to support and enable long-term and intergenerational resilience. We are committed to working with Traditional Owners / clans and Indigenous communities to ensure they are fully informed prior to accessing land and address any issues raised promptly and transparently. We are proud to apply best practice in the assessment, identification and protection of cultural heritage and seek to identify suitable commercial opportunities for Indigenous businesses, as well as opportunities to employ and upskill Indigenous people.

Schedule 4 EP Act	Relevance
	Santos recognises the scientific consensus of climate change assessed by the Intergovernmental Panel on Climate Change. We support the objective of the Paris Agreement to limit global temperature rise to less than 2 degrees Celsius and pursue efforts to limit the temperature rise to 1.5 degrees Celsius. We believe that access to reliable and affordable energy is critical to meeting sustainable development goals and improving living standards and economic prosperity in developed and developing nations. Santos is committed to being part of the solution by supporting the twin objectives of limiting greenhouse gas emissions and providing cleaner fuels to domestic and global markets. Santos has a target of net-zero scope 1 and 2 greenhouse gas emissions by 2040. Our strategy focuses on natural gas as a reliable transition fuel source and the development of technologies such as carbon capture and storage and clean fuels, such as hydrogen, as foundations for our decarbonisation pathway. The application is in the public interest.
i) Site management plan (SMP)	There are no SMPs applicable to the application.
j) Integrated environmental management system (IEMS) or proposed IEMS	The existing Santos Management System in conjunction with Santos management plans will be implemented for the existing resource activities.
k) Other matters prescribed under a regulation	The *Environmental Protection Regulation 2019* prescribes an environmental objective assessment relating to an environmental management decision as an additional matter for the standard criteria. Sections 2.0 to 6.0 address the matters raised in the environmental objective assessment.

7.2 *Environmental Offsets Act 2014*

As per Section 8 of the *Environmental Offsets Act 2014* (EO Act), a significant residual impact (SRI) is generally an adverse impact, whether direct or indirect, of a prescribed activity on all or part of a prescribed environmental matter (PEM) that:

a) remains, or will or is likely to remain, (whether temporarily or permanently) despite on-site avoidance and mitigation measures for the prescribed activity; and

b) is, or will or is likely to be, significant.

The proposed amendment would constitute a prescribed activity under s9 of the EO Act. In accordance with s207(1)(c) of the EP Act, the administering authority may impose an environmental offset condition on an EA. However, s14(2) of the EO Act states that an offset condition may only be imposed on an EA if the proposed activity will, or is likely to have a SRI on a PEM, and all reasonable on-site mitigation measures for the prescribed activity have been, or will be, undertaken.

The *Queensland Environmental Offsets Policy Significant Residual Impact Guideline* (SRI Guideline)(December 2014) has been developed to assist in deciding whether or not a prescribed activity will, or is likely to have a SRI on a PEM.

7.2.1 Cumulative SRI Assessment

In accordance with the *Queensland Environmental Offsets Policy* (Version 1.13), where an amendment to an existing EA is proposed, the SRI assessment relates to the cumulative impacts of the entire project i.e. impacts to PEMs authorised in both the existing EA, and any additional impacts proposed in a new EA amendment application.

Section 7.2.1.2 and Table 17 provide a description of previous amendments to the Roma Backbone EA EPPG04323316. Where impacts to PEMs (as detailed in Section 7.2.1.2 and Table 17) fall outside the exclusions detailed in Section 7.2.1.1, they will be considered as part of the quantum of impacts to PEMs proposed by this EA amendment application against the SRI Guideline criteria.

An SRI assessment (inclusive of any relevant cumulative impacts where appropriate) of the proposed activities / disturbances against the SRI Guideline criteria is provided in Table 18 and Sections 7.2.2 to 7.2.4.

7.2.1.1 Cumulative SRI Assessment Exclusions

Duplication of Offset Conditions

To avoid duplication of offset conditions between jurisdictions, the *Queensland Environmental Offsets Policy* (Version 1.13), provides the following:

> *To avoid duplication of offset conditions between jurisdictions, state and local governments can only impose an offset condition in relation to a prescribed activity if* ***the same or substantially the same impact and the same or substantially the same matter*** *has not been subject to assessment under one of the following Commonwealth Acts:*
>
> - *the Environment Protection and Biodiversity Conservation Act 1999, to the extent the assessment relates to an activity that has been declared a 'controlled action' by the Commonwealth Minister;*
> - *the Great Barrier Reef Marine Park 1975; or*

- *another Commonwealth Act prescribed by regulation – there are currently no listings.*

This includes if the Commonwealth could have imposed an offset condition but did not do so. However, it does not apply if:

- *the condition relates to a protected area; or*
- *the Commonwealth has decided that the activity itself is not a 'controlled action'. For example, an activity referred to the commonwealth that could impact on koalas (or another MNES) that receives a 'not a controlled action' or a 'not controlled action - particular manner' notice, could still be subject to an offset condition imposed by state or local government.*

If the Commonwealth imposes an offset condition for a prescribed environmental matter after the state or local government has already imposed an offset condition, a proponent can apply to the lower level of government to have the duplicate offset requirement removed provided the condition is for the same or substantially the same impact and prescribed environmental matter.

Please note, all disturbances to PEMs (as detailed in Section 6.2) occurring as a result of the proposed amendment will be offset using land-based offsets in accordance with Santos's existing EPBC Act Approval 2008/4059. Refer to Section 7.2.5.1 for further information.

Environmental Offsets Act 2014

Where disturbances to PEMs pre-date the EO Act, they are not subject to cumulative SRI assessment.

Transfer of Existing Infrastructure

Where existing infrastructure has been transferred from the original EA that authorised the activity to a different EA (i.e. infrastructure is transferred between EAs from time to time for legal or commercial purposes), disturbances associated with that infrastructure are not relevant to the cumulative SRI assessment of the new EA.

Disturbances to PEMs associated with transferred infrastructure must be included in cumulative SRI assessments of the original EA that authorised the activity.

7.2.1.2 Relevant EA Amendment History

The Roma Backbone EA (EPPG04323316) was granted as a site-specific EA 11th November 2016 and authorises environmentally relevant activities on PPLs 2020, 2021 and 2061.

As described in Section 2.1, the EA has been amended on several occasions. Table 17 provides a detailed summary of EA amendment history, details of impacts authorised to PEMs, and determines relevance of each amendment to the cumulative SRI assessment.

As summarised in Table 17, no impacts to PEMs authorised by past amendments of EA EPPG04323316 have been identified to be relevant to this SRI assessment. An SRI assessment of the proposed activities / disturbances against the SRI Guideline criteria is provided in Table 18 and Sections 7.2.2 to 7.2.4.

Table 17: Cumulative SRI Assessment – EA EPPG04323316 Amendment History

Amendment Type / Grant Date	Amendment Scope	Impacts to PEMs authorised?	Relevant to Cumulative SRI Assessment?
Major Amendment Granted: 29th August 2017	a) Refinement of the Roma East Gas Pipeline (PPL 2020) and Water Pipeline (PPL 2021) alignments; and b) Authorisation of temporary pipeline construction work areas.	**Yes** Significant residual impacts to PEMs were added to the EA (Condition B6 and associated Schedule B, Table 1). Disturbance areas to ESAs and PPZs were also determined and included in the EA (Schedule A, Condition A4 and Schedule A Tables 2 and 3).	**Not Relevant** All disturbances to PEMs as part of this amendment were captured in the approved Federal offset plan under EPBC Act Approval 2008/4059 (CSG Fields) – that being the Santos GLNG Offset Plan and Acquittal Summary: EPBC Act Approval 2008/4059 (Stage 1). Refer to Sections 2.2.6 and 7.2.5 for further detail on Santos' offset delivery history and mechanisms under the EPBC Act. Federal offset plans are available at: https://www.santos.com/about-us/corporate-governance/glng/
Amendment by Agreement Granted: 3rd May 2017	a) Category C definition change	**No** No change in the scale or intensity of activities was requested or authorised.	**Not Relevant**
Minor Amendment Granted: 14th February 2018	a) Transfer of existing infrastructure (Compressor Station R-NCS-01 and Angry Jungle Dam) from RSGPAE EA (EPPG00662213) to the Backbone EA; b) Construction and operation of 2 HDPE pipelines (Maisey Water and Gas Pipelines); and c) Reduction in scale and intensity of authorised activities as detailed in Schedule A, Table 1 (PPL 2020 and PPL 2021 lengths were reduced from 45 km to 34.1 km).	**No** The amendment authorised Impacts to Category B ESA PPZ (which is not a PEMs) (10.08 ha) for construction/operation of the Maisey Water and Gas Pipelines. Further, no remnant vegetation was cleared as part of construction of the pipelines i.e. the disturbance area was previously cleared for agricultural land use.	**Not Relevant** Transfer of existing infrastructure from the RSGPAE EA to the Backbone EA is excluded from cumulative SRI assessed as per exclusions listed in Section 7.2.1.1.
Minor Amendment Granted: 26th March 2021	a) Amendment to transfer existing Maisey East Water Line from PPL 2020 to PPL 2061 – and list PPL 2061 as a relevant tenure on the EA.	**No** No change in the scale or intensity of activities was requested or authorised.	**Not Relevant**

Table 18: Significant Residual Impact Summary Table

Prescribed environmental matter as per EO Reg	Presence in the project area	
Regulated vegetation	☒	The proposed activities will not trigger the SRI criteria for regulated vegetation as described in the SRI Guideline, Sections 2 and 2.1 - Table 1 (DEHP, 2014). As discussed in Section 5.5.2, a prescribed RE is an RE located in a Category B area on the '*regulated vegetation management map'* to the extent the RE contains remnant vegetation. As discussed in Section 5.2, Terrestria undertook field and desktop based ecological assessment of the project area. Terrestria did not identify any areas of remnant vegetation that were also located within a Category B area as mapped on the '*regulated vegetation management map'*. Remnant REs identified to be present in the project area are provided in Table 7 and are displayed on Figure 5. Refer to Appendix A for further information.
Connectivity areas	☒	The Landscape Fragmentation and Connectivity Tool was utilised to assess the proposed disturbances for potential impacts to Connectivity Areas. The Tool determined no SRI was triggered by the proposed activities. Refer to Section 7.2.4 for further information.
Wetlands and watercourses	☒	The following wetlands or watercourses are not present within the project area: • Wetlands in a wetland protection area as shown on the Map of referrable wetlands under schedule 12, part 2 of the *Environmental Protection Regulation 2008*; • Wetlands of high ecological significance as shown on the Map of referrable wetlands under schedule 12, part 2 of the *Environmental Protection Regulation 2008*; or • Wetlands or watercourses in a high ecological value waters as identified under the *Environmental Protection (Water) Policy 2009*, schedule 2.
Designated precinct in a strategic environmental area	☒	The project area is not located in a designated precinct in a strategic environmental area.
Protected wildlife habitat	✓	• Based on fauna habitat / regional ecosystem associations, wildlife habitat for vulnerable or endangered species may be present within the project area (refer Sections 5.4 and 7.2.2 for further information). • No high risk areas on the flora survey trigger map exist within the project area.
Protected areas	☒	There are no protected areas within the project area.
Highly protected zones of State marine parks	☒	The project area does not contain highly protected zones of a State marine park.
Fish habitat areas	☒	Areas declared under the *Fisheries Act 1994* to be a fish habitat area are not present within the project area.
Waterway providing for fish passage	✓	The development may intersect watercourses providing potential fish passage. However, with implementation of appropriate management measures, no SRI is expected to occur. Refer to Section 7.2.3 for further information.
Marine plants	☒	Areas containing marine plants are not present in the project area.
Legally secured offset areas	☒	No legally secured offset areas are present within the project area.

7.2.2 Protected Wildlife Habitat

A prescribed activity is likely to have a significant impact on protected wildlife habitat if:

- For endangered and vulnerable wildlife habitat (including essential habitat), an action is likely to have a significant impact on endangered and vulnerable wildlife if the impact on the habitat is likely to:
  - lead to a long-term decrease in the size of a local population; or
  - reduce the extent of occurrence of the species; or
  - fragment an existing population; or
  - result in genetically distinct populations forming as a result of habitat isolation; or
  - result in invasive species that are harmful to an endangered or vulnerable species becoming established in the endangered or vulnerable species' habitat; or
  - introduce disease that may cause the population to decline, or
  - interfere with the recovery of the species; or
  - cause disruption to ecologically significant locations (breeding, feeding, nesting, migration or resting sites) of a species.
- For special least concern (non-migratory) animal wildlife habitat, an action is likely to have a significant impact on a special least concern (non-migratory) animal wildlife habitat if it is likely that it will result in:
  - a long-term decrease in the size of a local population; or
  - a reduced extent of occurrence of the species; or
  - fragmentation of an existing population; or
  - result in genetically distinct populations forming as a result of habitat isolation; or
  - disruption to ecologically significant locations (breeding, feeding or nesting sites) of a species.

As discussed in Section 5.2, Terrestria undertook ecological assessment of the project area to determine presence of suitable habitat for EPBC and NC Act listed flora and fauna (protected wildlife habitat).

Terrestria found no evidence of the presence of listed flora or fauna species during field survey of the project area, however the project area may provide suitable habitat for a range of listed species based on RE association. Listed species assessed to be potentially present, and have suitable habitat within the project area, are detailed in Table 9.

The only aspect of the proposed activities that will disturb remnant vegetation (i.e. REs, ESAs, flora and fauna habitat) is the proposed PPL 2021 water pipeline RoW as described in Section 2.2.2. Disturbance to potentially suitable habitat for listed species are detailed in Table 12, and are displayed on Figure 5. Terrestria undertook an SRI assessed of the proposed activities for each relevant listed species (refer to Table 9) against criteria set out in Section 5.1 of the SRI Guideline (2014) (as detailed above). The SRI assessment determined no SRI to protected wildlife habitat would occur due to the proposed activities. Refer to Section 4.2 in Appendix A for further information on the Terrestria SRI assessment.

7.2.3 Waterway providing for fish passage

An action is likely to have a significant impact on a waterway providing for fish passage if there is a real possibility that it will:

- result in the mortality or injury of fish; or
- result in conditions that substantially increase risks to the health, wellbeing and productivity of fish seeking passage such as through the depletion of fishes energy reserves, stranding, increased predation risks, entrapment or confined schooling behaviour in fish; or
- reduce the extent, frequency or duration of fish passage previously found at a site; or
- substantially modify, destroy or fragment areas of fish habitat (including, but not limited to in-stream vegetation, snags and woody debris, substrate, bank or riffle formations) necessary for the breeding and/or survival of fish; or
- result in a substantial and measurable change in the hydrological regime of the waterway, for example, a substantial change to the volume, depth, timing, duration and frequency of flows; or
- lead to significant changes in water quality parameters such as temperature, dissolved oxygen, pH and conductivity that provide cues for movement in local fish species.

As discussed in Section 5.6, the project area for (PPL 2021 pipeline) will cross three minor SO1 drainage features. These drainage features are highly ephemeral systems, and in the absence of any semi-permanent pools are expected to only contain fish during periods of high rainfall causing streamflow.

Further, the proposed pipeline (PPL 2021) will be buried and the construction works will preferentially occur in dry periods, avoiding potential for fish mortality or injury entirely. Rehabilitation will commence as soon as reasonably practicable following completion of construction activities, including the restoration of natural landform contours to ensure natural surface water flows are maintained. Further, construction within watercourses would occur in accordance with existing EA conditions (Schedule E).

The proposed amendment would not have an SRI on this prescribed environmental matter due to the following:

- Construction within watercourses would not occur during periods of streamflow, avoiding fish mortality or injury;
- The temporary construction of pipeline infrastructure within watercourses would not:
  - reduce the extent, frequency, or duration of fish passage;
  - result in a substantial change to the hydrological regime of the watercourse; or
  - lead to significant changes in water quality parameters within the watercourse.

7.2.4 Connectivity

A development impact on connectivity areas is determined to be significant if either of the following tests are true:

1. The change in the core remnant ecosystem extent at the local scale (post impact) is greater than a threshold determined by the level of fragmentation at the regional scale; or
2. Any core area that is greater than or equal to 1 hectare is lost or reduced to patch fragments (core to non-core).

Test 1: Change in core remnant ecosystem extent at the local scale

The change threshold for the local core remnant extent is derived from the table in Section 3.2 of the SRI Guideline (2014), as reproduced in Table 19.

Table 19: Change in Core Remnant Ecosystem Extent at the Local Scale

Regional scale extent of core remnant ecosystem (per cent)	Change threshold for local core scale remnant ecosystem (per cent)
>90	50
70–90	30
50–70	20
30–50	10
10–30	5
< 10	2

The results of the connectivity tool for the proposed activities are as follows:

Table 20: Connectivity Tool Test 1 - Result

Regional scale extent of core remnant ecosystem (per cent)	Change threshold for local core scale remnant ecosystem (per cent)	Percentage of core remnant ecosystem extent at the local scale (change)	Test 1 result
16%	5%	0.21%	**Not Significant**

Test 2: Loss or fragmentation of core remnant ecosystem at the site scale

If the number of core areas (greater than or equal to one hectare in area) is greater pre-impact than post-impact, then the impact is a significant impact. The connectivity tool output showing the number of patches pre-disturbance and post disturbance for the proposed amendment is shown in Table 21. For the two core categories, there is no loss in the core patch count for the development, and therefore the result is **Not Significant**.

Table 21: Loss or Fragmentation of Core Remnant Ecosystem at the Site Scale

Patch Label	Pre disturbance Patch Count	Post Disturbance Patch Count
core (< 100 hectares)	40	40
core (100-500 hectares)	3	3

Please note, the data output from the connectivity assessment can be provided to DES upon request.

7.2.5 Offset Delivery Mechanism

Any significant residual impacts on MNES occurring as a result of the proposed activities are required to be offset. An Offset Management Plan has been submitted to the Commonwealth in accordance with the statutory offset requirements for the GLNG Project under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) Approval EPBC 2008/4059. Significant residual impacts to MNES for the proposed activities will be acquitted under the EPBC Act using land-based offsets.

Irrespective of whether land-based offsets or Financial Settlement Offset Calculation Methodology are used, a ratio of 4:1 will be used to acquit significant residual impacts to endangered REs, of concern REs and wetlands, in accordance with the Queensland Environmental Offsets Policy (version 1.10) (DES, 2021).

Section 15 of the EO Act restricts the imposition of offset conditions if the prescribed environmental matter relates to an equivalent Commonwealth condition (i.e. EPBC approval condition) or State condition (i.e. CG's Report condition) for the same, or substantially the same, prescribed environmental matter. Table 22 provides the proposed offset delivery mechanism for significant residual impacts covered by other approvals for the same matters are further discussed below.

Table 22: Offset Delivery for Prescribed Environmental Matters

Prescribed environmental matters	Offset Delivery	Details
Protected wildlife habitat	Land-based offsets in accordance with EPBC Approval No. 2008/4059 for the Santos GLNG Project.	All impacts to areas of habitat for the Collared Delma, Yakka Skink, Dunmall's Snake and Eastern Long-eared Bat, listed in Table 12 will be offset in accordance with EPBC Act approval, 2008/4059.

7.2.5.1 Offset obligations under the EPBC Act

Please note, under the broader requirements of Santos' EPBC Act approval (EPBC 2008/4059), all impacts to listed species habitat associated with the GLNG Project are required to be offset i.e. all impact areas to MSES protected wildlife habitat listed in Table 9 will be offset via Santos' Commonwealth offset delivery mechanism. The approval of the GLNG Project and the requirements to provide offsets under the EPBC Act is provided in EPBC Act Approval 2008/4059. The summary of the relevant conditions are below:

- Condition 25 of the approval provides maximum disturbance limits in Table 3 and Table 4 that apply to authorised unavoidable adverse impacts on MNES. This includes maximum disturbance limits for the five species listed above.
- Condition 26 requires an offset area for the approved disturbance limits relating to MNES within the project area. Land based offsets will be provided for the following MNES as prescribed under the EPBC Act Approval 2008/4059:
    - *Delma torquata* (Collared Delma);
    - *Egernia rugosa* (Yakka Skink);
    - *Furina dunmalli* (Dunmall's Snake);
    - *Nyctophilus timoriensis* (Eastern Long-eared Bat); and
    - *Acacia harpophylla* (Brigalow).

7.2.5.1.1. Land-based offsets

Land-based offsets will be provided for on the Santos owned Bottle Tree and Kentucky Properties. Bottle Tree (Lot 7 TR39) is a 3,853 ha property located in the Brigalow Belt South Bioregion, approximately 75 km north-northeast of Injune in south central Queensland. Kentucky (Lot 1 WT37) is a 4,468 ha property located in the Brigalow Belt south Bioregion, approximately 50 km east-northeast of Injune, south central Queensland. Santos has legally secured these offset properties with the Queensland Department of Natural Resources Mines and Energy (DNRME), and these offset areas have been declared as areas of high nature conservation value under Section 19F of the *Vegetation Management Act 1999* (a voluntary declaration). Both properties that will be used to acquit disturbances associated with this EA amendment application are currently owned by Santos. As such values are already under protection.

8.0 References

DEHP (2013). *Guideline – Application requirements for petroleum activities'.* EM705. *Queensland Government, Brisbane.*

DEHP (2014). *Queensland Environmental Offsets Policy Significant Residual Impact Guideline. Queensland Government, Brisbane.*

DES (2016). *Manual for assessing consequence categories and hydraulic performance of structures. Queensland Government, Brisbane.*

9.0 Appendices

Appendix A: Terrestria Ecological Assessment and MSES Reports

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ECOLOGICAL MANAGEMENT

SD23 SPINE PIPELINE REVISED ECOLOGICAL CONSTRAINTS MAPPING AND SIGNIFICANT RESIDUAL IMPACT ASSESSMENT

Report prepared for
Santos Pty Ltd

March 2023

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Document Control Sheet

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Project Manager: Andrew Daniel

Client: Santos

Report Title: Roma SD23 Spine Pipeline Revised Ecological Constraints Mapping and Significant Residual Impact Assessment

Project location: Southern Queensland

Project Author/s: Andrew Daniel

Project Summary: Mapping of potential ecological constraints within the spine pipeline of the Roma SD23 area

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Notice to users of this report

Signed on behalf of Terrestria Pty Ltd

Dr Andrew Daniel
Managing Director

Date: March 2023

SD23 SPINE PIPELINE REVISED ECOLOGICAL CONSTRAINTS MAPPING AND SIGNIFICANT RESIDUAL IMPACT ASSESSMENT

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Abbreviations

EA	Environmental Authority
ESA	Environmentally Sensitive Area
DES	Department of Environment and Science
DNR	Department of Natural Resources
RE	Regional Ecosystems
VM Act	Queensland's Vegetation Management Act 1999
TEC	Threatened Ecological Community

1.0 Introduction

1.1 Background and Purpose

Terrestria Pty Ltd has prepared this report for Santos Pty Ltd with the purpose of providing an independent ecological mapping and impact assessment of the revised 'Spine' pipeline through the Roma gas field as part of the SD23 development (Survey area), Southern Queensland (**Figure 1.1**).

On-ground and desktop assessments of the extant native vegetation communities and associated species habitat within the Survey area was conducted between November 2020 and February 2021. These assessments were conducted in accordance with requirements set out under the Santos Methodology for Assessing Ecological Values (0007-650-PRO-0007). Ecological values that were assessed include:

- Functional regional ecosystem (Endangered and Of Concern) and Threatened Ecological Community[1] (TEC) verification;
- BioCondition assessments within all Assessment Units (AUs) as per DES Guide to determining terrestrial habitat quality (2020);
- MNES/MSES fauna habitat assessment plus incidental threatened fauna observations;
- Fauna habitat mapping of all threatened fauna;
- MNES/MSES flora habitat assessment, plus incidental threatened flora observations;
- Protected plant survey in high-risk trigger areas and areas where EPBC species are considered likely (e.g. Belson's Panic); and
- Incidental fauna sightings.

A change to the extent and alignment of the pipeline and associated power station and water treatment facility (Construction Disturbance Zone - CDZ) has led to a change in the extent and distribution of the impacts to native vegetation communities and threatened species habitat. The pipeline footprint is now manifestly smaller, being at least 14km shorter in length than previously proposed.

There is one small increase in the width of disturbance for linear infrastructure that occurs as the alignment transitions between Lot 139 on Plan CP892978 to Lot 76 on Plan WV165 This expansion of the alignment at this location is to meet council requirements associated with locating the proposed infrastructure across a council-controlled road. The linear infrastructure disturbance area otherwise aligns to a width of 42m.

This report provides a revised assessment of the impacts to extant vegetation communities, associated regional ecosystems and threatened wildlife habitat brought about by these changes.

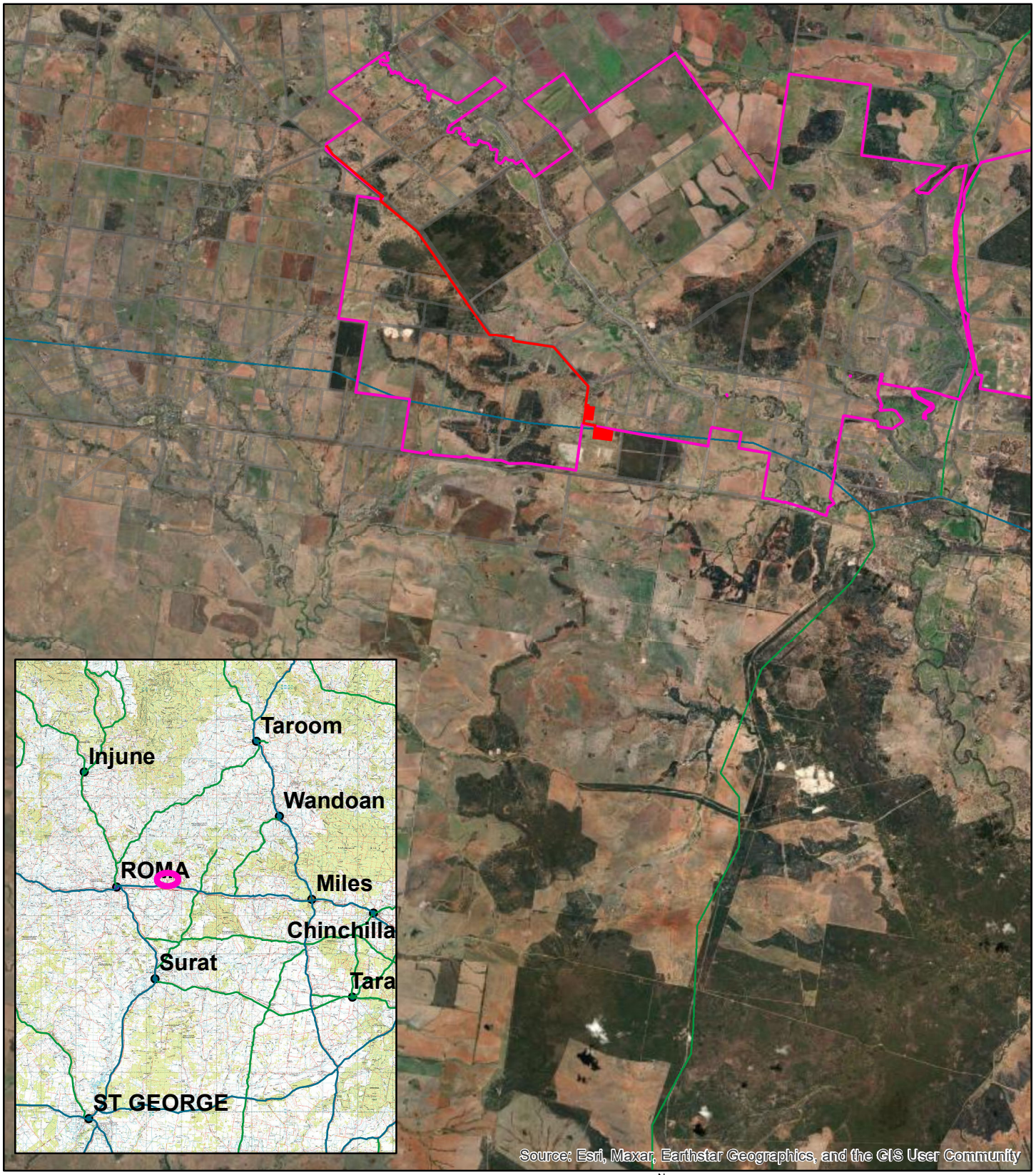
[1] EPBC act 1999

1.2 General Survey Area Description

The SD23 Survey area for this project was previously assess in October 2021 as part of the SD22 East Survey, which covered an area of 18,263 ha that included the original alignment assessed by Terrestria[2]. The SD 23 Survey area extends from just east of Wallumbilla township to west of the Yuelba Taroom Road and north to Anaby Creek (**Figure 1.1**). The Survey area is dissected north-south by Yuelba Creek and in a north-westerly – south-easterly direction by Kangaroo Creek. The Survey area is dominated by cleared cattle pastures with some notable areas of native vegetation, including Yuleba State Forest in the east and the Burnside Station in the west.

The revised Construction Disturbance Zone for the SD23 pipeline is located at the western end of the Survey area (**Figure 1.1**). The SD23 Pipeline ROW starts just southeast of the Wallumbilla North Road, approximately 8.5 km northeast of Wallumbilla and runs in south-easterly direction to just north of the Warrego Highway approximately 11.5 km east of Wallumbilla (**Figure 1.1**). The associated power station and water treatment facility are located at the southern end of the pipeline alignment (**Figure 1.1**).

[2] SD22 Spine Pipeline Ecological Constraints Mapping. Report prepared for Santos Pty Ltd (October 2021).



Legend

- Construction Disurbance Zone
- SD23 Boundary (Survey Area)

FIGURE 1.1

Project Location

SD22 Pipeline Revised Significant Residual Impact Assessment

AD 03/02/23
Job No. 0303

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ECOLOGICAL MANAGEMENT

2.0 Methodology

The desktop and field assessments that produced the field verified project scale regional ecosystem and threatened wildlife habitat mapping for this project was conducted for the original SD22 East surveys undertaken by Terrestria in in October 2021[3]. It is this assessment that has provided the baseline data for the impact assessment for the revised Construction Disturbance Zone.

State 1:10,000 regional ecosystem mapping, recent colour aerial imagery and detailed surface geological mapping have been used to build up a picture of the potential values present within the SD23 Survey area. Field assessment has identified the existence of these values on-ground allowing for the production of a field-scale regional ecosystem map for the Survey Area.

Field and desktop assessments were carried out in accordance with the following Santos documents:

- Methodology for Assessing Ecological Values (0007-650-PRO-0007)
- Santo's Procedure for Conducting Vegetation Assessments, Document Number: 0007-650-PRO-0008,
- Procedure for Conducting Preliminary Ecological Desktop Assessments (0007-650-PRO-0009)
- Procedure for Conducting Wetland Assessments (3301-GLNG-4-1.3-0016)
- Guideline for Conducting Vegetation Community Assessments: A Guide to Using the 'Procedure for Vegetation Community Assessments' (0007-650-GDE-0002).

Field validated regional ecosystem mapping and associated field wildlife habitat assessments provided the basis for the production of spatially explicit threatened wildlife habitat maps. The extent and distribution of impacts to these mapped threatened wildlife habitats has been determined by superimposing the CDZ over the threatened wildlife habitat mapping in a GIS. The resultant areas of clearing have been used, along with expert knowledge of wildlife ecology, to assess whether proposed actions will have a significant impact on any wildlife that are matters of national or State environmental significance.

2.1 Desktop Review

Prior to the field investigation, all available spatially explicit data and imagery was interrogated within a GIS to build up a picture of the native vegetation community types, distribution and condition across the Survey area. This exercise was used to inform a targeted field program that accessed all vegetation types and range of conditions and targeted areas of higher uncertainty.

2.1.1 Native Vegetation Community Base Mapping

A base map of the likely vegetation communities and associated regional ecosystems was developed within ArcMap. The following State government mapping was downloaded and imported into the GIS platform to provide a basis for polygon attribution.

[3] SD22 Spine Pipeline Ecological Constraints Mapping. Report prepared for Santos Pty Ltd (October 2021).

- Detailed Surface Geology 1:250,000 (DNR 2015) (**Figure 3.1**);
- DES's VM Act Regional Ecosystem and Remnant Mapping-Version 12 (**Figure 3.2**); and
- High Value Regrowth Mapping.

The 1:100,000 State regional ecosystem mapping was refined to the site-scale by producing linework delineation of previously mapped vegetation and areas of previously unmapped native vegetation at 1: 6,000. Regional ecosystem type was assigned to each polygon using expert interpretation of underlying geology, landform, aerial imagery and previous mapping.

2.1.2 Threatened Wildlife Habitat Modelling

The results of database searches (**Appendices A** and **B**) and species identified in Boobook (2021) were used to develop a list of target threatened wildlife species, listed under the EPBC Act and/or NC Act. Information gained from this phase of the study has been used to:

- Identify communities and species of significance known from the locality;
- Determine which species of significance are most likely to occur if suitable habitat is located within the Survey area. Those species that are known from nearby records and State mapping are considered more likely to occur if suitable habitat is located; and
- Identify significant areas and planning constraints associated with statutory mapping within the Survey area.

This work was used to focus survey efforts and develop field work programs.

2.2 Field Assessments

Ecological surveys using the methods detailed above, were undertaken between November 2020 and February 2021. The locations of field survey sites are given in **Appendix C** and field data sheets are presented in **Appendices D**, **E** and **F**.

2.2.1 Nomenclature and Taxonomy

Scientific names of flora cited in this report follow Bostock and Holland (2018). Common names for plants are used where helpful and are cited before the scientific name where they are used. Fauna nomenclature follows the International Ornithological Committee checklist (for birds) and DEHP's WildNet database taxonomy (for all other fauna), unless otherwise noted. Some notable references include Churchill (2008), Debus (2012), Van dyck et al., (2013), Cogger (2000), Crome and Shields (1992), Marchant and Higgins (1993), Menkhorst and Knight (2004), Pizzey and Knight (2012), Wilson (2015).

2.2.2 Vegetation Community Mapping

Field tablets loaded with base maps were used to inform on-ground assessment of vegetation type and structural maturity. Methods used to undertake this work followed:

- Neldner, V.J., Wilson, B.A., Dillewaard, H.A., Ryan, T.S., Butler, D.W., McDonald, W.J.F, Richter, D., Addicott, E.P. and Appelman, C.N. (2022) Methodology for survey and mapping of regional ecosystems and vegetation communities in Queensland. Version 6.0. Updated April 2022. Queensland Herbarium, Queensland Department of Environment and Science, Brisbane
- Santo's Procedure for Conducting Vegetation Assessments, Document Number: 0007-650-PRO-0008,
- Guideline for Conducting Vegetation Community Assessments: A Guide to Using the 'Procedure for Vegetation Community Assessments' (0007-650-GDE-0002).

Sufficient data was gathered across the Survey area to inform the production of a Project scale vegetation community map and associated regional ecosystem mapping.

2.2.3 Vegetation Condition Assessment

BioCondition sites were established in all major vegetation assessment units (AUs) using the BioCondition classes and scores derived from the BioCondition – A Terrestrial Vegetation Condition Assessment Tool for Biodiversity in Qld (Eyre et al. 2006). In accordance with the bio-condition methodology the following site-based condition attributes were assessed:

- Presence of large trees;
- Tree canopy height;
- Recruitment of canopy species;
- Tree canopy cover (%);
- Shrub layer cover (%);
- Coarse woody debris;
- Native plant species richness for four life forms;
- Non-native plant cover;
- Native perennial grass cover (%); and
- Litter cover.

Section 1.4.2.1 Box 1.3 of the *Guide to Determining Terrestrial Habitat Quality* (DES 2020) allows for the reduction in the number of assessment units required "if it can be demonstrated that an assessment unit contains multiple discrete polygons that are uniform or in the same general condition".

To demonstrate that multiple discrete polygons of the same mapped assessment unit are in the same general condition, sufficient field data was taken during vegetation community mapping across the survey area to show uniformity and consistency in vegetation condition[4]. This data demonstrates that

[4] Terrestrial Habitat Quality Guidelines (2020), Box 1.3, page 15.

mapped vegetation types can be classified into 2 categories of relatively uniform condition for offsetting purposes. These categories will be:

- Remnant RE, and
- Functional Regrowth RE;

All mapped vegetation polygons have been classified into one of these condition groups and metrics of condition have been estimated for each polygon with attendant photographs.

2.2.4 Wildlife Habitat Quality Assessment

An assessment of the presence and abundance of micro-habitat features necessary to support threatened wildlife known to occur within the locality was undertaken at all regional ecosystem Code sites. This information was used to assist in assigning habitat quality to impacted polygons within the CDZ. Habitat quality, quantity and configuration within the CDZ was used to inform the likelihood of significant residual impacts brought about through construction.

2.3 Post-Survey Assessments

2.3.1 Vegetation Community Mapping

Site-scale vegetation community mapping was produced using field data, aerial photography interpretation and refined (1:6000) linework within a GIS platform. This mapping was used to calculate the areas of remnant regional ecosystems and regrowth (vegetation community types) present within the SD23 Spine Pipeline Survey area.

2.3.2 Threatened Wildlife Habitat Mapping

Threatened[5] wildlife habitat was modelled using the mapping rules for fauna species within Boobook (2021). Habitat types were assigned to field vegetation community mapping to identify areas of habitat that may support threatened species.

Areas of non-remnant vegetation that were determined to be functional regrowth or meet the criteria of a TEC were also considered to provide functional habitat for threatened species. Areas of mapped non-functional regrowth that do not meet requirements as a TEC or "functional regional ecosystem[6]" do not possess the micro-habitat components that provide habitat for threatened species and are considered to be generally unsuitable. This non-functional young regrowth vegetation has been mapped to provide information on potential offset areas and areas to avoid unnecessary disturbance if possible.

After habitat suitability was assigned to all mapped vegetation polygons, for all threatened fauna species, the areas of each habitat type present were calculated and exported from the GIS.

[5] EPBC (1999) and NCA (1992)
[6] Guideline for Conducting Vegetation Assessment: A guide to using the 'procedure for Conducting Vegetation Assessments', doc no.: 0007-650-GDE-0002

3.0 Results

3.1 Desktop Assessment

The results of this report are based on a combination of desktop and site investigations as detailed in **Section 2.0**, above. Desktop surveys were used to highlight the potential ecological values that may be present within the Survey area. This work included the integration of current high-quality aerial photography, State regional ecosystem mapping, watercourse, essential habitat and preclearance regional ecosystem mapping to gain an understanding of the likely distribution of vegetation communities and associated regional ecosystems across the Survey area. These spatially explicit data were loaded onto tablets and hand-held GPS to inform field surveys. Field surveys attempted to sample as much of the Survey area as possible with priority given to areas of threatened vegetation and habitat for threatened species.

3.1.1 Geology

The Detailed surface geology – Queensland (2015) spatial database mapping layer (**Figure 3.1**) identifies the study area as being dominated by fine grained sandstones (land zone 9) overlain by expanses of deep sand sheets of indeterminate origin or deeply weathered in-situ (Doncaster member (w)(LZ5) in the south and west. The underlying cretaceous geology of fine-grained sandstone have weathered to give rise to valley bottoms that support deep sandy clays (land zone 9) (**Tables 3.1**), whilst the overlying deeply weathered material presents as large relatively deep sandy plains. Yuleba and Kangaroo Creeks in the east and Blyth Creek in the west provide flat flood plains that support mosaic of clays and sands classified as Land zone 3.

The CDZ traverses areas of Minmi and Doncaster member fine grained cretaceous sandstones that give rise to landscape of low rolling clay plains (Land Zone 9). One short section crosses an area where the Doncaster member sandstones have experienced deep weathering (Qs-SQ>Doncaster Member) giving rise to deep sandy clay plains (Land Zone 5).

3.1.2 Regional Ecosystem Distribution

The distribution of remnant (VM Act) regional ecosystems as mapped by the Queensland Herbarium (V11) at a scale of 1:100,000 is shown in **Figure 3.2**. Descriptions from the Regional Ecosystem Description Database (REDD) (version 11) for these regional ecosystems are presented in **Table 3.2.**

The Herbarium 1:100,000 regional ecosystem maps the remnant vegetation within the CDZ as a mosaic of eucalypt dominated woodlands on sand soils (RE 11.5.1) and woodlands on lateritic surfaces (RE 11.7.2). These remnant patches occur within a matrix dominated by cleared grazing and cropping lands.

The CDZ traverses through two patches of State mapped remnant regional ecosystem. One 1.1 ha patch of RE 11.7.2 and one heterogeneous polygon consisting of 2.17 ha of RE 11.7.2 and 0.54 ha of 11.5.1 (**Figure 3.2**).

Table 3.1: Major Geology Units Mapped from the Survey Area (source: Detailed surface geology – Queensland, 2018)

Map Symbol/Name	Age	Lithology Description	Land Zone
Bungil Formation	Cretaceous	Glauconitic, labile to quartzose, siltstone, mudstone	9
Doncaster Member Kud(w)	Cretaceous	Carbonaceous mudstone, siltstone, minor siltstone; some glauconitic and calcareous; shelly fossils	9
Doncaster member (w)	Cretaceous	Deeply weathered carbonaceous mudstone, siltstone, minor siltstone; some glauconitic and calcareous; shelly fossils	5
Kingull Member Kyk	Cretaceous	Clayey sandstone and carbonaceous mudstone	9
Minmi Member Kyi	Cretaceous	Glauconitic lithic to quartzose sandstone, siltstone and mudstone, locally bioturbated with shelly fossils	9
Mooga Sandstone	Jurassic	Sandstone, siltstone, mudstone	9
Nullawurt Sands	Cretaceous	Quartzose to labile sandstone, siltstone and mudstone	9
JKb Mooga Sandstone	Jurassic	Sandstone, siltstone, mudstone	9
Kyn Nullawurt Sandstone Member	Cretaceous	Quartzose to labile sandstone, siltstone and mudstone	9
Qa-QLD	Quaternary	Clay, silt, sand and gravel; flood-plain alluvium	3
Qs-SQ>Doncaster Member	Quaternary	Sand, red sandy soil, silt and some gravel; floodout and sheet sand with some alluvium	5
Ts-QLD	Tertiary	Clayey sublabile to quartzose sandstone, sandy claystone, laminated siltstone, and local conglomerate	5

3.1.3 Threatened Ecological Communities

There are five Threatened Ecological Communities (TEC) predicted to occur within the Survey area:

- Brigalow (*Acacia harpophylla* dominant and codominant)
- Coolibah - Black Box Woodlands of the Darling Riverine Plains and the Brigalow Belt South Bioregions
- Poplar Box Grassy Woodland on Alluvial Plains
- Semi-evergreen vine thickets of the Brigalow Belt (North and South) and Nandewar Bioregions
- Weeping Myall Woodlands.

3.1.4 Potential Threatened Wildlife

A Protected Matters Report for the pipeline area presents the threatened Wildlife[7] modelled to occur within the local area (**Appendix A**). A WildNet database search that encompasses the entire pipeline area presents threatened wildlife species[8] recorded within the local area (**Appendix B**). Threatened fauna species that could possibly occur within the Survey area are those listed for the Roma gas fields in Boobook (2021).

Table 3.2: State Mapped Regional Ecosystems within the Construction Disturbance Zone

RE	Biodiversity status	Description	Area mapped within the CDZ (ha)
11.5.1	NCP	*Eucalyptus crebra* and/or *E. populnea*, *Callitris glaucophylla*, *Angophora leiocarpa*, *Allocasuarina luehmannii* woodland on Cainozoic sand plains and/or remnant surfaces	0.54
11.7.2	NCP	Acacia spp. woodland on Cainozoic lateritic duricrust. Scarp retreat zone	3.28
Non-rem		Mainly grazing land and associated activities	35.76

NCP = no concern at present, OC = Of concern, E = Endangered

[7] For those species listed as threatened under the EPBC act 1999
[8] For those species listed as threatened under the *Nature Conservation Act, 1992* and *Environment Protection and Biodiversity conservation Act 1999*

3.2 Field Results

Field results are based on surveys carried out between November 2020 and February 2021 by Terrestria field crews.

3.2.1 Field Mapped Regional Ecosystems

The remnant regional ecosystems within Spine Pipeline Survey area (relevant to the CDZ) are dominated by the presence of lancewood (*Acacia shirylei*) open forests on laterised surfaces (RE 11.7.2) and narrow bands of Poplar box (*Eucalyptus populnea*) woodlands on sandy clay plains (RE 11.9.7).

Large areas of regrowth of varying condition in the south of the Construction Disturbance Area are characterised as Narrow-leaved ironbark *Eucalyptus crebra* and Poplar box *Eucalyptus populnea* dominated woodlands on soils derived from deeply weathered material (RE 11.5.1). The north of the CDZ is characterised by the presence of large areas of regrowth Poplar box (*Eucalyptus populnea*) and Brigalow (*Acacia harpophylla*) dominated woodlands on sandy clay soils (RE 11.9.10) (**Figure 3.3**).

3.2.2 Functional and Non-functional Regrowth

Areas of regrowth were mapped regardless of functional status. Those areas that processed sufficient habitat attributes to be regarded as functional according to Santos' method (Boobook 2021) were noted whilst other areas of younger regrowth or in poorer condition were mapped as non-functional. These non-functional regrowth patches do not represent an ESA or TEC as they contain very little in the way of habitat factors for threatened species and are very unlikely to support these threatened species. They have been mapped to identify them for future offset areas and to provide information to project managers looking at native vegetation on aerial photographs that would otherwise have no supporting information.

3.2.3 Threatened Ecological Communities

Only remnant vegetation that meets the definition of "Brigalow (*Acacia harpophylla* dominant and codominant)" was mapped as the TEC 'Brigalow (*Acacia harpophylla* dominant and codominant)'.

3.2.4 Threatened Flora Species Survey

No evidence of the Threatened[9] flora or fauna species were observed within the Survey area.

[9] Listed under the *Nature Conservation Act (1992)* or the *Environment Protection and Biodiversity Conservation Act (1999)*

Table 3.3: Field Mapped Regional Ecosystems within the Construction Disturbance Zone

RE	Biodiversity status	Description	Area mapped within the CDZ (ha)
11.5.1	NCP	*Eucalyptus crebra* and/or *E. populnea*, *Callitris glaucophylla*, *Angophora leiocarpa*, *Allocasuarina luehmannii* woodland on Cainozoic sand plains and/or remnant surfaces	0.55
11.5.1 regrowth		EDL does not meet height and cover requirement for remnant status	7.66
11.7.2	NCP	Acacia spp. woodland on Cainozoic lateritic duricrust. Scarp retreat zone	0.34
11.7.2 regrowth		EDL does not meet height and cover requirement for remnant status	0.23
11.9.10	E	*Eucalyptus populnea* open forest with a secondary tree layer of *Acacia harpophylla* and sometimes *Casuarina cristata* on fine-grained sedimentary rocks	1.17
11.9.10 regrowth	E	EDL does not meet height and cover requirement for remnant status	3.60
11.9.7	OC	*Eucalyptus populnea, Eremophila mitchellii* shrubby woodland on fine-grained sedimentary rocks	1.05
11.9.7 regrowth		EDL does not meet height and cover requirement for remnant status	1.65
Non-rem		Mostly cleared grazing land and associated activities	25.47

NCP = no concern at present, OC = Of concern, E = Endangered, EDL = ecological dominant layer

3.2.5 Threatened Fauna Habitat Mapping

Threatened fauna habitat within the Survey Area was mapped using the mapping rules provided for Roma gas fields in Boobook (2021). Regional ecosystems assessed as providing habitat for threatened fauna are given in **Table 3.4**. Those habitats that occur within the CDZ are highlighted in bold.

Mapped remnant vegetation and functional ecologically sensitive areas were considered to possess sufficient microhabitat features to provide habitat for these species. In addition, non-functional TECs were assessed on a patch by patch basis using field data and aerial photograph interpretation.

Table 3.4: Habitat Types for Threatened Fauna Species within the Survey Area

Common Name	Label	Habitat
South-eastern Long-eared bat *Nyctophilus corbeni*	Nyct_corb	11.3.1, 11.3.2, 11.3.25, **11.5.1**, 11.5.5, **11.7.2**, 11.9.5, **11.9.7**, **11.9.10**
Greater Glider *Petauroides volans*	Peta_vola	11.3.2, 11.3.25, **11.5.1**, 11.5.5, **11.9.7**, **11.9.10**
Koala *Phascolarctos cinereus*	Phas_cine	11.3.2, 11.3.25, **11.5.1**, 11.5.5, **11.9.7**, **11.9.10**
Glossy Black-Cockatoo *Calyptorhynchus lathami*	Caly_lath	11.3.1, 11.3.2, 11.3.25, **11.5.1**, 11.5.5, **11.7.2**, 11.9.5, **11.9.7**, **11.9.10**
Painted Honeyeater *Grantiella picta*	Gran_pict	11.3.1, 11.3.2, 11.3.25, **11.5.1**, 11.5.5, **11.7.2**, 11.9.5, **11.9.7**, **11.9.10**
White-throated Needletail *Hirundapus caudacutus*	Hiru_caud	11.3.1, 11.3.2, 11.3.25, **11.5.1**, 11.5.5, **11.7.2**, 11.7.7, 11.9.5, **11.9.7**, **11.9.10**
Common Death Adder *Acanthophis antarcticus*	Acan_anta	11.9.5, **11.9.7**, **11.9.10**
Woma *Aspidites ramsayi*	Aspi_rams	11.3.1, 11.3.2, **11.5.1**, 11.5.5, **11.7.2**, 11.9.5, **11.9.7**, **11.9.10**
Collared Delma *Delma torquata*	Delm_torq	11.3.2, **11.5.1**, 11.5.5, **11.7.2**, **11.9.7**, **11.9.10**
Yakka Skink *Egernia rugosa*	Eger_rugo	11.3.2, **11.5.1**, 11.5.5, **11.7.2**, 11.9.5, **11.9.7**, **11.9.10**
Dunmall's Snake *Furina dunmalli*	Furi_dunm	11.3.1, 11.3.2, **11.5.1**, 11.5.5, **11.7.2**, 11.9.5, **11.9.7**, **11.9.10**
Golden-tailed Gecko *Strophurus taenicauda*	Stro_taen	11.3.1, 11.3.2, **11.5.1**, 11.5.5, **11.7.2**, 11.9.5, **11.9.7**, **11.9.10**
Dulacca Woodland Snail *Adclarkia dulacca*	Adcl_dula	**11.7.2**, 11.7.7, 11.9.5
Pale Imperial Hairstreak butterfly *Jalmenus eubulus*	Jalm_eubu	11.3.1, 11.9.5, **11.9.10**

Habitat types that occur within the CDZ is highlighted in bold.

3.2.6 BioCondition Assessment

BioCondition assessments were made on all remnant and regrowth regional ecosystems that occur within the SD23 east development and SD23 Spine Pipeline Survey area. A total of 42 BioCondition sites were undertaken across the broader SD23/SD23 Survey area. The locations of BioCondition sites are given in **Appendix C**. Field Assessment Sheets are presented in **Appendix G** and Field and landscape metric data are presented within **Appendix H**. The site scores are given in **Table 3.5**. These site scores are relevant to the SD23 revised pipeline and associated infrastructure. No BioCondition scores are given for REs 11.3.2b and RE 11.5.5 as there are currently no published benchmark data for these regional ecosystems.

Table 3.5: BioCondition Scores for the SD23 East Survey Area

siteid	re	growth_status	tot_num_large_trees_ha	canopy_height	recruitment_canopy_sp_	canopy_cover	shrub_canopy_cover	woody debris_length_ha	native_sp_richness_	non-native_cover	native_per_grass	litter_grd_cov_	patch_size_ha_	context	connectivity	site_score	landscape_score	BIOCONDITION_SCORE
914	11.5.1	remnant	15	4	5	5	5	3	10	10	5	5	10	5	0	0.84	0.75	0.82
916	11.5.5	remnant	NS	NS	5	NS	NS	NS	NS	10	NS	NS	10	5	4	NS	0.95	NS
918	11.7.2	remnant	0	1.5	5	2.5	0	5	10	10	0	3	5	4	5	0.46	0.70	0.51
920	11.9.10	regrowth	10	3	3	2.5	3	5	12.5	10	1	5	5	4	0	0.69	0.45	0.64
922	11.9.10	regrowth	5	4	5	2.5	0	2	10	10	5	5	5	4	2	0.61	0.55	0.60
924	11.9.5	regrowth	0	1.5	5	2.5	0	0	12.5	10	0	3	2	0	0	0.43	0.10	0.37
940	11.9.10	remnant	15	3	3	5	0	3	10	10	0	5	10	5	5	0.68	1.00	0.74

siteid	re	growth_status	tot_num_large_trees_ha	canopy_height	recruitment_canopy_sp_	canopy_cover	shrub_canopy_cover	woody debris_length_ha	native_sp_richness_	non-native_cover	native_per_grass	litter_grd_cov_	patch_size_ha_	context	connectivity	site_score	landscape_score	BIOCONDITION_SCORE
984	11.3.2	regrowth	5	3	5	5	0	0	7.5	10	5	5	5	4	4	0.57	0.65	0.59
989	11.3.25	remnant	10	5	0	3	5	0	7.5	0	0	3	5	4	4	0.42	0.65	0.47
1007	11.7.2	remnant	0	3	5	5	3	2	10	10	1	3	5	5	5	0.53	0.75	0.57
1171	11.5.1	regrowth	0	5	3	5	0	3	7.5	10	1	5	5	4	0	0.49	0.45	0.49
1229	11.3.25	regrowth	0	3	5	5	0	5	12.5	0	5	3	0	0	0	0.48	0.00	0.39
1232	11.5.1	regrowth	0	1.5	5	2.5	0	3	10	0	3	5	2	2	0	0.38	0.20	0.34
1247	11.3.25	regrowth	0	3	5	3	0	5	10	0	5	5	2	2	0	0.45	0.20	0.40
1249	11.5.5	regrowth	NS	NS	5	NS	NS	NS	NS	5	NS	NS	2	2	0	NS	0.20	NS
1255	11.5.5	Regrowth	NS	NS	5	NS	NS	NS	NS	10	NS	NS	2	2	2	NS	0.30	NS
1278	11.3.2	remnant	0	5	3	2	5	5	15	5	3	5	2	2	4	0.60	0.40	0.56

siteid	re	growth_status	tot_num_large_trees_ha	canopy_height	recruitment_canopy_sp_	canopy_cover	shrub_canopy_cover	woody debris_length_ha	native_sp_richness_	non-native_cover	native_per_grass	litter_grd_cov_	patch_size_ha_	context	connectivity	site_score	landscape_score	BIOCONDITION_SCORE
1330	11.9.10	remnant	10	5	5	2	3	3	5	10	0	5	5	2	0	0.60	0.35	0.55
1332	11.5.5	regrowth	NS	NS	5	NS	NS	NS	NS	10	NS	NS	10	5	5	NS	1.00	NS
1334	11.9.10	regrowth	0	1.5	5	3.5	0	3	12.5	10	1	5	2	2	5	0.52	0.45	0.51
1336	11.3.2	remnant	0	5	5	5	0	3	15	10	1	3	10	5	2	0.59	0.85	0.64
1338	11.9.10	regrowth	0	0	5	4	0	3	10	10	0	5	10	5	5	0.46	1.00	0.57
1340	11.7.6	Regrowth	0	4	0	3.5	0	3	15	10	5	5	5	2	0	0.57	0.35	0.53
1342	11.7.6	Regrowth	0	1.5	5	2.5	0	5	12.5	10	5	3	5	2	0	0.56	0.35	0.52
1344	11.7.2	remnant	0	4	3	4	0	2	15	10	5	5	5	4	5	0.60	0.70	0.62
1348	11.7.6	Remnant	0	4	5	4	0	5	12.5	10	5	5	5	2	0	0.63	0.35	0.58
1350	11.7.6	Remnant	5	4	3	2.5	5	3	12.5	10	5	5	2	0	0	0.69	0.10	0.57

siteid	re	growth_status	tot_num_large_trees_ha	canopy_height	recruitment_canopy_sp_	canopy_cover	shrub_canopy_cover	woody debris_length_ha	native_sp_richness_	non-native_cover	native_per_grass	litter_grd_cov_	patch_size_ha_	context	connectivity	site_score	landscape_score	BIOCONDITION_SCORE
1353	11.7.7	regrowth	0	5	3	4	0	3	10	10	5	5	5	4	2	0.56	0.55	0.56
1355	11.7.2	regrowth	0	1.5	5	2.5	0	2	12.5	10	5	5	2	0	0	0.54	0.10	0.46
1357	11.7.2	regrowth	0	1.5	5	2.5	0	0	12.5	3	3	3	0	0	0	0.38	0.00	0.31
1359	11.7.7	remnant	0	5	3	3.5	0	3	12.5	10	5	3	5	4	4	0.56	0.65	0.58
1361	11.5.1	remnant	15	5	5	5	0	3	12.5	10	5	5	5	4	0	0.82	0.45	0.75
1363	11.5.1	remnant	15	5	3	5	0	3	15	3	5	5	5	4	0	0.74	0.45	0.68
1366	11.9.6	remnant	5	5	5	5	0	5	10	10	1	3	7	5	5	0.61	0.85	0.66
1368	11.9.6	regrowth	0	3	3	5	0	5	10	10	5	5	7	5	5	0.58	0.85	0.63
1370	11.3.2b	remnant	NS	NS	0	NS	NS	NS	NS	10	NS	NS	2	2	0	NS	0.20	NS
1372	11.3.2b	regrowth	NS	NS	3	NS	NS	NS	NS	10	NS	NS	5	4	0	NS	0.45	NS

siteid	re	growth_status	tot_num_large_trees_ha	canopy_height	recruitment_canopy_sp_	canopy_cover	shrub_canopy_cover	woody debris_length_ha	native_sp_richness_	non-native_cover	native_per_grass	litter_grd_cov_	patch_size_ha_	context	connectivity	site_score	landscape_score	BIOCONDITION_SCORE
1374	11.3.2b	remnant	NS	NS	5	NS	NS	NS	NS	10	NS	NS	2	2	0	NS	0.20	NS
1376	11.7.7	remnant	10	5	3	5	0	3	12.5	10	5	3	5	4	2	0.71	0.55	0.68
1394	11.7.7	regrowth	5	3	5	3.5	5	3	17.5	10	5	5	2	2	2	0.78	0.30	0.68
1396	11.9.10	remnant	15	3	5	2.5	5	5	12.5	10	1	5	5	4	4	0.80	0.65	0.77
1819	11.9.7	remnant	5	5	5	2.5	3	5	7.5	10	1	3	5	5	4	0.59	0.70	0.61

NS = No Score due to lack of published benchmark data

4.0 Significant Residual Impact Assessment – Wildlife Habitat

The reduction in the CDZ has led to a change in the quantum and distribution of areas of potential threatened wildlife habitat (a prescribed environmental matter[10]) that may be impacted by the Project. The effects of this clearing on the potential long-term survival of these species within the local landscape is investigated.

To calculate the total quantum of impacts on threatened wildlife habitat, Terrestria have taken the revised Spine pipeline footprint (CDZ) shapefile (supplied by Santos) and superimposed it over the field-scale ground-truthed regional ecosystem mapping in a GIS. Habitat suitability was then assigned to the resultant impact polygons using Boobook (2021), field data and local expert knowledge as provided in **Table 3.4**. The results of this modelling exercise provided the total quantum and distribution of wildlife habitat that may be impacted by clearing within the CDZ. These data were then used as the basis of an assessment of the likely significant residual impacts to threatened wildlife habitat according to requirements under Queensland's Environmental Offsets Policy (v 1.8; February 2020) as set out in Offset guideline[11].

The assessment criteria for significant residual impacts to State wildlife habitat and significant impacts to MNES wildlife[12] are similar and therefore the potential impacts have been addressed concurrently for those species listed as threatened under the *Nature Conservation Act, 1992* and the *Environment Protection and Biodiversity Conservation Act, 1999*.

4.1 Background

4.1.1 Prescribed Environmental Matters – Protected Wildlife Habitat

Clearing of native vegetation, regulated by the State has the potential to impact upon Prescribed Environmental Matters. Protected Wildlife habitat is one of the prescribed environmental matters and is defined below:

Protected wildlife habitat[13]

This section applies to the following MSES prescribed in the Environmental Offsets Regulation 2014:

- an area of essential habitat on the essential habitat map for an animal or plant that is endangered or vulnerable wildlife (section 2(3)(b), Schedule 2, EO Reg);

[10] Environmental Offsets Act (2014) Sect 10
[11] Queensland Environmental Offsets Policy, Significant Residual Impact Guideline: Nature Conservation Act 1992 Environmental Protection Act 1994 Marine Parks Act 2004, December 2014.
[12] Significant Impact Guidelines, (2013). Matters of National Environmental Significance; Significant Impact Guidelines 1.1 Environment Protection and Biodiversity Conservation Act 1999. Australian Department of Environment. How to address environmentally sensitive areas and offset requirements in an application for an environmental authority for resource activities. https://www.google.com/search?client=firefox-b-d&q=relationship+between+environmentally+sensitivie+areas+and+Prescribed+environmental+matters Environmental value' is defined in section 9 of the EP Act. General guide for the Queensland Environmental Offsets Framework V1.03 EPP/2021/5541 • Version 1.03 • Last Reviewed: 23 Feb 2021
[13] Section 5,p 10

- an area that is shown as a high risk area on the flora survey trigger map and that contains plants that are endangered or vulnerable wildlife (section 6(1), Schedule 2, EO Reg)
- an area that is not shown as a high risk area on the flora survey trigger map, to the extent the area contains plants that are endangered or vulnerable wildlife (section 6(2), Schedule 2, EO Reg)
- an area of habitat (e.g. foraging, roosting, nesting or breeding habitat) for an animal that is endangered, vulnerable or a special least concern animal (section 6(4), EO Reg).

Significant Residual Impact on a Prescribed Environmental Matter

A significant residual impact is generally an adverse impact, whether direct or indirect, of a prescribed activity on all or part of a prescribed environmental matter that:

a) remains, or will or is likely to remain, (whether temporarily or permanently) despite on-site avoidance and mitigation measures for the prescribed activity; and

b) is, or will or is likely to be, significant[14].

It is noted that the significant impact criteria provide a trigger for consideration of offsets. Once this trigger has been met or exceeded, then the total of the impact is included for consideration—not just the component of impact exceeding the criteria.

Significant residual impact criteria[15]: Endangered and vulnerable wildlife habitat (including essential habitat) & Special Least Concern Wildlife

An action is likely to have a significant impact on endangered and vulnerable wildlife if the impact on the habitat is likely to:

- lead to a long-term decrease in the size of a local population; or
- reduce the extent of occurrence of the species; or
- fragment an existing population; or
- result in genetically distinct populations forming as a result of habitat isolation; or
- result in invasive species that are harmful to an endangered or vulnerable species becoming established in the endangered or vulnerable species' habitat; or
- introduce disease that may cause the population to decline, or
- interfere with the recovery of the species; or
- cause disruption to ecologically significant locations (breeding, feeding, nesting, migration or resting sites) of a species.

Special least concern (non-migratory) animal wildlife habitat

[14] Queensland Environmental Offsets Policy, Significant Residual Impact Guideline: Nature Conservation Act 1992 Environmental Protection Act 1994 Marine Parks Act 2004, December 2014, Section 1, p1.
[15] Section 5.1

An action is likely to have a significant impact on a special least concern (non-migratory) animal wildlife habitat if it is likely that it will result in:

- a long-term decrease in the size of a local population; or
- a reduced extent of occurrence of the species; or
- fragmentation of an existing population; or
- result in genetically distinct populations forming as a result of habitat isolation; or
- disruption to ecologically significant locations (breeding, feeding or nesting sites) of a species.

4.1.2 Amelioration of Impacts to Protected Wildlife Habitat

Rehabilitation works[16]

Where rehabilitation requirements on the impact site are included in a condition of the authority, they may be a relevant consideration in determining the significance of the impact. For example, demonstration of how rehabilitation can mitigate an impact may be based on the production of a well-structured rehabilitation and management plan which identifies and commits to actions to ensure minimal disruption to the healthy functioning of the matter.

Should a proponent successfully demonstrate that rehabilitation works can mitigate an impact to the extent that the impact on MSES would not be considered to be significant, this could negate the requirement for an offset. This circumstance would need, as a minimum, to consider:

- the extent and duration of impact on the matter and its sensitivity to disturbance
- timeframe for rehabilitation relative to the impact occurring and the ability of the matter to maintain its viability during this timeframe
- likely success of rehabilitation works to return the impacted matter to its original condition and
- the time-lag effect—between impact and rehabilitation successfully delivering the original condition for the matter—on the matter's viability.

Rehabilitated land can be considered as an offset for future projects, it cannot be considered as a meeting the offset obligation for the project that is subject to the rehabilitation condition.

4.1.3 Santos Environmental Authority Rehabilitation Requirements

Santos' EA (EPPG04323316) requires that rehabilitation works are conducted (see below). This rehabilitation will commence within 6 months of disturbance. The narrow width of disturbance combined with appropriate topsoil management and facilitation of natural revegetation will provide for regeneration of appropriate pre-clear vegetation communities. This requirement for rehabilitation has been considered when assessing the long-term significant residual impacts to threatened fauna habitat.

[16] Queensland Environmental Offsets Policy, Significant Residual Impact Guideline: Nature Conservation Act 1992 Environmental Protection Act 1994 Marine Parks Act 2004, December 2014, Section 1.2

Progressive Rehabilitation

Disturbed areas no longer required for construction will be progressively rehabilitated/stabilised as construction progresses. Rehabilitation of disturbed areas will include:

- Contouring to match surrounding landforms.
- Re-establishment of surface drainage lines.
- Re-spreading of stockpiled topsoil and establishment of groundcover.
- Placement of cleared vegetation as required.

Rehabilitation

- Pipeline trenches are backfilled and topsoils reinstated within 3 months after pipe laying in accordance with condition E18 of EA EPPG04323316
- Gathering line / pipeline ROW are re-instated and revegetation commenced within 6 months after completion of petroleum activities for the purpose of pipeline construction in accordance with condition E19 of EA EPPG04323316.
- Rehabilitation of significantly disturbed areas will commence within 12-months of no longer being required (unless an exceptional circumstance in the area to be rehabilitated (e.g. a flood event) prevents this timeframe being met) in accordance with condition I2 of EA EPPG04323316.
- Areas potentially exposed to contamination will be assessed and remediated where required as required by condition I2 of EA EPPG04323316.
- Final rehabilitation of disturbed areas would be undertaken to achieve the final rehabilitation criteria conditions (condition I3 of EA EPPG04323316).
- Rehabilitation aims to reshape and stabilise disturbed areas to provide appropriate site conditions to facilitate natural revegetation processes, and will include the following activities (where appropriate):
    - ripping of areas of compacted soil (except on sensitive soils / environments).
    - respreading of stockpiled topsoil, vegetation and seed stock (where available) to facilitate natural revegetation; and
    - restoration of natural landform contours.

These rehabilitation requirements are relevant in determining if a long-term significant residual impact will occur through the installation of the pipeline and are to be considered when making a final impact assessment.

4.2 Assessment of Significant Residual Impacts

4.2.1 Quantification of Potential Wildlife Habitat Clearing

This assessment quantifies the area of potential habitat (e.g. foraging, roosting, nesting or breeding habitat) for an animal that is endangered, vulnerable or a special least concern animal (section 6(4), EO Reg) or MNES[17] threatened fauna and assess the likely long-term impact on the threatened species.

The ability of ground truthed regional ecosystems to provide habitat for the suite of threatened wildlife known to occur within the vicinity was modelled using local expert knowledge, field micro-habitat assessments and Boobook (2021). Habitat suitability was assigned to all polygons within the Survey area. The total potential clearing areas for each mapped regional ecosystem / Wildlife habitat were generated by superimposing the CDZ shapefile (supplied by Santos) over the field-scale ground truthed regional ecosystem mapping[18]/ habitat suitability shapefile within ArcGIS and using the 'clip' function.

Using the exported database, the total area of potential habitat for each relevant threatened species[19] was calculated by summing the individual areas of each RE that was determined to provide potential habitat for each species. We have presented the results of this exercise within **Appendix I**.

Table 4.1: Wildlife Habitat Clearing within Construction Disturbance Zone

Common Name	Potential Habitat within the CDZ (ha)
South-eastern Long-eared bat *Nyctophilus corbeni*	2.3
Greater Glider *Petauroides volans*	2.9
Koala *Phascolarctos cinereus*	2.9
Glossy Black-Cockatoo *Calyptorhynchus lathami*	2.3
Painted Honeyeater *Grantiella picta*	2.3
White-throated Needletail *Hirundapus caudacutus*	2.3
Common Death Adder *Acanthophis antarcticus*	2.4
Woma *Aspidites ramsayi*	3.3

[17] Matters of National Environmental Significance
[18] SD22 Spine Ecological Constraints Mapping (Terrestria July 2021)
[19] Species listed as threatened under the Nature Conservation Act (1992) and listed as Special least concern

Common Name	Potential Habitat within the CDZ (ha)
Collared Delma *Delma torquata*	3.3
Yakka Skink *Egernia rugosa*	3.2
Dunmall's Snake *Furina dunmalli*	3.2
Golden-tailed Gecko *Strophurus taenicauda*	3.3
Dulacca Woodland Snail *Adclarkia dulacca*	0.3
Pale Imperial Hairstreak butterfly *Jalmenus eubulus*	1.4

4.2.2 Assessing Significant Residual Impacts

The likely impact of the proposed clearing on each individual threatened species was assessed according to the criteria set out in Section 5.1 of the Significant Residual Impact Guideline (2014). This assessment considered:

- The total quantum of potential habitat clearing
- The size of individual patches of potential habitat to be cleared
- The micro-habitat features of the habitat to be cleared (Habitat Quality)
- The known presence of the threatened species
- The clearing width
- Requirements for Rehabilitation
- The ecology of the threatened species

The assessment criteria for significant residual impacts to State wildlife habitat and significant impact to MNES wildlife are similar and therefore the potential impacts of the proposed clearing within the CDZ have been addressed concurrently for those species listed as threatened under the *Nature Conservation Act, 1992* and the *Environment Protection and Biodiversity Conservation Act, 1999*. The results of these assessments are present in **Appendix G.**

5.0 Conclusions

Sufficient on-ground assessment by appropriately qualified ecologists was undertaken to produce an appropriately scaled vegetation community/regional ecosystem map for the Survey Area. Determination of habitat quality for threatened wildlife within the mapped regional ecosystem polygons was undertaken using field assessment of the presence of required micro-habitat features and knowledge of the species' ecology. The presence of potential fauna habitat was determined by a conservative approach which assumes the possible presence of a species if; it is known from the locality and a minimal amount of required habitat features are present.

Projection of the CDZ over the project-scale wildlife habitat mapping allowed for the calculation of the amount and distribution of threatened wildlife habitat that may be disturbed by the Project.

The reduction in the length and width of the CDZ has led to a reduction in impacts to remnant and functional regrowth regional ecosystems and associated threatened wildlife habitats. The narrow width of disturbance and restriction of clearing to the edges of larger habitat patches reduces the potential impacts to wildlife ecology. In addition, Santos' EA requirements to rehabilitate most of the disturbance immediately post construction will result in very minor long-term disturbances to existing threatened wildlife habitats.

Assessment of the quantum and distribution of impacts to threatened wildlife habitat against the significant residual impact[20] and MNES Impact guidelines[21] have shown that there will be no significant residual impacts to any wildlife habitats for threatened species brought about through the construction of the SD23 Spine pipeline and associated power station and water treatment facility.

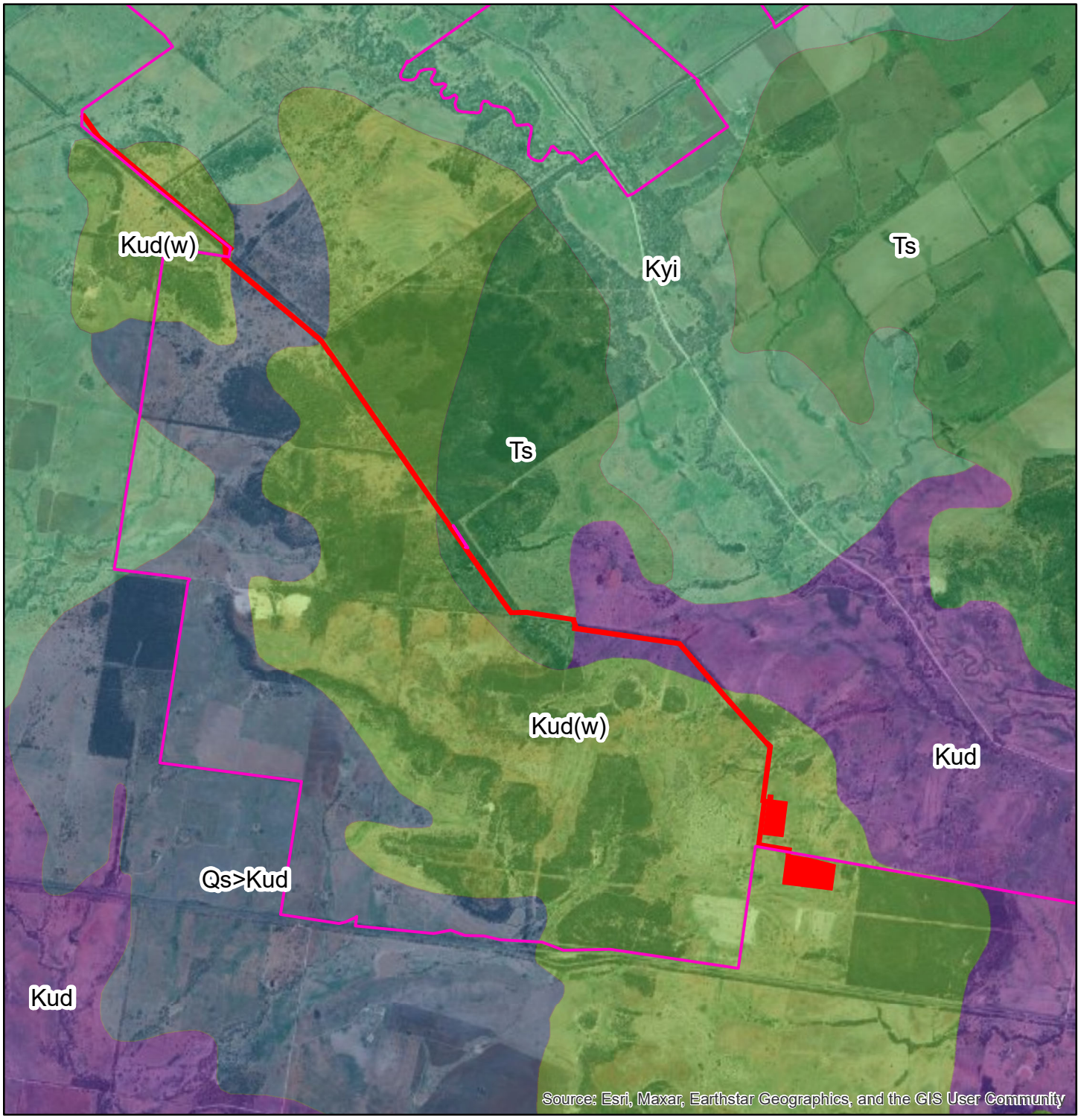
6.0 References

Boobook (2021) Predictive Habitat Mapping Rules for MNES and MSES Fauna Species within the Santos GFD Project Gas Fields. Prepared by Boobook Ecological Consulting for Santos (08/09/2021).

DES 2020. *Guide to determining terrestrial habitat quality, Methods for assessing habitat quality under the Queensland Environmental Offsets Policy* Version 1.3 February 2020

Significant Impact Guidelines, (2013). *Matters of National Environmental Significance; Significant Impact Guidelines 1.1 Environment Protection and Biodiversity Conservation Act 1999*. Australian Department of Environment.

[20] Matters of State Environmental Significance
[21] Federally listed threatened species



Legend

- SD23 Boundary
- Construction Disturbance Zone
- Bungil Formation
- Coreena Member
- Doncaster Member
- Doncaster Member(w)
- Kingull Member
- Minmi Member
- Mooga Sandstone
- Nullawurt Sandstone Member
- Orallo Formation
- Qa-QLD
- Qs-SQ>Coreena Member
- Qs-SQ>Doncaster Member
- Ts-QLD

FIGURE 3.1

State Mapped Detailed Surface Geology

SD22 Pipeline Revised Significant Residual Impact Assessment

AD 02/02/23
Job No. 0303

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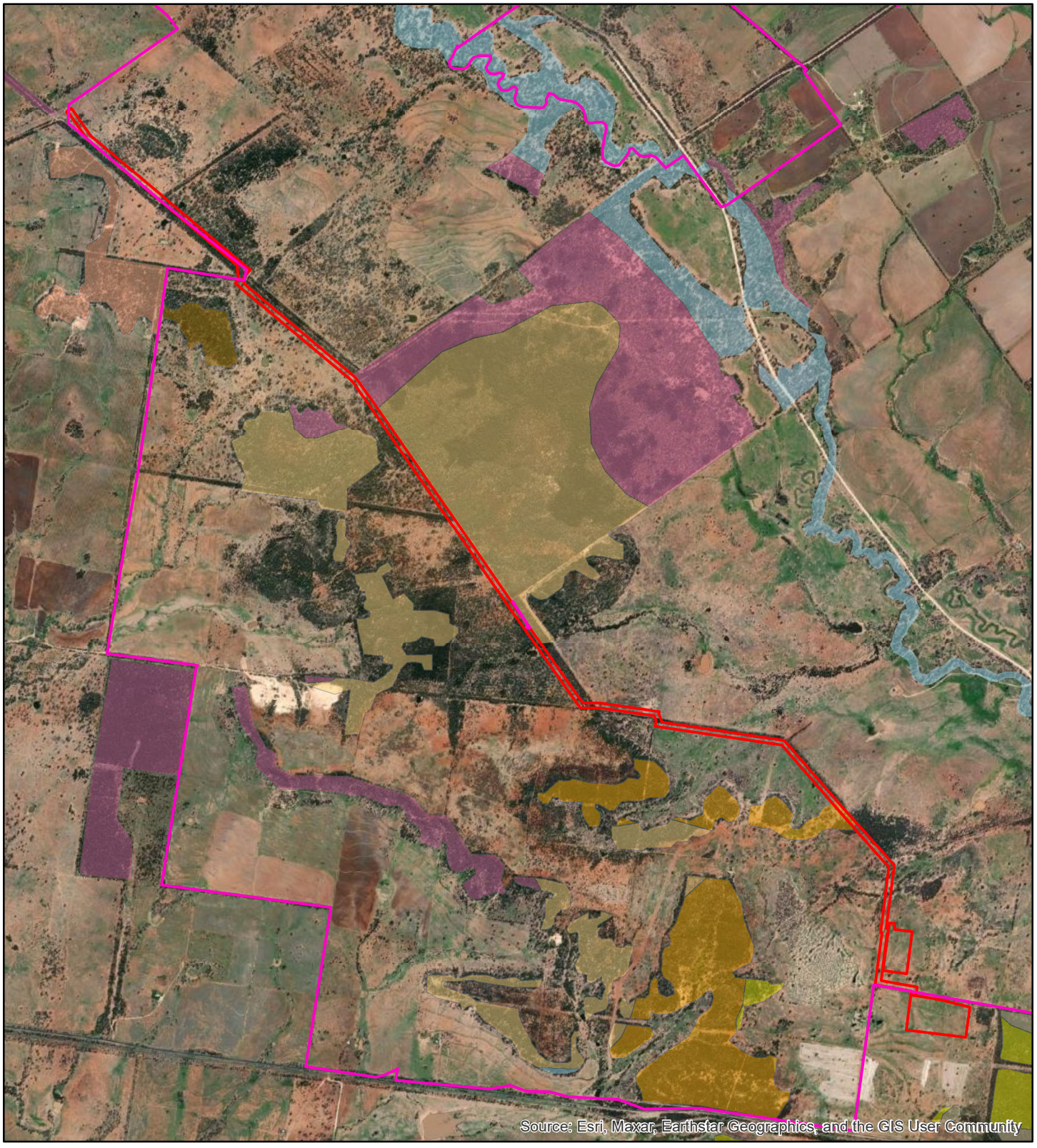

0 0.225 0.45 0.9 1.35 1.8 Kilometers

N

Legend

- SD23 Boundary
- Construction Disturbance Zone

State_Mapped_Regional_Ecosystems

- 11.3.25/11.3.2
- 11.5.1/11.5.5
- 11.5.5
- 11.5.5/11.5.1
- 11.7.2
- 11.7.2/11.5.1
- 11.7.6
- 11.7.6/11.7.2
- 11.7.6/11.9.5a
- 11.9.10
- 11.9.5/11.9.10
- HVR

FIGURE 3.2

State 1:100,000 Regional Ecosystem Mapping

SD22 Pipeline Revised Significant Residual Impact Assessment

AD 25/03/21
Job No. 0237

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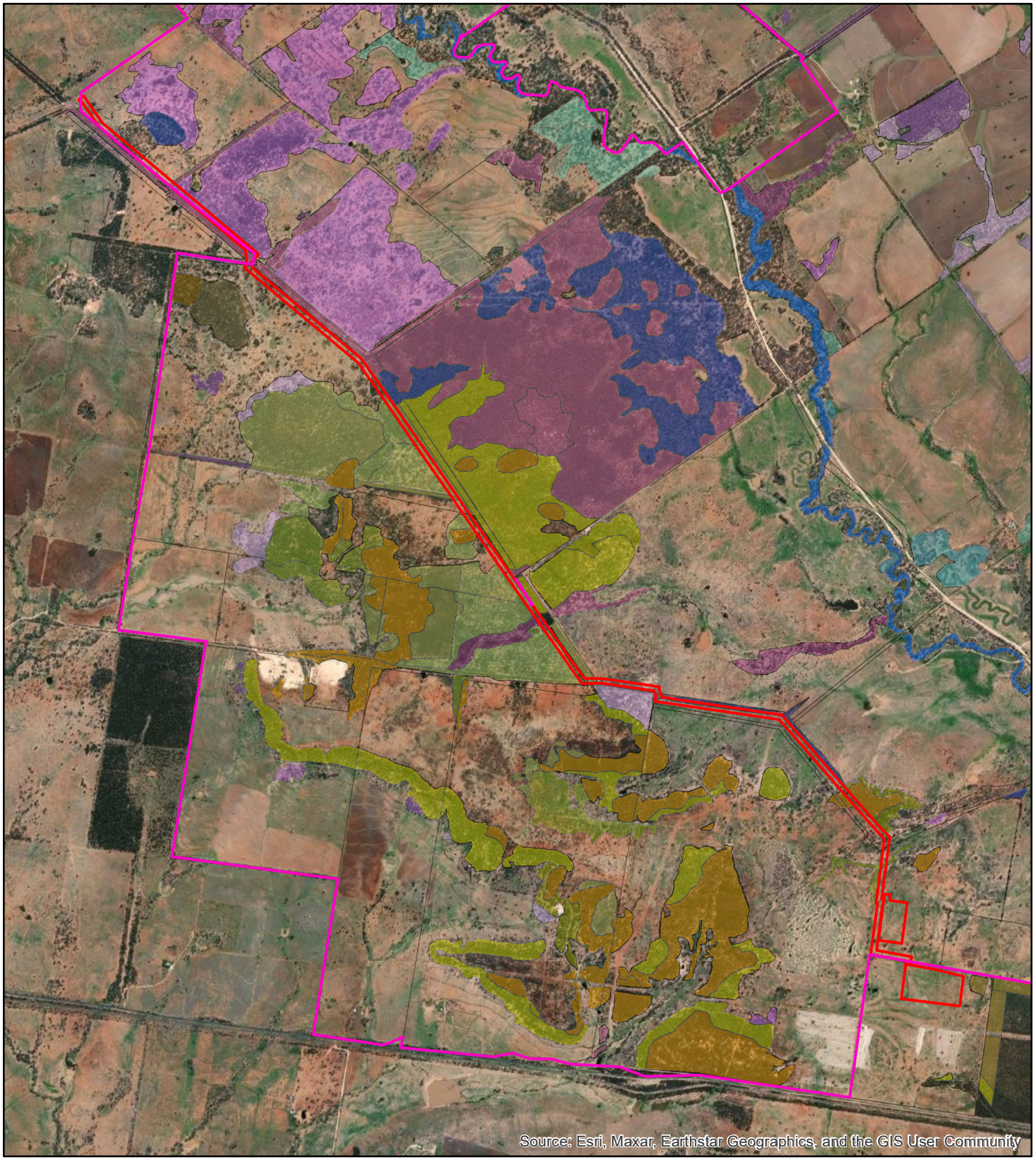

0 0.225 0.45 0.9 1.35 1.8 Kilometers

N

Legend

- SD23 Boundary
- Construction Disturbance Zone
- 11.3.1 regrowth
- 11.3.2 regrowth
- 11.3.25
- 11.3.2b
- 11.5.1
- 11.5.1 regrowth
- 11.5.5
- 11.5.5 regrowth
- 11.7.2
- 11.7.2 regrowth
- 11.7.6
- 11.7.6 regrowth
- 11.7.7
- 11.7.7 regrowth
- 11.9.10
- 11.9.10 regrowth
- 11.9.5
- 11.9.5 regrowth
- 11.9.6
- 11.9.7
- HVR
- non-rem

FIGURE 3.3

Field Validated Regional Ecosystem Mapping

SD22 Pipeline Revised Significant Residual Impact Assessment

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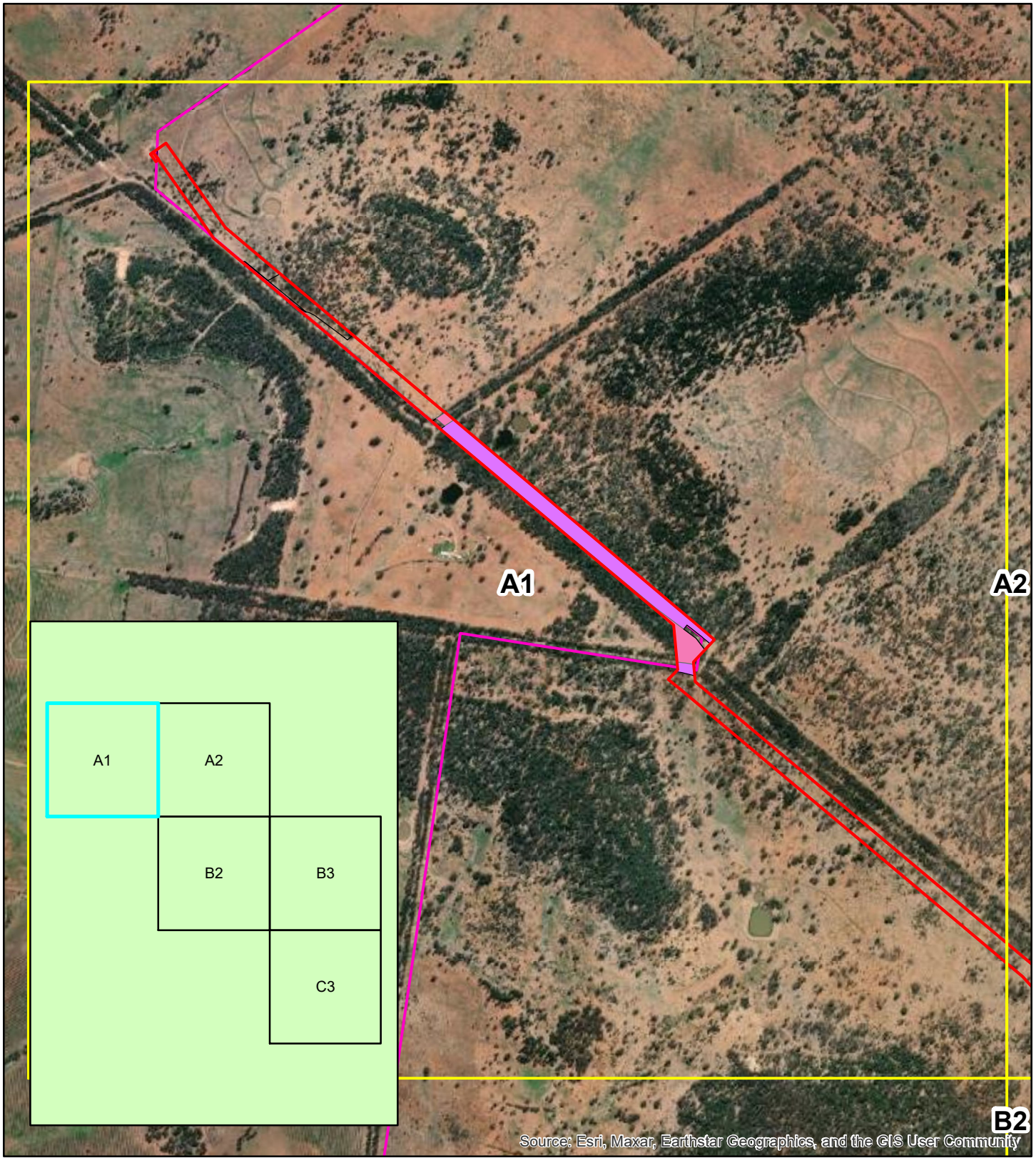

Legend

- Construction Disturbance Zone
- 11.3.1 regrowth
- 11.3.2 regrowth
- 11.3.25
- 11.3.2b
- 11.5.1
- 11.5.1 regrowth
- 11.5.5
- 11.5.5 regrowth
- 11.7.2
- 11.7.2 regrowth
- 11.7.6
- 11.7.6 regrowth
- 11.7.7
- 11.7.7 regrowth
- 11.9.10
- 11.9.10 regrowth
- 11.9.5
- 11.9.5 regrowth
- 11.9.6
- 11.9.7
- HVR
- non-rem

FIGURE 3.3 A1

Field Validated Regional Ecosystem Mapping

SD22 Pipeline Revised Significant Residual Impact Assessment

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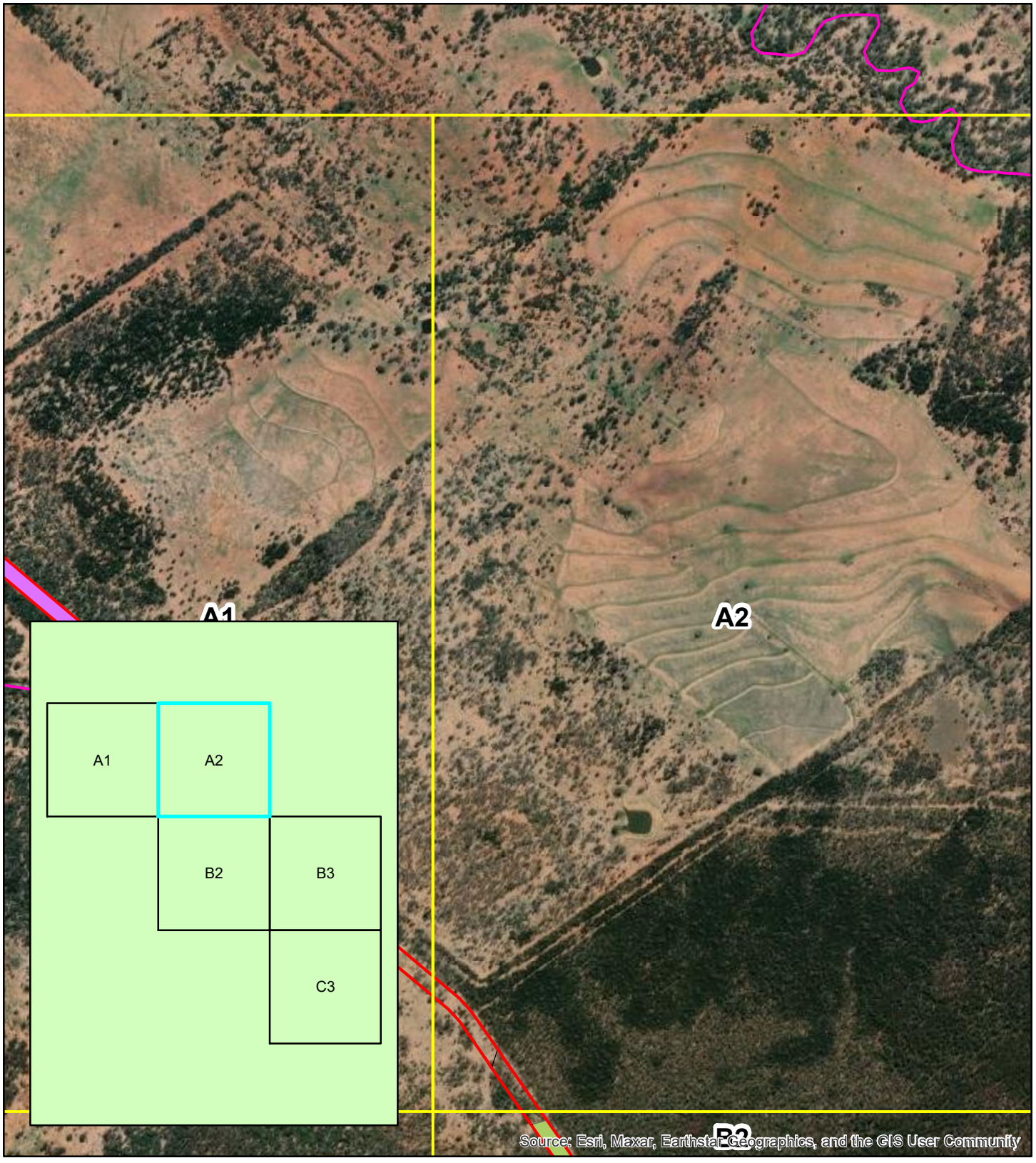

0 0.05 0.1 0.2 0.3 0.4 Kilometers

N

Legend

- Construction Disturbance Zone
- 11.3.1 regrowth
- 11.3.2 regrowth
- 11.3.25
- 11.3.2b
- 11.5.1
- 11.5.1 regrowth
- 11.5.5
- 11.5.5 regrowth
- 11.7.2
- 11.7.2 regrowth
- 11.7.6
- 11.7.6 regrowth
- 11.7.7
- 11.7.7 regrowth
- 11.9.10
- 11.9.10 regrowth
- 11.9.5
- 11.9.5 regrowth
- 11.9.6
- 11.9.7
- HVR
- non-rem

FIGURE 3.3 A2

Field Validated Regional Ecosystem Mapping

SD22 Pipeline Revised Significant Residual Impact Assessment

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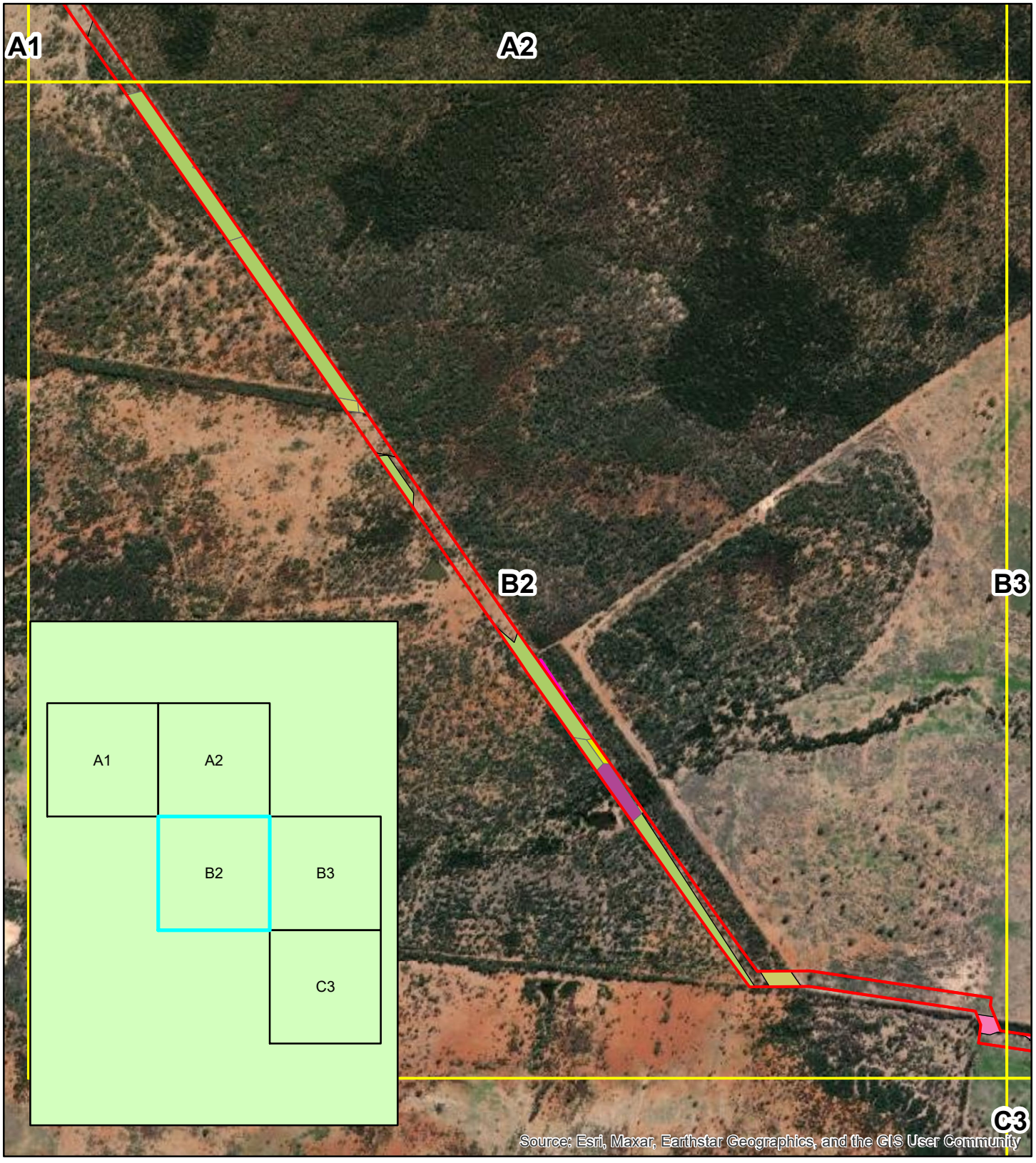

Legend

- Construction Disturbance Zone
- 11.3.1 regrowth
- 11.3.2 regrowth
- 11.3.25
- 11.3.2b
- 11.5.1
- 11.5.1 regrowth
- 11.5.5
- 11.5.5 regrowth
- 11.7.2
- 11.7.2 regrowth
- 11.7.6
- 11.7.6 regrowth
- 11.7.7
- 11.7.7 regrowth
- 11.9.10
- 11.9.10 regrowth
- 11.9.5
- 11.9.5 regrowth
- 11.9.6
- 11.9.7
- HVR
- non-rem

FIGURE 3.3 B2

Field Validated Regional Ecosystem Mapping

SD22 Pipeline Revised Significant Residual Impact Assessment

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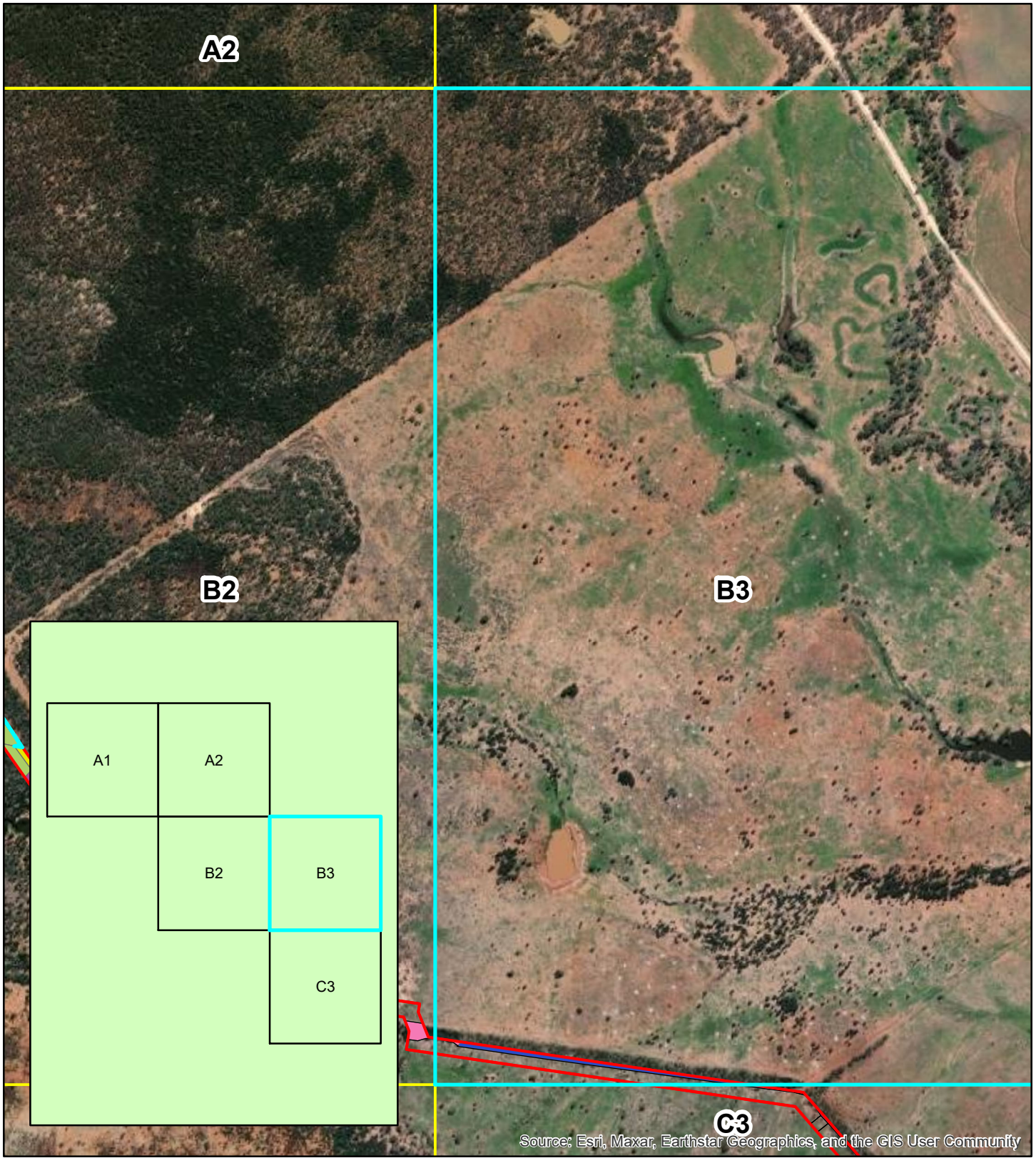
ECOLOGICAL MANAGEMENT



Kilometers
0 0.05 0.1 0.2 0.3 0.4

N

Legend

- Construction Disturbance Zone
- 11.3.1 regrowth
- 11.3.2 regrowth
- 11.3.25
- 11.3.2b
- 11.5.1
- 11.5.1 regrowth
- 11.5.5
- 11.5.5 regrowth
- 11.7.2
- 11.7.2 regrowth
- 11.7.6
- 11.7.6 regrowth
- 11.7.7
- 11.7.7 regrowth
- 11.9.10
- 11.9.10 regrowth
- 11.9.5
- 11.9.5 regrowth
- 11.9.6
- 11.9.7
- HVR
- non-rem

FIGURE 3.3 B3

Field Validated Regional Ecosystem Mapping

SD22 Pipeline Revised Significant Residual Impact Assessment

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Job No. 0303

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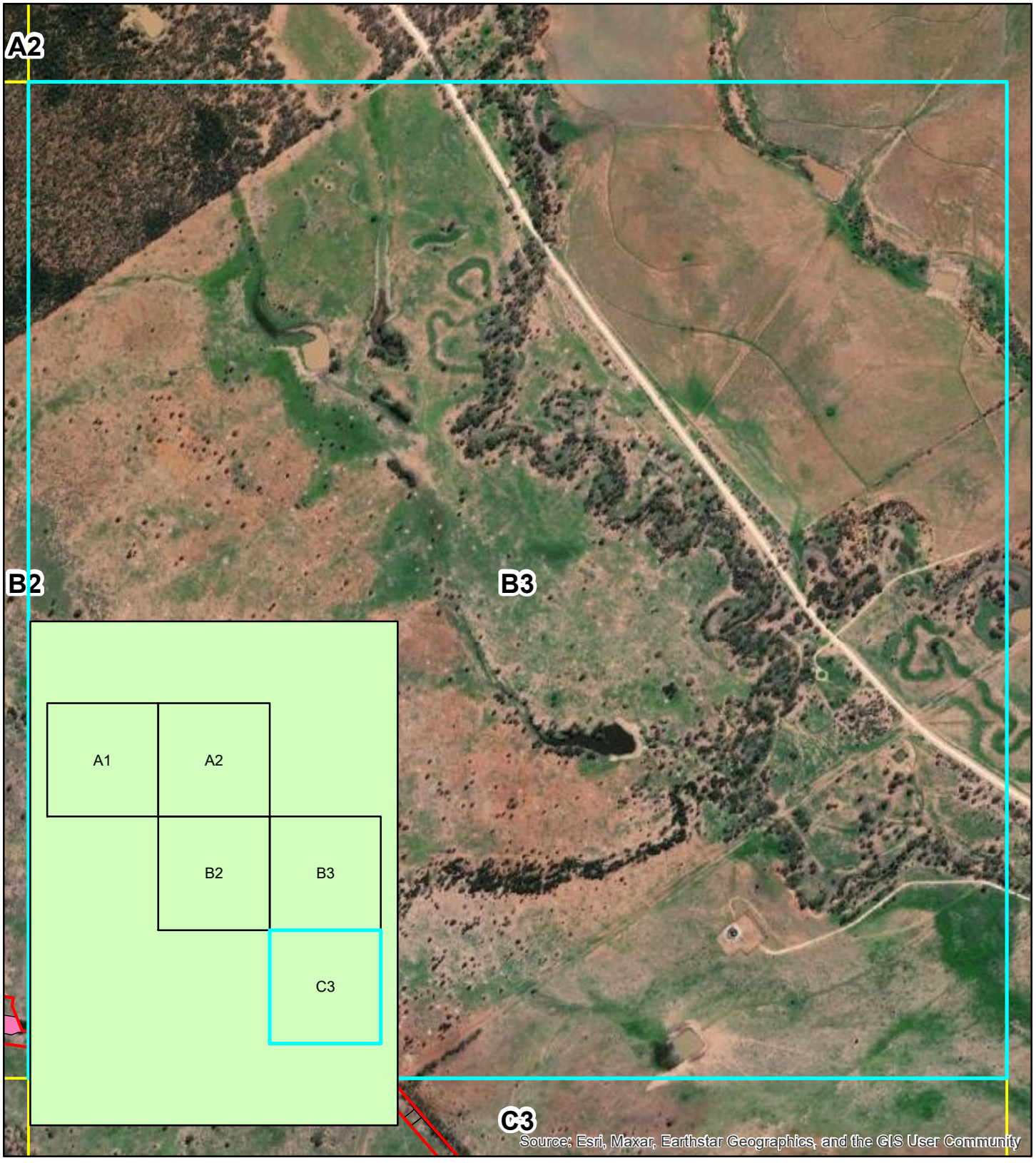

0 0.05 0.1 0.2 0.3 0.4 Kilometers

N

Legend

- Construction Disturbance Zone
- 11.3.1 regrowth
- 11.3.2 regrowth
- 11.3.25
- 11.3.2b
- 11.5.1
- 11.5.1 regrowth
- 11.5.5
- 11.5.5 regrowth
- 11.7.2
- 11.7.2 regrowth
- 11.7.6
- 11.7.6 regrowth
- 11.7.7
- 11.7.7 regrowth
- 11.9.10
- 11.9.10 regrowth
- 11.9.5
- 11.9.5 regrowth
- 11.9.6
- 11.9.7
- HVR
- non-rem

FIGURE 3.3 C3

Field Validated Regional Ecosystem Mapping

SD22 Pipeline Revised Significant Residual Impact Assessment

AD 02/02/23
Job No. 0303

terrestria
ECOLOGICAL MANAGEMENT

0 0.225 0.45 0.9 1.35 1.8 Kilometers

N

Legend

- Construction Disturbance Zone
- General Habitat
- Generally unsuitable

FIGURE 3.4

South-eastern Long-eared bat Nyctophilus corbeni Habitat

SD22 Pipeline Revised Significant Residual Impact Assessment

AD 02/02/23

Job No. 0303

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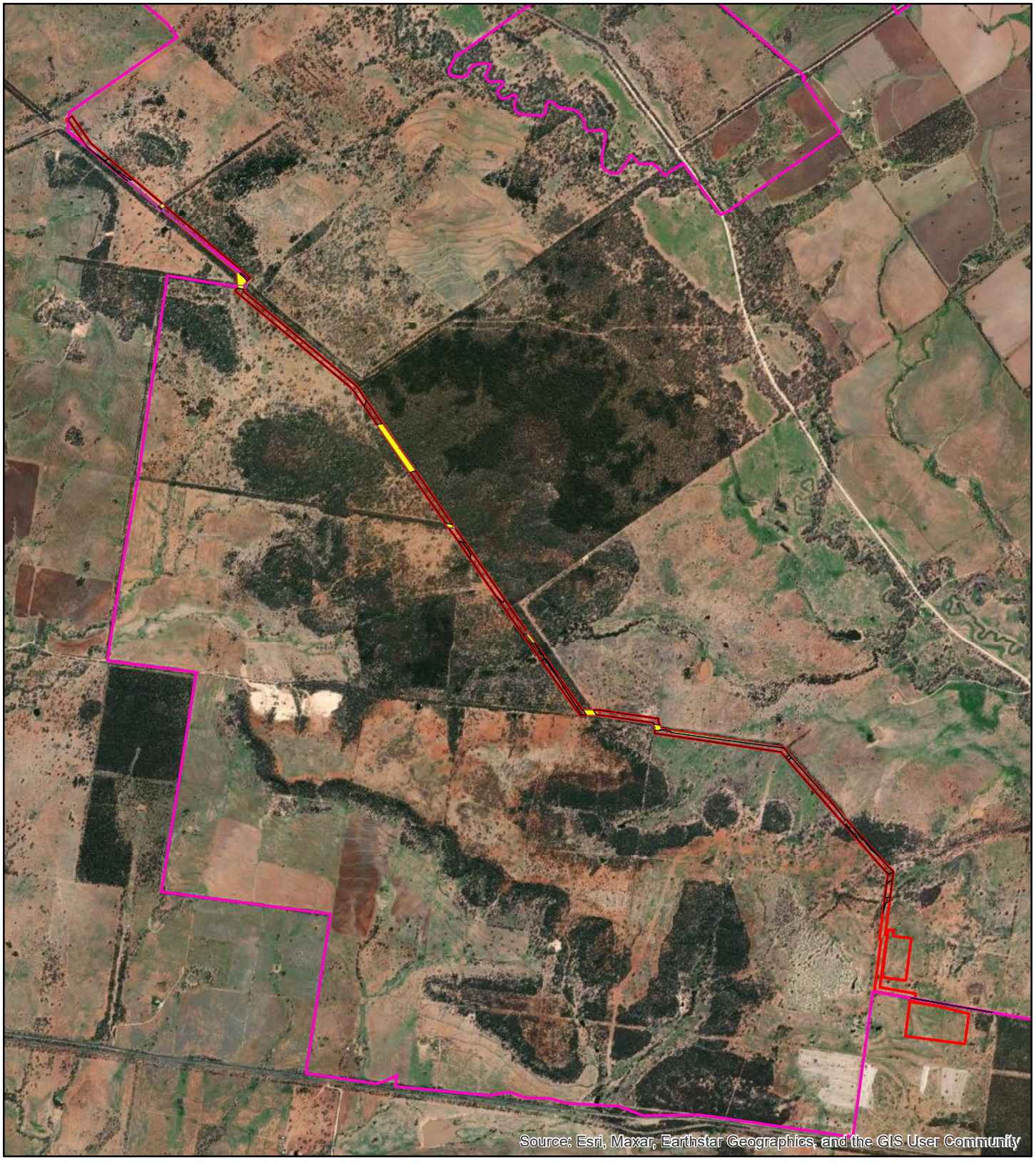


0 0.225 0.45 0.9 1.35 1.8 Kilometers

N

Legend

- SD23 Boundary
- Construction Disturbance Zone
- General Habitat
- Generally unsuitable

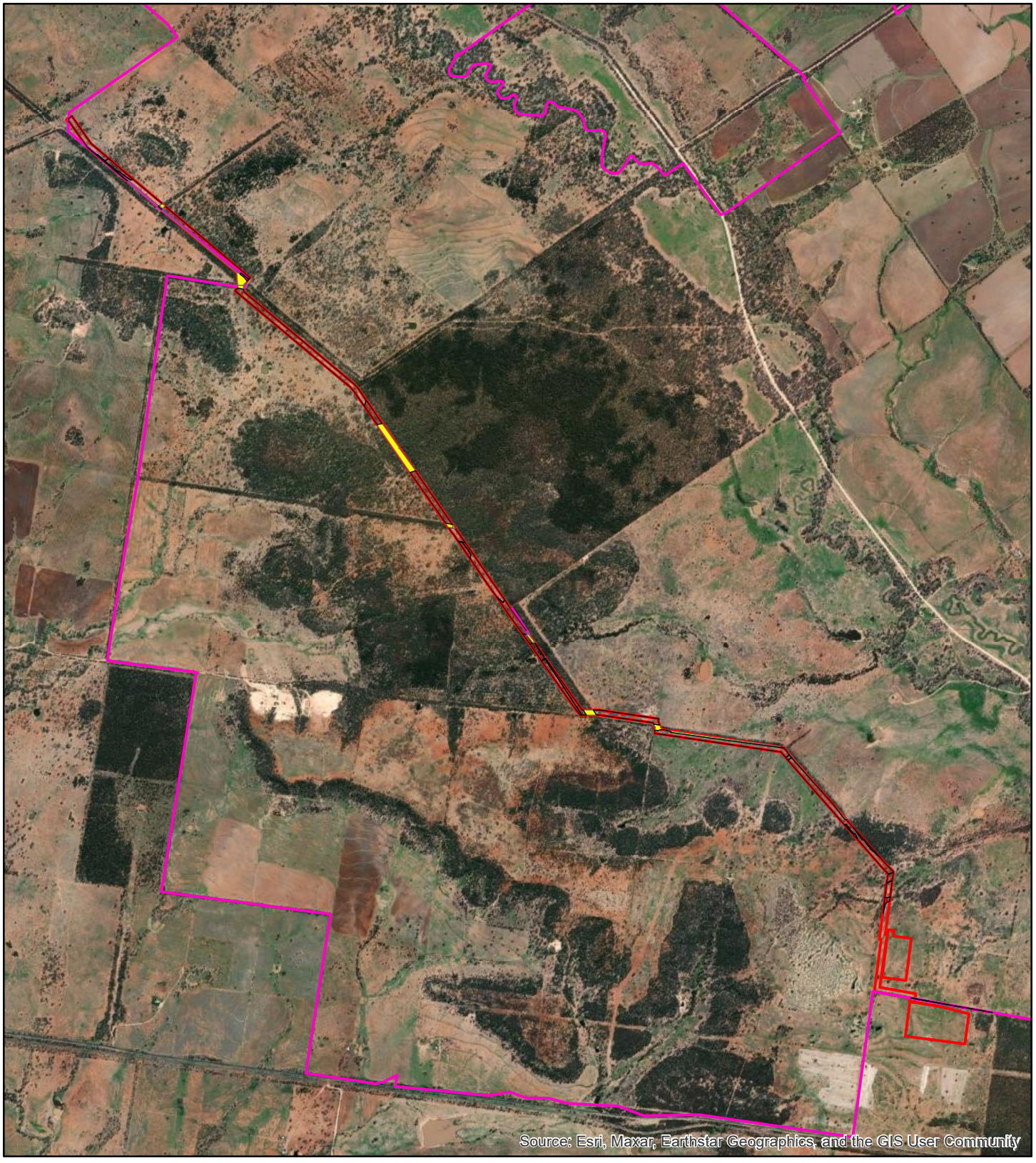
FIGURE 3.5

Greater Glider
Petauroides volans Habitat

SD22 Pipeline Revised
Significant Residual
Impact Assessment

AD 02/02/23
Job No. 0303

terrestria
ECOLOGICAL MANAGEMENT



0 0.225 0.45 0.9 1.35 1.8 Kilometers

N

Legend

- SD23 Boundary
- Construction Disturbance Zone
- General Habitat
- Generally unsuitable

FIGURE 3.6

Koala
Phascolarctos cinereus Habitat

SD22 Pipeline Revised
Significant Residual
Impact Assessment

AD 02/02/23
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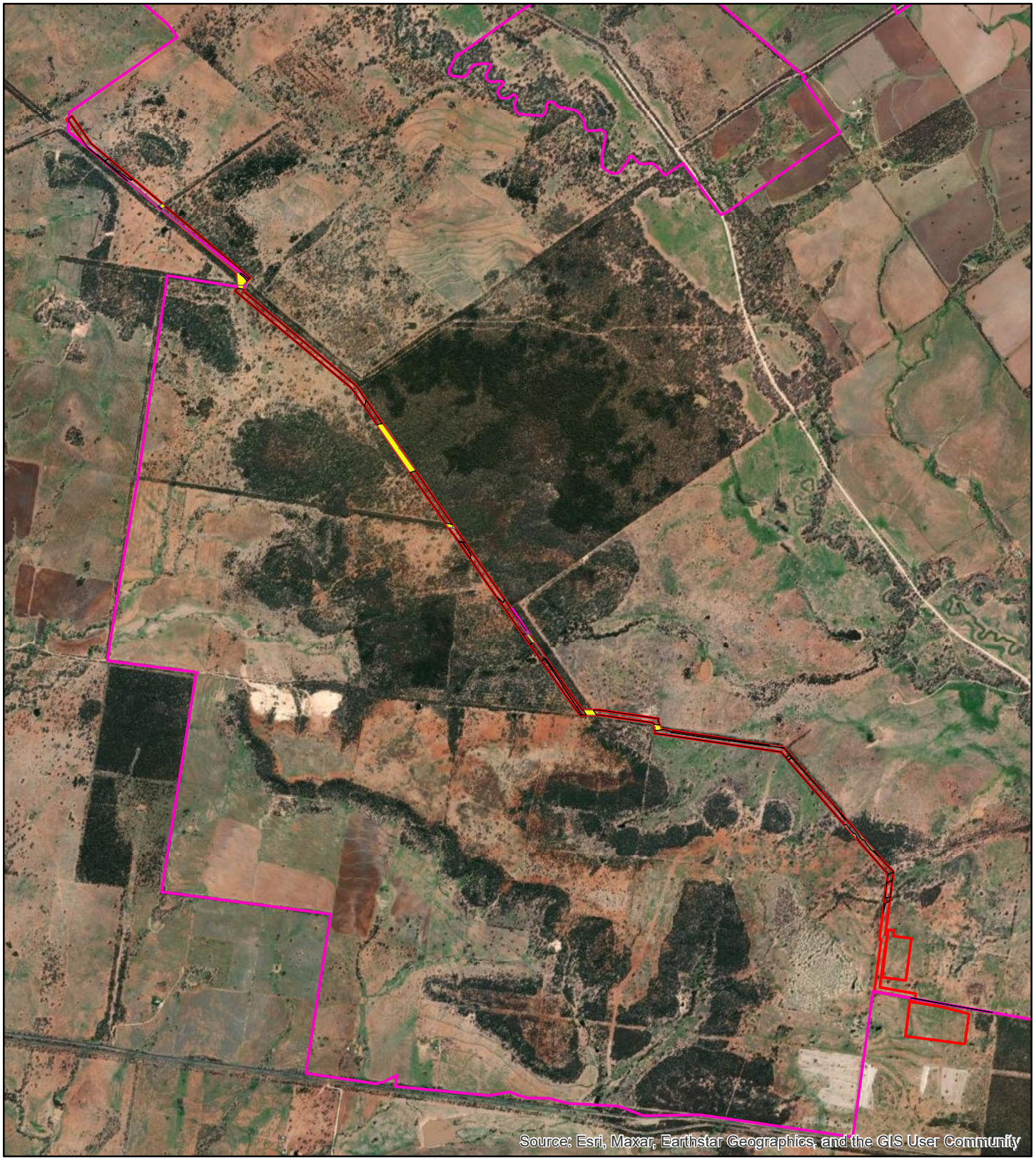


0 0.225 0.45 0.9 1.35 1.8 Kilometers

N

Legend

- SD23 Boundary
- Construction Disturbance Zone
- General Habitat
- Generally unsuitable

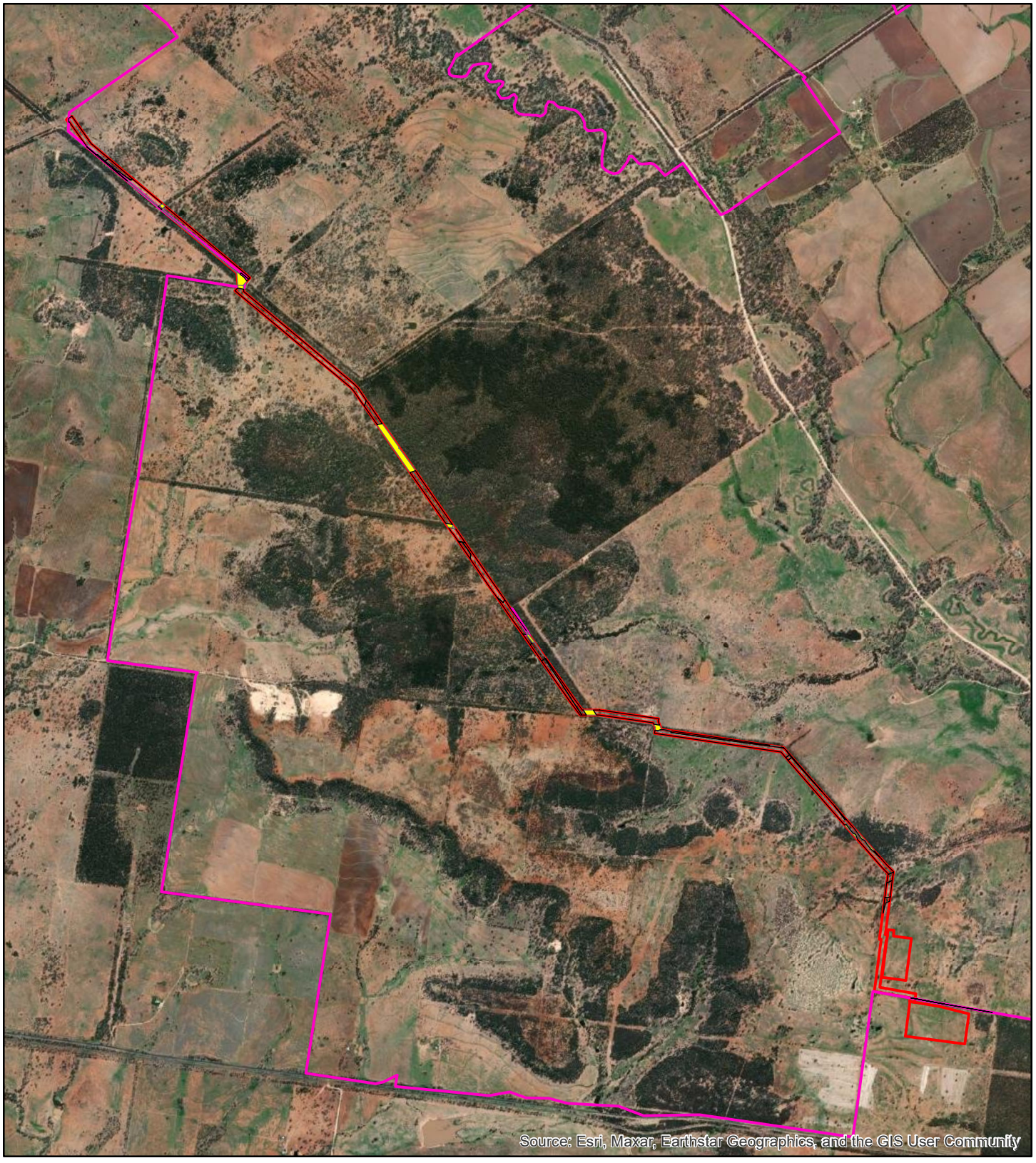
FIGURE 3.7

Glossy Black-Cockatoo
Calyptorhynchus lathami Habitat

SD22 Pipeline Revised
Significant Residual
Impact Assessment

AD 02/02/23
Job No. 0303

terrestria
ECOLOGICAL MANAGEMENT



0 0.225 0.45 0.9 1.35 1.8 Kilometers

N

Legend

- SD23 Boundary
- Construction Disturbance Zone
- General Habitat
- Generally unsuitable

FIGURE 3.8

Painted Honeyeater
Grantiella picta Habitat

SD22 Pipeline Revised
Significant Residual
Impact Assessment

AD 02/02/23
Job No. 0303

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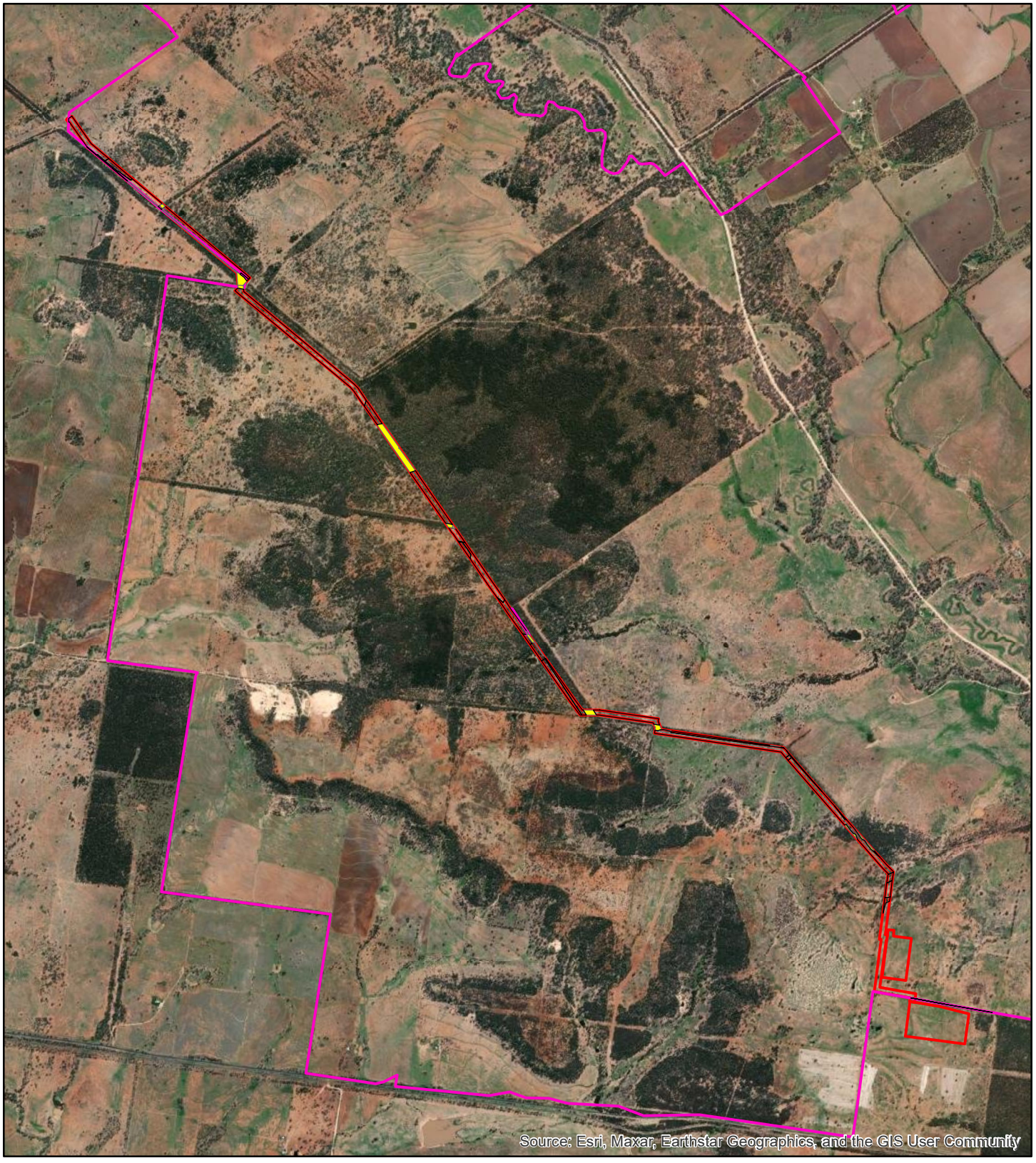
ECOLOGICAL MANAGEMENT



0 0.225 0.45 0.9 1.35 1.8 Kilometers

N

Legend

- SD23 Boundary
- Construction Disturbance Zone
- General Habitat
- Generally unsuitable

FIGURE 3.9

White-throated Needletail
Hirundapus caudacutus Habitat

SD22 Pipeline Revised
Significant Residual
Impact Assessment

AD 02/02/23
Job No. 0303

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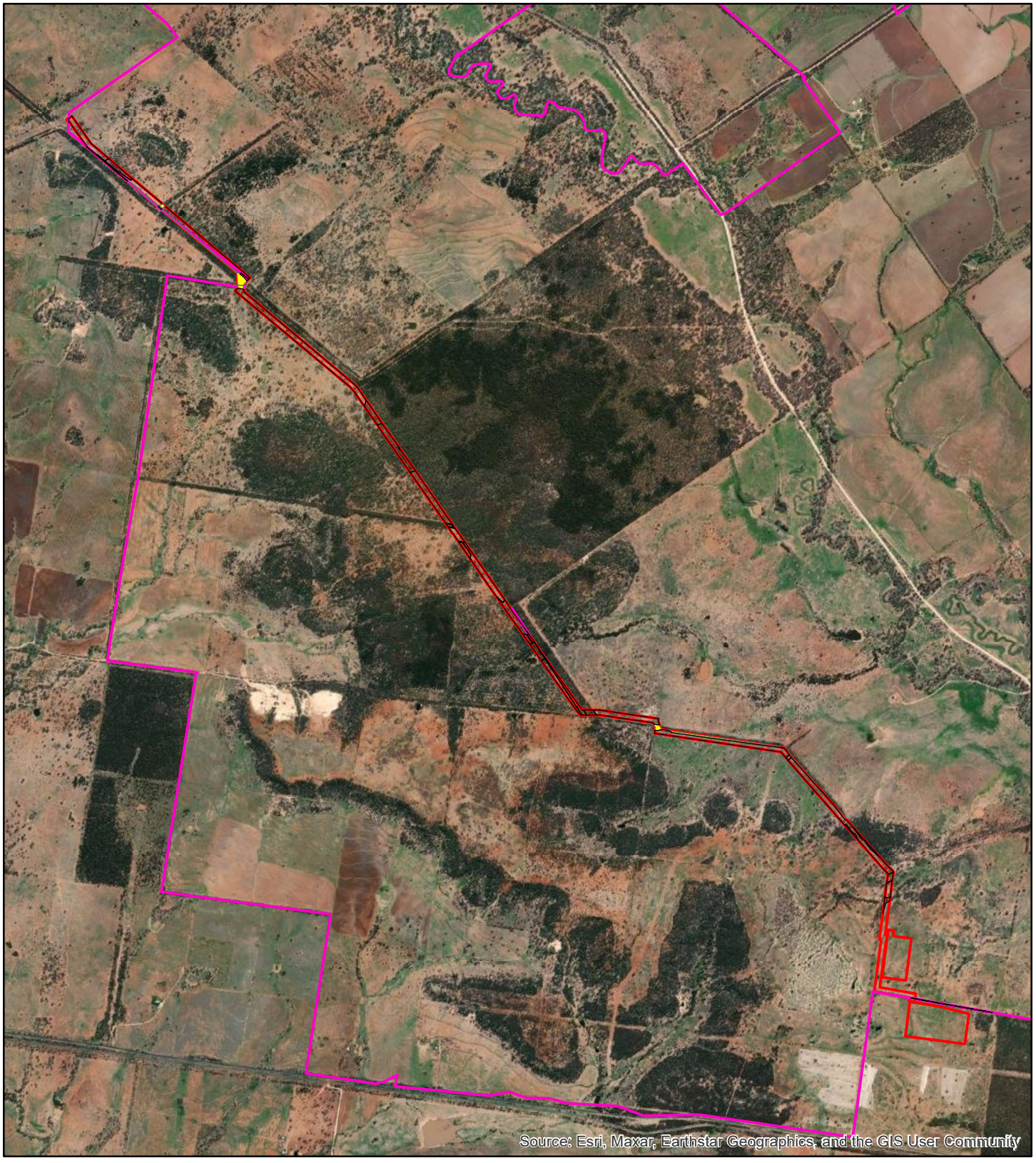
ECOLOGICAL MANAGEMENT



0 0.225 0.45 0.9 1.35 1.8 Kilometers

N

Legend

- SD23 Boundary
- Construction Disturbance Zone
- General Habitat
- Generally unsuitable

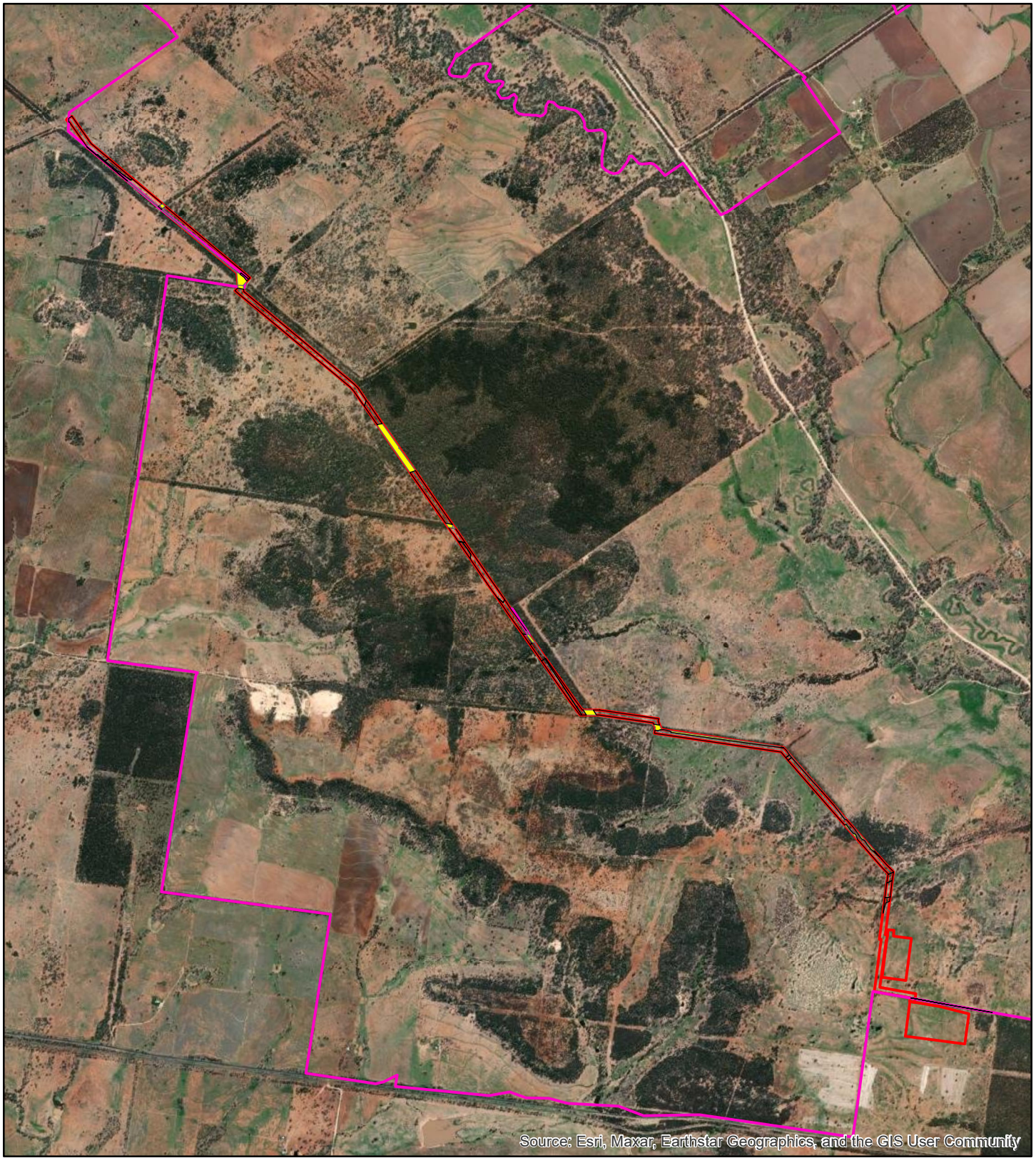
FIGURE 3.10

Common Death Adder
Acanthophis antarcticus Habitat

SD22 Pipeline Revised
Significant Residual
Impact Assessment

AD 02/02/23
Job No. 0303

terrestria
ECOLOGICAL MANAGEMENT



0 0.225 0.45 0.9 1.35 1.8 Kilometers

N

Legend

- SD23 Boundary
- Construction Disturbance Zone
- General Habitat
- Generally unsuitable

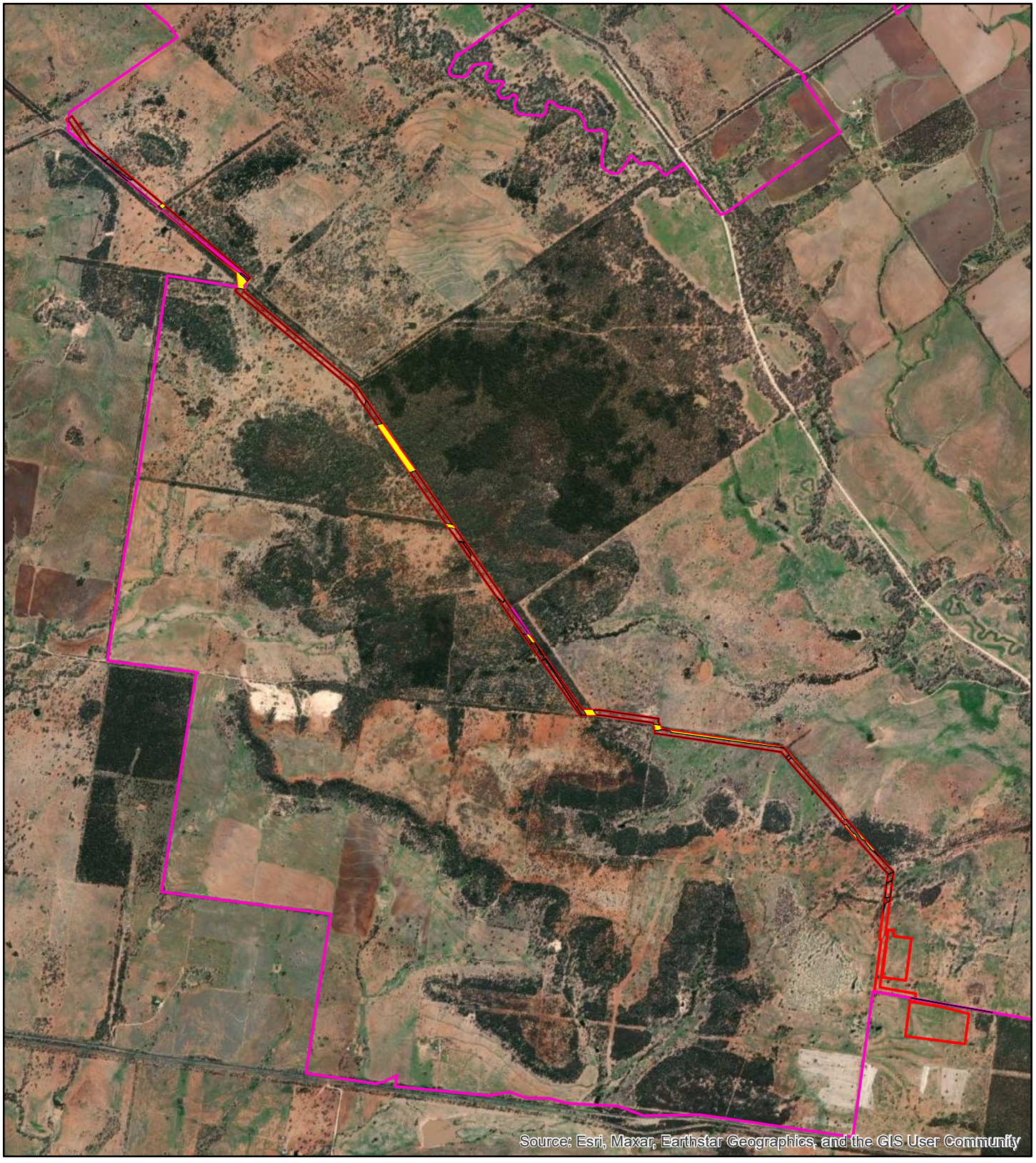
FIGURE 3.11

Woma
Aspidites ramsayi Habitat

SD22 Pipeline Revised
Significant Residual
Impact Assessment

AD 02/02/23
Job No. 0303

terrestria
ECOLOGICAL MANAGEMENT



0 0.225 0.45 0.9 1.35 1.8 Kilometers

N

Legend

- SD23 Boundary
- Construction Disturbance Zone
- General Habitat
- Generally unsuitable

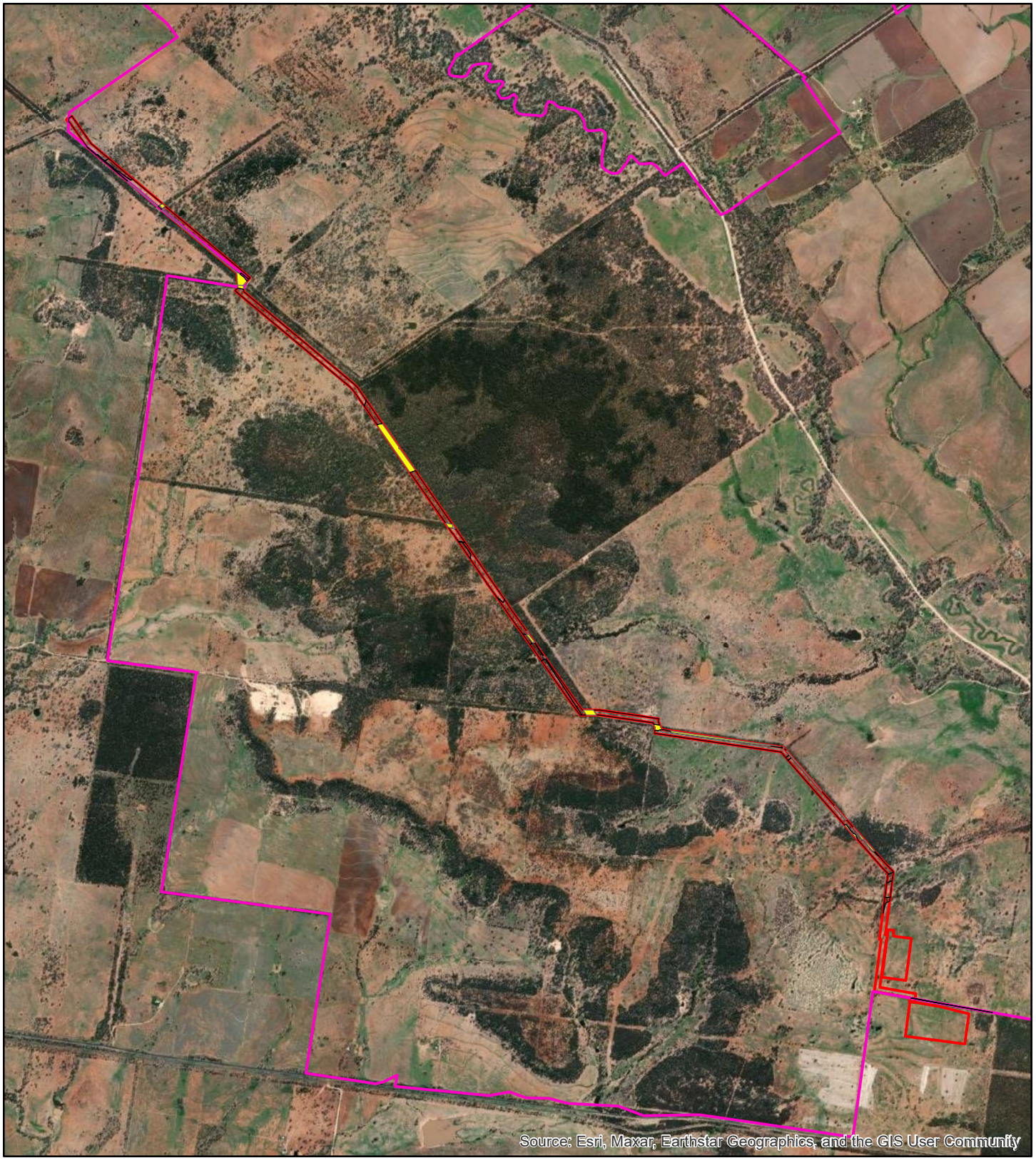
FIGURE 3.12

Collared Delma
Delma torquata Habitat

SD22 Pipeline Revised
Significant Residual
Impact Assessment

AD 02/02/23
Job No. 0303

terrestria
ECOLOGICAL MANAGEMENT



0 0.225 0.45 0.9 1.35 1.8 Kilometers

N

Legend

- SD23 Boundary
- Construction Disturbance Zone
- General Habitat
- Generally unsuitable

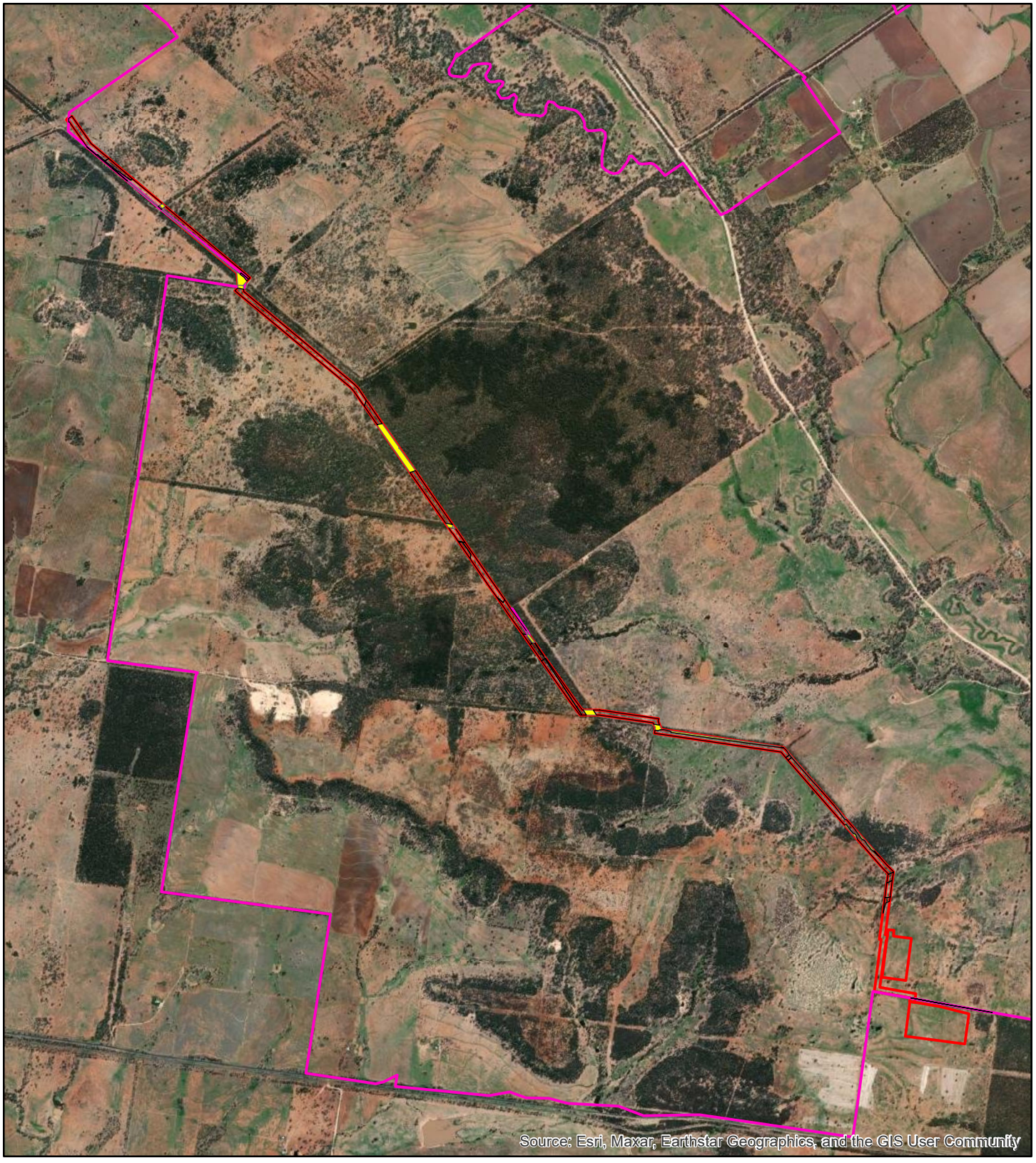
FIGURE 3.13

Yakka Skink
Egernia rugosa Habitat

SD22 Pipeline Revised
Significant Residual
Impact Assessment

AD 02/02/23
Job No. 0303

terrestria
ECOLOGICAL MANAGEMENT



0 0.225 0.45 0.9 1.35 1.8 Kilometers

N

Legend

- SD23 Boundary
- Construction Disturbance Zone
- General Habitat
- Generally unsuitable

FIGURE 3.14

Dunmall's Snake
Furina dunmalli Habitat

SD22 Pipeline Revised
Significant Residual
Impact Assessment

AD 02/02/23
Job No. 0303

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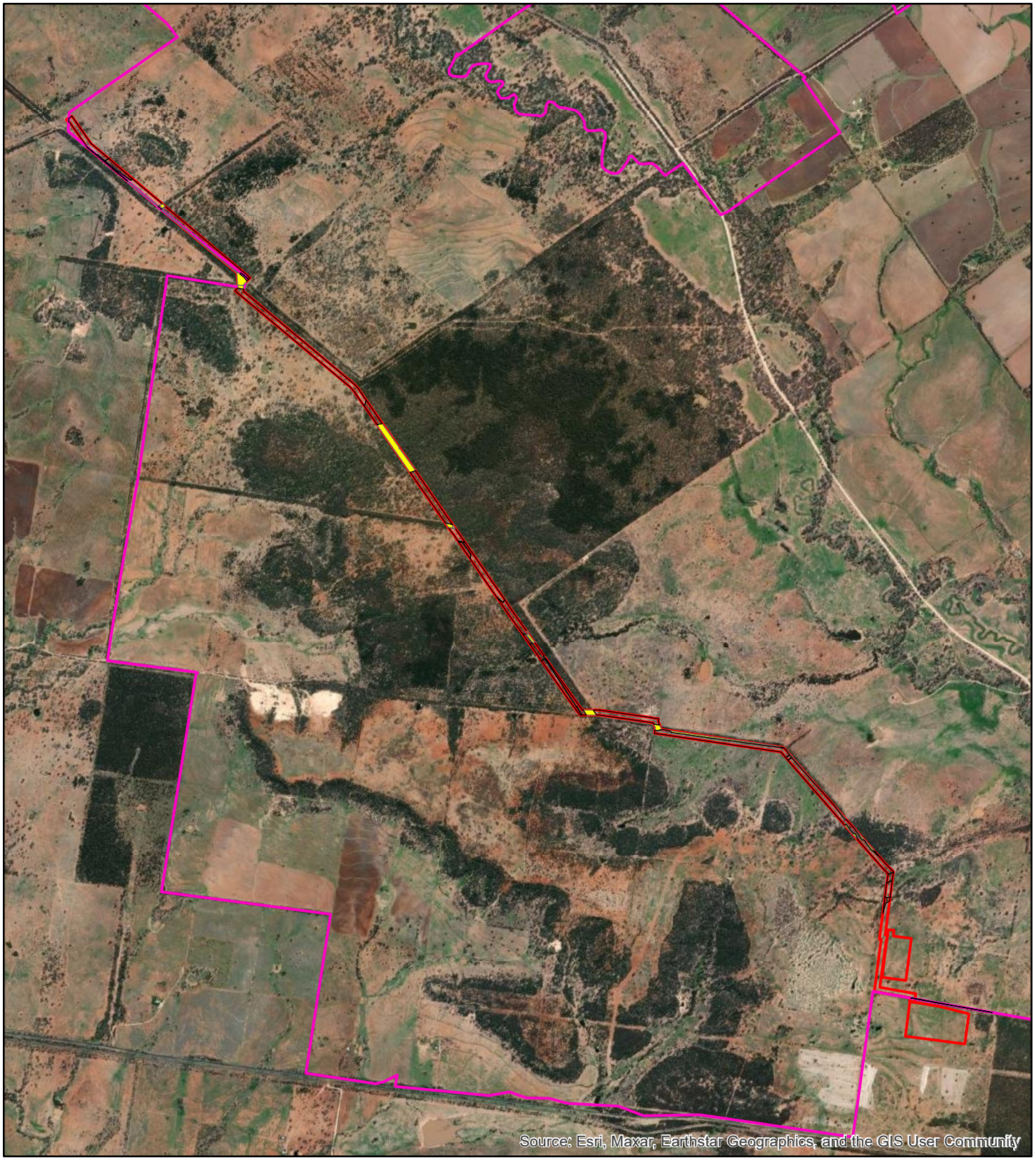
ECOLOGICAL MANAGEMENT



0 0.225 0.45 0.9 1.35 1.8 Kilometers

N

Legend

- SD23 Boundary
- Construction Disturbance Zone
- General Habitat
- Generally unsuitable

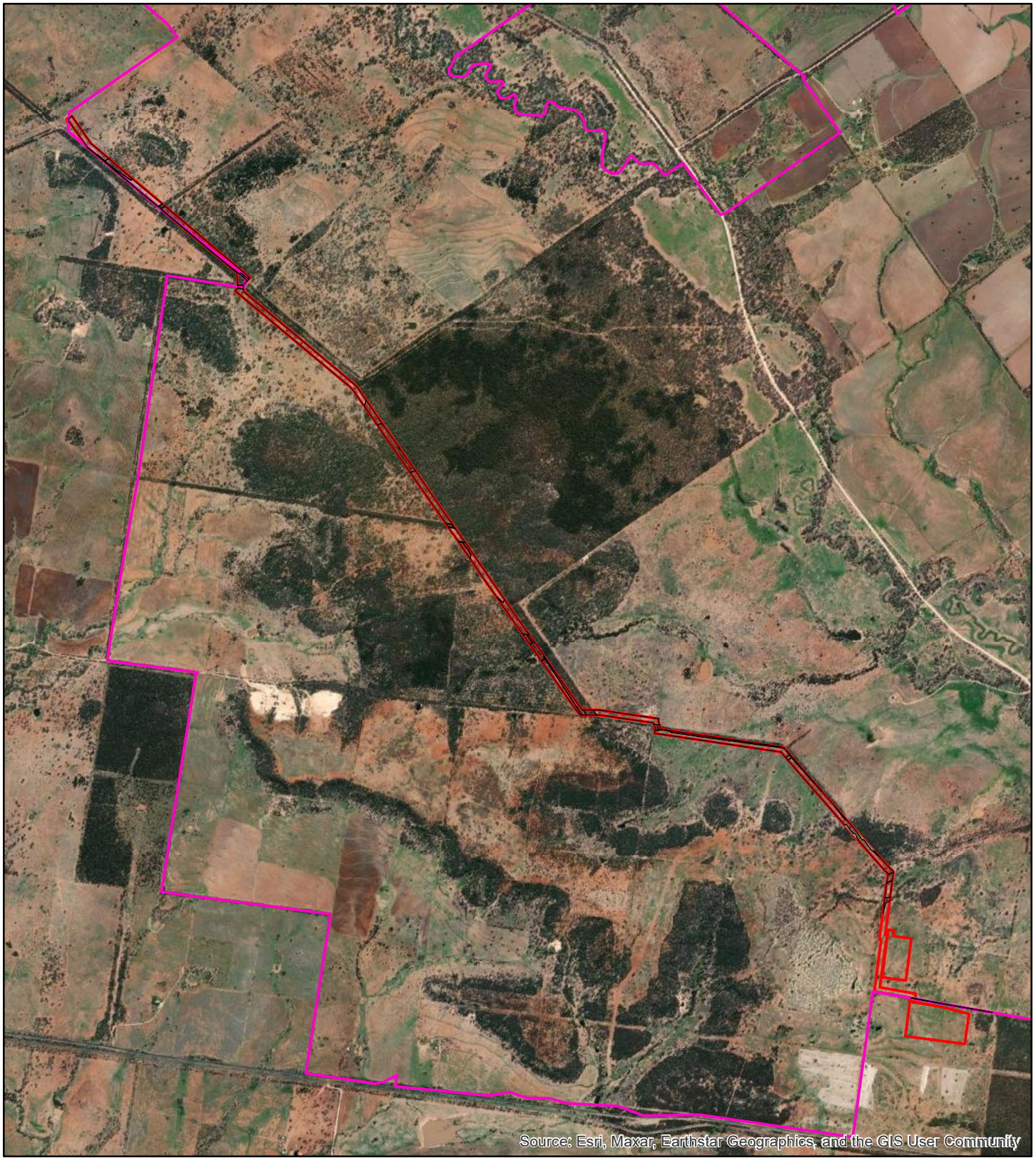
FIGURE 3.15

Golden-tailed Gecko
Strophurus taenicauda Habitat

SD22 Pipeline Revised
Significant Residual
Impact Assessment

AD 02/02/23
Job No. 0303

terrestria
ECOLOGICAL MANAGEMENT



0 0.225 0.45 0.9 1.35 1.8 Kilometers

N

Legend

- SD23 Boundary
- Construction Disturbance Zone
- General Habitat
- Generally unsuitable

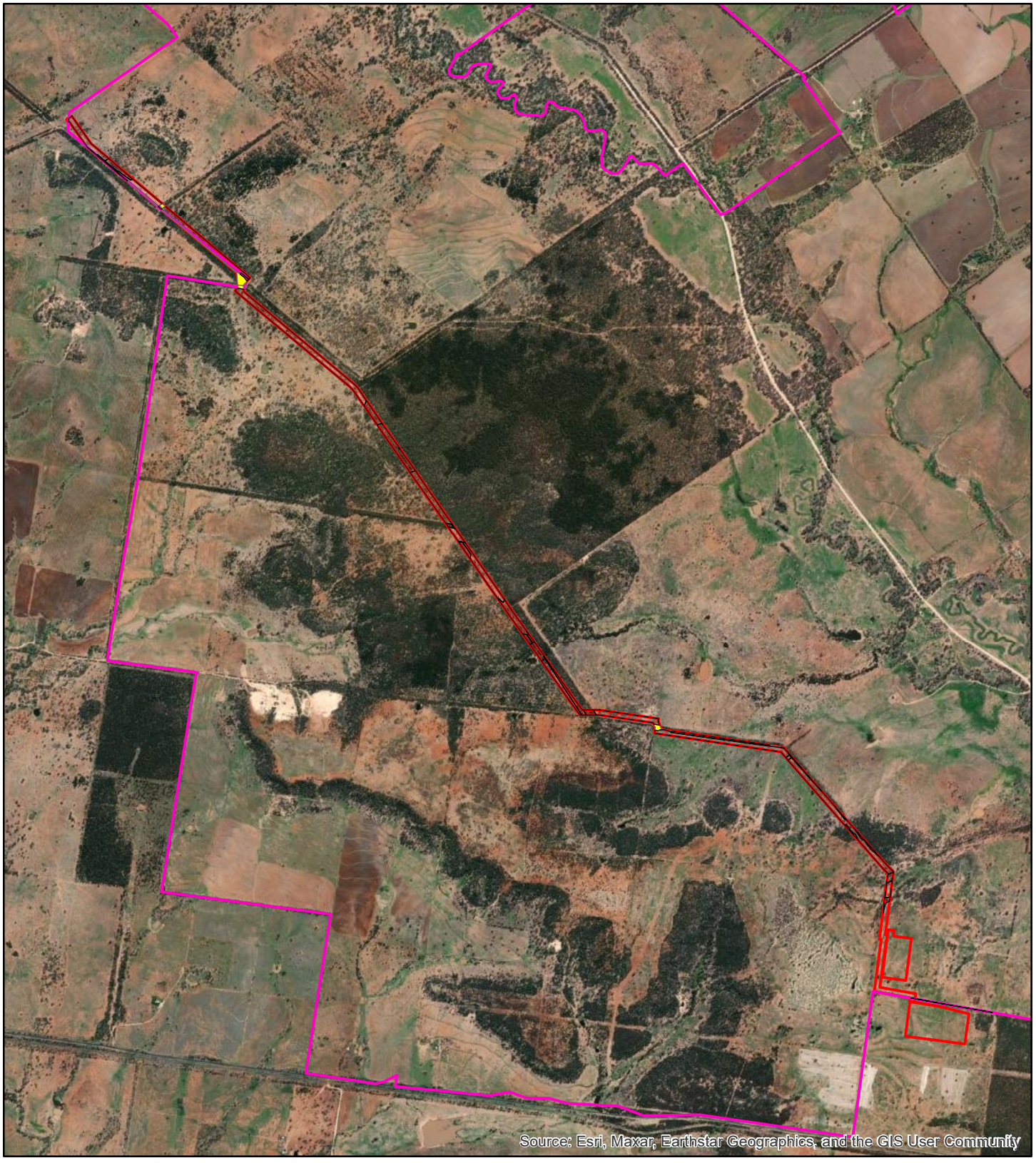
FIGURE 3.16

Dulacca Woodland Snail
Adclarkia dulacca Habitat

SD22 Pipeline Revised
Significant Residual
Impact Assessment

AD 02/02/23
Job No. 0303

terrestria
ECOLOGICAL MANAGEMENT



0 0.225 0.45 0.9 1.35 1.8 Kilometers

N

Legend

- SD23 Boundary
- Construction Disturbance Zone
- General Habitat
- Generally unsuitable

FIGURE 3.17

Pale Imperial Hairstreak butterfly *Jalmenus eubulus* Habitat

SD22 Pipeline Revised
Significant Residual
Impact Assessment

AD 02/02/23
Job No. 0303

terrestria
ECOLOGICAL MANAGEMENT

Appendix A

Protect Matters Database Search

Australian Government

Department of Agriculture, Water and the Environment

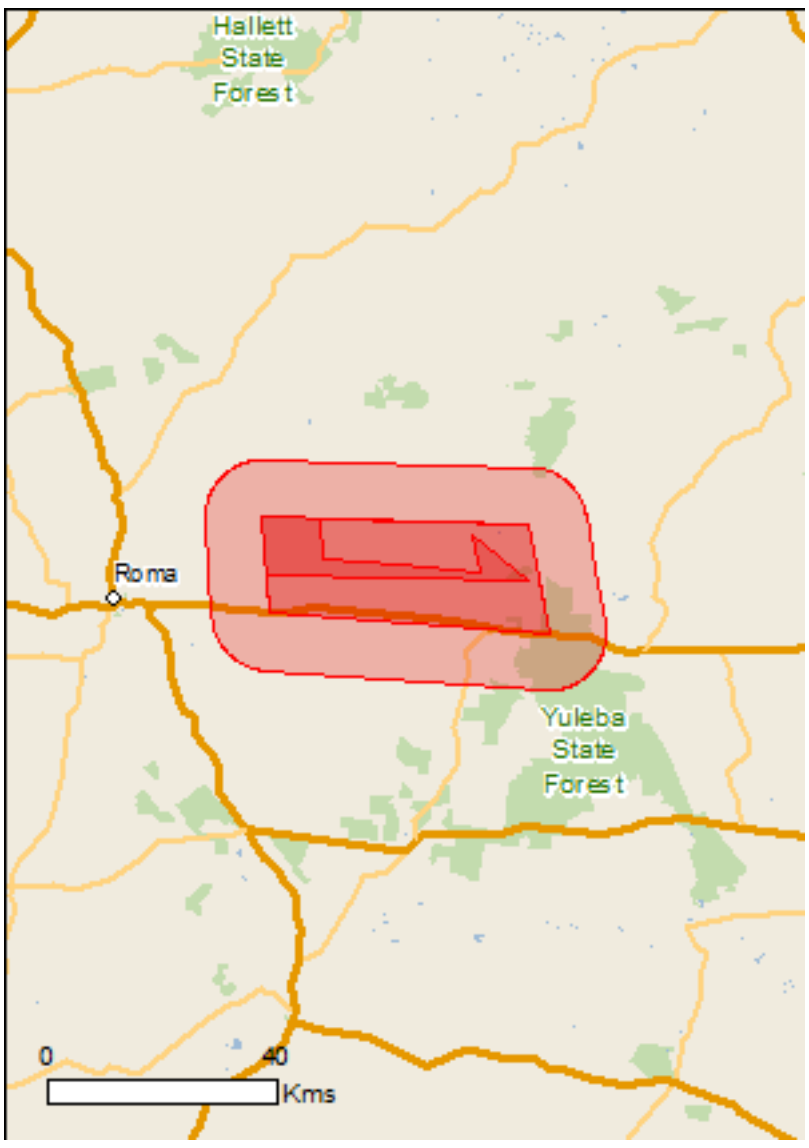
EPBC Act Protected Matters Report

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.

Information on the coverage of this report and qualifications on data supporting this report are contained in the caveat at the end of the report.

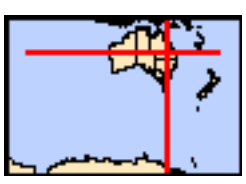
Information is available about Environment Assessments and the EPBC Act including significance guidelines, forms and application process details.

Report created: 16/06/21 12:14:36



Coordinates

Buffer: 10.0Km



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:	4
Great Barrier Reef Marine Park:	None
Commonwealth Marine Area:	None
Listed Threatened Ecological Communities:	15
Listed Threatened Species:	24
Listed Migratory Species:	10

Other Matters Protected by the EPBC Act

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

The EPBC Act protects the environment on Commonwealth land, the environment from the actions taken on Commonwealth land, and the environment from actions taken by Commonwealth agencies. As heritage values of a place are part of the 'environment', these aspects of the EPBC Act protect the Commonwealth Heritage values of a Commonwealth Heritage place. Information on the new heritage laws can be found at 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:	14
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:	22
Nationally Important Wetlands:	None
Key Ecological Features (Marine)	None

Details

Matters of National Environmental Significance

Wetlands of International Importance (Ramsar) [Resource Information]

Name	Proximity
Banrock station wetland complex	1100 - 1200km
Narran lake nature reserve	300 - 400km upstream
Riverland	1100 - 1200km
The coorong, and lakes alexandrina and albert wetland	1300 - 1400km

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
Brigalow (Acacia harpophylla dominant and co-dominant)	Endangered	Community known to occur within area
Brigalow (Acacia harpophylla dominant and co-dominant)	Endangered	Community known to occur within area
Coolibah - Black Box Woodlands of the Darling Riverine Plains and the Brigalow Belt South Bioregions	Endangered	Community may occur within area
Coolibah - Black Box Woodlands of the Darling Riverine Plains and the Brigalow Belt South Bioregions	Endangered	Community may occur within area
Coolibah - Black Box Woodlands of the Darling Riverine Plains and the Brigalow Belt South Bioregions	Endangered	Community may occur within area
Poplar Box Grassy Woodland on Alluvial Plains	Endangered	Community likely to occur within area
Poplar Box Grassy Woodland on Alluvial Plains	Endangered	Community likely to occur within area
Poplar Box Grassy Woodland on Alluvial Plains	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
Semi-evergreen vine thickets of the Brigalow Belt (North and South) and Nandewar Bioregions	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
Weeping Myall Woodlands	Endangered	Community likely to occur within area
Weeping Myall Woodlands	Endangered	Community likely to occur within area
Weeping Myall Woodlands	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

Name	Status	Type of Presence
		within area
Falco hypoleucos Grey Falcon [929]	Vulnerable	Species or species habitat likely to occur within area
Geophaps scripta scripta Squatter Pigeon (southern) [64440]	Vulnerable	Species or species habitat may occur within area
Grantiella picta Painted Honeyeater [470]	Vulnerable	Species or species habitat likely to occur within area
Hirundapus caudacutus White-throated Needletail [682]	Vulnerable	Species or species habitat may occur within area
Rostratula australis 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		
Chalinolobus dwyeri Large-eared Pied Bat, Large Pied Bat [183]	Vulnerable	Species or species habitat likely to occur within area
Dasyurus hallucatus Northern Quoll, Digul [Gogo-Yimidir], Wijingadda [Dambimangari], Wiminji [Martu] [331]	Endangered	Species or species habitat may occur within area
Nyctophilus corbeni Corben's Long-eared Bat, South-eastern Long-eared Bat [83395]	Vulnerable	Species or species habitat likely 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
Other		
Adclarkia dulacca Dulacca Woodland Snail [83885]	Endangered	Species or species habitat likely to occur within area
Plants		
Arthraxon hispidus Hairy-joint Grass [9338]	Vulnerable	Species or species habitat may occur within area
Cadellia pentastylis Ooline [9828]	Vulnerable	Species or species habitat likely to occur within area
Dichanthium setosum bluegrass [14159]	Vulnerable	Species or species habitat likely to occur within area
Homopholis belsonii Belson's Panic [2406]	Vulnerable	Species or species habitat may occur within area
Lepidium monoplocoides Winged Pepper-cress [9190]	Endangered	Species or species habitat may occur within area
Swainsona murrayana Slender Darling-pea, Slender Swainson, Murray Swainson-pea [6765]	Vulnerable	Species or species habitat likely to occur within area

Name	Status	Type of Presence
Tylophora linearis [55231]	Endangered	Species or species habitat may occur within area
Xerothamnella herbacea [4146]	Endangered	Species or species habitat may occur within area
Reptiles		
Delma torquata Adorned Delma, Collared Delma [1656]	Vulnerable	Species or species habitat may occur within area
Egernia rugosa Yakka Skink [1420]	Vulnerable	Species or species habitat known to occur within area
Furina dunmalli Dunmall's Snake [59254]	Vulnerable	Species or species habitat known 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
Hirundapus caudacutus White-throated Needletail [682]	Vulnerable	Species or species habitat may 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 likely to 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

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
Apus pacificus Fork-tailed Swift [678]		Species or species habitat likely to occur within area
Ardea ibis Cattle Egret [59542]		Species or species habitat may occur within area
Calidris acuminata Sharp-tailed Sandpiper [874]		Species or species habitat likely to 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 known 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
Hirundapus caudacutus White-throated Needletail [682]	Vulnerable	Species or species habitat may occur within area
Merops ornatus Rainbow Bee-eater [670]		Species or species habitat may 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
Rostratula benghalensis (sensu lato) Painted Snipe [889]	Endangered*	Species or species habitat likely to 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 Resouces Audit, 2001.

Name	Status	Type of Presence
Birds		
Anas platyrhynchos Mallard [974]		Species or species habitat likely to occur within area
Columba livia Rock Pigeon, Rock Dove, Domestic Pigeon [803]		Species or species habitat likely to occur within area
Passer domesticus House Sparrow [405]		Species or species habitat likely to occur within area
Sturnus vulgaris Common Starling [389]		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		
Bos taurus Domestic Cattle [16]		Species or species habitat likely to occur within area
Canis lupus familiaris Domestic Dog [82654]		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
Lepus capensis Brown Hare [127]		Species or species habitat likely to occur within area
Mus musculus House Mouse [120]		Species or species habitat likely to occur

Name	Status	Type of Presence
		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
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
Lycium ferocissimum African Boxthorn, Boxthorn [19235]		Species or species habitat likely to occur within area
Opuntia spp. Prickly Pears [82753]		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
Parthenium hysterophorus Parthenium Weed, Bitter Weed, Carrot Grass, False Ragweed [19566]		Species or species habitat likely to occur within area
Prosopis spp. Mesquite, Algaroba [68407]		Species or species habitat likely to occur within area
Senecio madagascariensis Fireweed, Madagascar Ragwort, Madagascar Groundsel [2624]		Species or species habitat likely to occur within area
Reptiles		
Hemidactylus frenatus Asian House Gecko [1708]		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

-26.454 149.02,-26.59 149.03,-26.618 149.47,-26.465 149.44,-26.454 149.02

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.

Department of Agriculture Water and the Environment
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Canberra City ACT 2601 Australia
+61 2 6274 1111

Appendix B

WildNet Database Search

Queensland Government

Wildlife Online Extract

Search Criteria: Species List for a Specified Point
Species: All
Type: All
Status: All
Records: All
Date: All
Latitude: -26.519
Longitude: 149.192
Distance: 30
Email: adaniel@terrestria.com.au
Date submitted: Wednesday 16 Jun 2021 12:15:36
Date extracted: Wednesday 16 Jun 2021 12:20:02

The number of records retrieved = 782

Kingdom	Class	Family	Scientific Name	Common Name	I	Q	A	Records
animals	amphibians	Bufonidae	*Rhinella marina*	cane toad	Y			3
animals	amphibians	Hylidae	*Litoria nasuta*	striped rocketfrog		C		1
animals	amphibians	Hylidae	*Litoria peronii*	emerald spotted treefrog		C		16
animals	amphibians	Hylidae	*Litoria rubella*	ruddy treefrog		C		36
animals	amphibians	Hylidae	*Litoria caerulea*	common green treefrog		C		273
animals	amphibians	Hylidae	*Cyclorana brevipes*	superb collared frog		C		15
animals	amphibians	Hylidae	*Cyclorana cultripes*	grassland collared frog		C		1
animals	amphibians	Hylidae	*Cyclorana verrucosa*	rough collared frog		C		16
animals	amphibians	Hylidae	*Litoria latopalmata*	broad palmed rocketfrog		C		19
animals	amphibians	Hylidae	*Cyclorana alboguttata*	greenstripe frog		C		81/1
animals	amphibians	Hylidae	*Cyclorana novaehollandiae*	eastern snapping frog		C		19
animals	amphibians	Hylidae	*Cyclorana sp.*			C		6/1
animals	amphibians	Hylidae	*Litoria fallax*	eastern sedgefrog		C		4
animals	amphibians	Limnodynastidae	*Limnodynastes salmini*	salmon striped frog		C		109
animals	amphibians	Limnodynastidae	*Limnodynastes tasmaniensis*	spotted grassfrog		C		180
animals	amphibians	Limnodynastidae	*Limnodynastes fletcheri*	barking frog		C		8
animals	amphibians	Limnodynastidae	*Notaden bennettii*	holy cross frog		C		3
animals	amphibians	Limnodynastidae	*Limnodynastes peronii*	striped marshfrog		C		1
animals	amphibians	Limnodynastidae	*Limnodynastes terraereginae*	scarlet sided pobblebonk		C		5
animals	amphibians	Limnodynastidae	*Neobatrachus sudellae*	meeowing frog		C		1
animals	amphibians	Limnodynastidae	*Platyplectrum ornatum*	ornate burrowing frog		C		30
animals	amphibians	Myobatrachidae	*Crinia parinsignifera*	beeping froglet		C		1
animals	amphibians	Myobatrachidae	*Uperoleia rugosa*	chubby gungan		C		29
animals	amphibians	Myobatrachidae	*Uperoleia sp.*			C		1
animals	birds	Acanthizidae	*Acanthiza uropygialis*	chestnut-rumped thornbill		C		4
animals	birds	Acanthizidae	*Acanthiza reguloides*	buff-rumped thornbill		C		2
animals	birds	Acanthizidae	*Acanthiza apicalis*	inland thornbill		C		20
animals	birds	Acanthizidae	*Gerygone olivacea*	white-throated gerygone		C		8
animals	birds	Acanthizidae	*Acanthiza nana*	yellow thornbill		C		10
animals	birds	Acanthizidae	*Smicrornis brevirostris*	weebill		C		30
animals	birds	Acanthizidae	*Pyrrholaemus sagittatus*	speckled warbler		C		12
animals	birds	Acanthizidae	*Acanthiza chrysorrhoa*	yellow-rumped thornbill		C		7
animals	birds	Accipitridae	*Elanus axillaris*	black-shouldered kite		C		2
animals	birds	Accipitridae	*Circus assimilis*	spotted harrier		C		1
animals	birds	Accipitridae	*Haliastur sphenurus*	whistling kite		C		9
animals	birds	Accipitridae	*Aviceda subcristata*	Pacific baza		C		2
animals	birds	Accipitridae	*Accipiter fasciatus*	brown goshawk		C		2
animals	birds	Accipitridae	*Lophoictinia isura*	square-tailed kite		C		2
animals	birds	Accipitridae	*Accipiter cirrocephalus*	collared sparrowhawk		C		1
animals	birds	Accipitridae	*Haliaeetus leucogaster*	white-bellied sea-eagle		C		1
animals	birds	Accipitridae	*Aquila audax*	wedge-tailed eagle		C		10
animals	birds	Accipitridae	*Milvus migrans*	black kite		C		2
animals	birds	Aegothelidae	*Aegotheles cristatus*	Australian owlet-nightjar		C		6
animals	birds	Alaudidae	*Mirafra javanica*	Horsfield's bushlark		C		2
animals	birds	Anatidae	*Cygnus atratus*	black swan		C		1
animals	birds	Anatidae	*Biziura lobata*	musk duck		C		1

Kingdom	Class	Family	Scientific Name	Common Name	I	Q	A	Records
animals	birds	Anatidae	*Anas gracilis*	grey teal		C		4
animals	birds	Anatidae	*Dendrocygna eytoni*	plumed whistling-duck		C		2
animals	birds	Anatidae	*Chenonetta jubata*	Australian wood duck		C		3
animals	birds	Anatidae	*Anas superciliosa*	Pacific black duck		C		14
animals	birds	Anhingidae	*Anhinga novaehollandiae*	Australasian darter		C		4
animals	birds	Ardeidae	*Egretta novaehollandiae*	white-faced heron		C		3
animals	birds	Ardeidae	*Ardea alba modesta*	eastern great egret		C		5
animals	birds	Ardeidae	*Ardea intermedia*	intermediate egret		C		1
animals	birds	Ardeidae	*Ardea pacifica*	white-necked heron		C		6
animals	birds	Ardeidae	*Nycticorax caledonicus*	nankeen night-heron		C		2
animals	birds	Artamidae	*Cracticus torquatus*	grey butcherbird		C		41
animals	birds	Artamidae	*Strepera graculina*	pied currawong		C		15
animals	birds	Artamidae	*Gymnorhina tibicen*	Australian magpie		C		29
animals	birds	Artamidae	*Artamus personatus*	masked woodswallow		C		2
animals	birds	Artamidae	*Artamus cyanopterus*	dusky woodswallow		C		1
animals	birds	Artamidae	*Cracticus nigrogularis*	pied butcherbird		C		22
animals	birds	Artamidae	*Artamus superciliosus*	white-browed woodswallow		C		4
animals	birds	Artamidae	*Artamus leucorynchus*	white-breasted woodswallow		C		6
animals	birds	Artamidae	*Artamus cinereus*	black-faced woodswallow		C		1
animals	birds	Cacatuidae	*Cacatua galerita*	sulphur-crested cockatoo		C		11
animals	birds	Cacatuidae	*Cacatua sanguinea*	little corella		C		2
animals	birds	Cacatuidae	*Eolophus roseicapilla*	galah		C		34
animals	birds	Cacatuidae	*Nymphicus hollandicus*	cockatiel		C		13
animals	birds	Cacatuidae	*Calyptorhynchus lathami lathami*	glossy black-cockatoo (eastern)		V		2
animals	birds	Campephagidae	*Coracina maxima*	ground cuckoo-shrike		C		3
animals	birds	Campephagidae	*Lalage tricolor*	white-winged triller		C		2
animals	birds	Campephagidae	*Coracina novaehollandiae*	black-faced cuckoo-shrike		C		6
animals	birds	Campephagidae	*Coracina tenuirostris*	cicadabird		C		2
animals	birds	Casuariidae	*Dromaius novaehollandiae*	emu		C		4
animals	birds	Charadriidae	*Vanellus miles novaehollandiae*	masked lapwing (southern subspecies)		C		4
animals	birds	Charadriidae	*Vanellus tricolor*	banded lapwing		C		2
animals	birds	Charadriidae	*Vanellus miles*	masked lapwing		C		4
animals	birds	Ciconiidae	*Ephippiorhynchus asiaticus*	black-necked stork		C		1
animals	birds	Climacteridae	*Cormobates leucophaea*	white-throated treecreeper		C		1
animals	birds	Columbidae	*Geopelia humeralis*	bar-shouldered dove		C		3
animals	birds	Columbidae	*Ocyphaps lophotes*	crested pigeon		C		23
animals	birds	Columbidae	*Columba livia*	rock dove	Y			2
animals	birds	Columbidae	*Geopelia cuneata*	diamond dove		C		1
animals	birds	Columbidae	*Phaps chalcoptera*	common bronzewing		C		3
animals	birds	Columbidae	*Geopelia striata*	peaceful dove		C		5
animals	birds	Coraciidae	*Eurystomus orientalis*	dollarbird		C		3
animals	birds	Corcoracidae	*Corcorax melanorhamphos*	white-winged chough		C		4
animals	birds	Corcoracidae	*Struthidea cinerea*	apostlebird		C		22
animals	birds	Corvidae	*Corvus sp.*			C		2
animals	birds	Corvidae	*Corvus orru*	Torresian crow		C		33
animals	birds	Corvidae	*Corvus coronoides*	Australian raven		C		23

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animals	birds	Cuculidae	*Eudynamys orientalis*	eastern koel		C		1
animals	birds	Cuculidae	*Cacomantis variolosus*	brush cuckoo		C		1
animals	birds	Cuculidae	*Centropus phasianinus*	pheasant coucal		C		3
animals	birds	Cuculidae	*Cacomantis pallidus*	pallid cuckoo		C		1
animals	birds	Cuculidae	*Chalcites basalis*	Horsfield's bronze-cuckoo		C		2
animals	birds	Cuculidae	*Chalcites lucidus*	shining bronze-cuckoo		C		2
animals	birds	Cuculidae	*Chalcites osculans*	black-eared cuckoo		C		1
animals	birds	Cuculidae	*Cacomantis flabelliformis*	fan-tailed cuckoo		C		2
animals	birds	Estrildidae	*Neochmia modesta*	plum-headed finch		C		3
animals	birds	Estrildidae	*Taeniopygia guttata*	zebra finch		C		2
animals	birds	Estrildidae	*Taeniopygia bichenovii*	double-barred finch		C		3
animals	birds	Eurostopodidae	*Eurostopodus mystacalis*	white-throated nightjar		C		1
animals	birds	Eurostopodidae	*Eurostopodus argus*	spotted nightjar		C		1
animals	birds	Falconidae	*Falco berigora*	brown falcon		C		4
animals	birds	Falconidae	*Falco longipennis*	Australian hobby		C		1
animals	birds	Falconidae	*Falco cenchroides*	nankeen kestrel		C		10
animals	birds	Falconidae	*Falco subniger*	black falcon		C		1
animals	birds	Gruidae	*Antigone rubicunda*	brolga		C		2
animals	birds	Halcyonidae	*Dacelo novaeguineae*	laughing kookaburra		C		19
animals	birds	Halcyonidae	*Todiramphus sanctus*	sacred kingfisher		C		3
animals	birds	Hirundinidae	*Petrochelidon ariel*	fairy martin		C		3
animals	birds	Hirundinidae	*Hirundo neoxena*	welcome swallow		C		4
animals	birds	Hirundinidae	*Petrochelidon nigricans*	tree martin		C		1
animals	birds	Maluridae	*Malurus melanocephalus*	red-backed fairy-wren		C		2
animals	birds	Maluridae	*Malurus leucopterus*	white-winged fairy-wren		C		2
animals	birds	Maluridae	*Malurus cyaneus*	superb fairy-wren		C		5
animals	birds	Maluridae	*Malurus lamberti sensu lato*	variegated fairy-wren		C		8
animals	birds	Megaluridae	*Cincloramphus cruralis*	brown songlark		C		3
animals	birds	Megaluridae	*Cincloramphus mathewsi*	rufous songlark		C		6
animals	birds	Megapodiidae	*Alectura lathami*	Australian brush-turkey		C		1
animals	birds	Meliphagidae	*Melithreptus gularis*	black-chinned honeyeater		C		1
animals	birds	Meliphagidae	*Philemon corniculatus*	noisy friarbird		C		7
animals	birds	Meliphagidae	*Ptilotula penicillata*	white-plumed honeyeater		C		2
animals	birds	Meliphagidae	*Manorina melanocephala*	noisy miner		C		41
animals	birds	Meliphagidae	*Philemon citreogularis*	little friarbird		C		6
animals	birds	Meliphagidae	*Acanthagenys rufogularis*	spiny-cheeked honeyeater		C		5
animals	birds	Meliphagidae	*Melithreptus albogularis*	white-throated honeyeater		C		1
animals	birds	Meliphagidae	*Plectorhyncha lanceolata*	striped honeyeater		C		13
animals	birds	Meliphagidae	*Melithreptus brevirostris*	brown-headed honeyeater		C		1
animals	birds	Meliphagidae	*Lichmera indistincta*	brown honeyeater		C		2
animals	birds	Meliphagidae	*Epthianura tricolor*	crimson chat		C		2
animals	birds	Meliphagidae	*Phylidonyris niger*	white-cheeked honeyeater		C		1
animals	birds	Meliphagidae	*Manorina flavigula*	yellow-throated miner		C		6
animals	birds	Meliphagidae	*Entomyzon cyanotis*	blue-faced honeyeater		C		9
animals	birds	Meliphagidae	*Caligavis chrysops*	yellow-faced honeyeater		C		3
animals	birds	Meliphagidae	*Meliphaga lewinii*	Lewin's honeyeater		C		1

Kingdom	Class	Family	Scientific Name	Common Name	I	Q	A	Records
animals	birds	Meliphagidae	*Nesoptilotis leucotis*	white-eared honeyeater		C		5
animals	birds	Meropidae	*Merops ornatus*	rainbow bee-eater		C		4
animals	birds	Monarchidae	*Grallina cyanoleuca*	magpie-lark		C		39
animals	birds	Monarchidae	*Myiagra inquieta*	restless flycatcher		C		3
animals	birds	Monarchidae	*Myiagra rubecula*	leaden flycatcher		C		3
animals	birds	Motacillidae	*Anthus novaeseelandiae*	Australasian pipit		C		4
animals	birds	Nectariniidae	*Dicaeum hirundinaceum*	mistletoebird		C		8
animals	birds	Neosittidae	*Daphoenositta chrysoptera*	varied sittella		C		6
animals	birds	Oriolidae	*Oriolus sagittatus*	olive-backed oriole		C		7
animals	birds	Oriolidae	*Sphecotheres vieilloti*	Australasian figbird		C		1
animals	birds	Otididae	*Ardeotis australis*	Australian bustard		C		8
animals	birds	Pachycephalidae	*Pachycephala rufiventris*	rufous whistler		C		17
animals	birds	Pachycephalidae	*Colluricincla harmonica*	grey shrike-thrush		C		11
animals	birds	Pardalotidae	*Pardalotus striatus*	striated pardalote		C		25
animals	birds	Pelecanidae	*Pelecanus conspicillatus*	Australian pelican		C		3
animals	birds	Petroicidae	*Microeca fascinans*	jacky winter		C		8
animals	birds	Petroicidae	*Eopsaltria australis*	eastern yellow robin		C		8
animals	birds	Petroicidae	*Petroica goodenovii*	red-capped robin		C		7
animals	birds	Phalacrocoracidae	*Phalacrocorax carbo*	great cormorant		C		1
animals	birds	Phalacrocoracidae	*Microcarbo melanoleucos*	little pied cormorant		C		4
animals	birds	Phalacrocoracidae	*Phalacrocorax sulcirostris*	little black cormorant		C		5
animals	birds	Phasianidae	*Coturnix pectoralis*	stubble quail		C		1
animals	birds	Phasianidae	*Coturnix ypsilophora*	brown quail		C		2
animals	birds	Podargidae	*Podargus strigoides*	tawny frogmouth		C		3
animals	birds	Podicipedidae	*Tachybaptus novaehollandiae*	Australasian grebe		C		4
animals	birds	Pomatostomidae	*Pomatostomus superciliosus*	white-browed babbler		C		1
animals	birds	Pomatostomidae	*Pomatostomus temporalis*	grey-crowned babbler		C		30
animals	birds	Psittacidae	*Platycercus adscitus*	pale-headed rosella		C		17
animals	birds	Psittacidae	*Psephotus haematonotus*	red-rumped parrot		C		7
animals	birds	Psittacidae	*Northiella haematogaster*	blue bonnet		C		1
animals	birds	Psittacidae	*Barnardius zonarius*	Australian ringneck		C		2
animals	birds	Psittacidae	*Aprosmictus erythropterus*	red-winged parrot		C		14
animals	birds	Psittacidae	*Trichoglossus moluccanus*	rainbow lorikeet		C		4
animals	birds	Psittacidae	*Trichoglossus chlorolepidotus*	scaly-breasted lorikeet		C		5
animals	birds	Psittacidae	*Alisterus scapularis*	Australian king-parrot		C		1
animals	birds	Ptilonorhynchidae	*Ptilonorhynchus maculatus*	spotted bowerbird		C		2
animals	birds	Rallidae	*Gallinula tenebrosa*	dusky moorhen		C		1
animals	birds	Recurvirostridae	*Himantopus himantopus*	black-winged stilt		C		1
animals	birds	Rhipiduridae	*Rhipidura leucophrys*	willie wagtail		C		18
animals	birds	Rhipiduridae	*Rhipidura albiscapa*	grey fantail		C		18
animals	birds	Sturnidae	*Sturnus vulgaris*	common starling	Y			1
animals	birds	Threskiornithidae	*Platalea regia*	royal spoonbill		C		2
animals	birds	Threskiornithidae	*Threskiornis molucca*	Australian white ibis		C		4
animals	birds	Threskiornithidae	*Threskiornis spinicollis*	straw-necked ibis		C		2
animals	birds	Threskiornithidae	*Platalea flavipes*	yellow-billed spoonbill		C		3
animals	birds	Timaliidae	*Zosterops lateralis*	silvereye		C		2

Kingdom	Class	Family	Scientific Name	Common Name	I	Q	A	Records
animals	birds	Turnicidae	*Turnix sp.*			C		1/1
animals	insects	Pieridae	*Catopsilia pomona*	lemon migrant				1
animals	mammals	Bovidae	*Bos taurus*	European cattle	Y			2
animals	mammals	Dasyuridae	*Sminthopsis crassicaudata*	fat-tailed dunnart		C		15
animals	mammals	Dasyuridae	*Planigale maculata*	common planigale		C		8
animals	mammals	Dasyuridae	*Sminthopsis murina*	common dunnart		C		10
animals	mammals	Dasyuridae	*Sminthopsis macroura*	stripe-faced dunnart		C		42
animals	mammals	Dasyuridae	*Planigale tenuirostris*	narrow-nosed planigale		C		11
animals	mammals	Emballonuridae	*Saccolaimus flaviventris*	yellow-bellied sheathtail bat		C		2
animals	mammals	Leporidae	*Oryctolagus cuniculus*	rabbit	Y			4
animals	mammals	Leporidae	*Lepus europaeus*	European brown hare	Y			5
animals	mammals	Macropodidae	*Wallabia bicolor*	swamp wallaby		C		5
animals	mammals	Macropodidae	*Macropus giganteus*	eastern grey kangaroo		C		9
animals	mammals	Macropodidae	*Osphranter robustus*	common wallaroo		C		1
animals	mammals	Macropodidae	*Notamacropus dorsalis*	black-striped wallaby		C		1
animals	mammals	Macropodidae	*Notamacropus rufogriseus*	red-necked wallaby		C		7
animals	mammals	Molossidae	*Austronomus australis*	white-striped freetail bat		C		3
animals	mammals	Molossidae	*Mormopterus petersi*	inland free-tailed bat		C		1
animals	mammals	Muridae	*Mus musculus*	house mouse	Y			27
animals	mammals	Muridae	*Rattus tunneyi*	pale field-rat		C		1
animals	mammals	Muridae	*Pseudomys delicatulus*	delicate mouse		C		1
animals	mammals	Muridae	*Pseudomys gracilicaudatus*	eastern chestnut mouse		C		1
animals	mammals	Petauridae	*Petaurus notatus*	Krefft's glider		C		3
animals	mammals	Phalangeridae	*Trichosurus vulpecula*	common brushtail possum		C		14
animals	mammals	Phascolarctidae	*Phascolarctos cinereus*	koala		V	V	2
animals	mammals	Pteropodidae	*Pteropus scapulatus*	little red flying-fox		C		2
animals	mammals	Tachyglossidae	*Tachyglossus aculeatus*	short-beaked echidna		SL		17
animals	mammals	Vespertilionidae	*Vespadelus vulturnus*	little forest bat		C		1
animals	mammals	Vespertilionidae	*Nyctophilus sp.*			C		1
animals	mammals	Vespertilionidae	*Chalinolobus gouldii*	Gould's wattled bat		C		2
animals	mammals	Vespertilionidae	*Chalinolobus picatus*	little pied bat		C		1
animals	mammals	Vespertilionidae	*Scotorepens balstoni*	inland broad-nosed bat		C		2
animals	ray-finned fishes	Clupeidae	*Nematalosa erebi*	bony bream				8
animals	ray-finned fishes	Cyprinidae	*Carassius auratus*	goldfish	Y			6
animals	ray-finned fishes	Cyprinidae	*Cyprinus carpio*	European carp	Y			3
animals	ray-finned fishes	Eleotridae	*Hypseleotris sp.*					11
animals	ray-finned fishes	Eleotridae	*Hypseleotris species 1*	Midgley's carp gudgeon				1
animals	ray-finned fishes	Eleotridae	*Hypseleotris klunzingeri*	western carp gudgeon				2
animals	ray-finned fishes	Melanotaeniidae	*Melanotaenia fluviatilis*	Murray River rainbowfish				6
animals	ray-finned fishes	Percichthyidae	*Macquaria ambigua*	golden perch				2
animals	ray-finned fishes	Plotosidae	*Tandanus tandanus*	freshwater catfish				1
animals	ray-finned fishes	Poeciliidae	*Gambusia holbrooki*	mosquitofish	Y			8
animals	ray-finned fishes	Retropinnidae	*Retropinna semoni*	Australian smelt				1
animals	ray-finned fishes	Terapontidae	*Leiopotherapon unicolor*	spangled perch				11
animals	reptiles	Agamidae	*Amphibolurus burnsi*	Burns's dragon		C		4
animals	reptiles	Agamidae	*Pogona barbata*	bearded dragon		C		119/2

Kingdom	Class	Family	Scientific Name	Common Name	I	Q	A	Records
animals	reptiles	Boidae	*Aspidites ramsayi*	woma		NT		11
animals	reptiles	Boidae	*Antaresia maculosa*	spotted python		C		12
animals	reptiles	Boidae	*Morelia spilota*	carpet python		C		7
animals	reptiles	Chelidae	*Emydura macquarii macquarii*	Murray turtle		C		1
animals	reptiles	Chelidae	*Chelodina longicollis*	eastern snake-necked turtle		C		31
animals	reptiles	Colubridae	*Boiga irregularis*	brown tree snake		C		1/1
animals	reptiles	Colubridae	*Dendrelaphis punctulatus*	green tree snake		C		2
animals	reptiles	Diplodactylidae	*Diplodactylus tessellatus*	tessellated gecko		C		19
animals	reptiles	Diplodactylidae	*Lucasium steindachneri*	Steindachner's gecko		C		6/1
animals	reptiles	Diplodactylidae	*Diplodactylus vittatus*	wood gecko		C		4
animals	reptiles	Diplodactylidae	*Strophurus taenicauda*	golden-tailed gecko		NT		14
animals	reptiles	Diplodactylidae	*Oedura monilis sensu lato*	ocellated velvet gecko		C		8
animals	reptiles	Diplodactylidae	*Nebulifera robusta*	robust velvet gecko		C		6
animals	reptiles	Diplodactylidae	*Amalosia rhombifer*	zig-zag gecko		C		1
animals	reptiles	Diplodactylidae	*Oedura elegans*	elegant velvet gecko		C		23/2
animals	reptiles	Diplodactylidae	*Rhynchoedura ormsbyi*	eastern beaked gecko		C		3/1
animals	reptiles	Elapidae	*Pseudechis porphyriacus*	red-bellied black snake		C		1
animals	reptiles	Elapidae	*Brachyurophis australis*	coral snake		C		4
animals	reptiles	Elapidae	*Acanthophis antarcticus*	common death adder		V		2/1
animals	reptiles	Elapidae	*Cryptophis nigrescens*	eastern small-eyed snake		C		3
animals	reptiles	Elapidae	*Pseudechis australis*	king brown snake		C		15
animals	reptiles	Elapidae	*Vermicella annulata*	bandy-bandy		C		3/1
animals	reptiles	Elapidae	*Pseudonaja textilis*	eastern brown snake		C		34
animals	reptiles	Elapidae	*Pseudechis guttatus*	spotted black snake		C		3/1
animals	reptiles	Elapidae	*Demansia psammophis*	yellow-faced whipsnake		C		20
animals	reptiles	Elapidae	*Hoplocephalus bitorquatus*	pale-headed snake		C		7
animals	reptiles	Elapidae	*Suta suta*	myall snake		C		75/1
animals	reptiles	Elapidae	*Suta dwyeri*	Dwyer's snake		C		15/2
animals	reptiles	Elapidae	*Furina diadema*	red-naped snake		C		14/2
animals	reptiles	Elapidae	*Denisonia devisi*	De Vis' banded snake		C		36/3
animals	reptiles	Elapidae	*Cacophis harriettae*	white-crowned snake		C		2/1
animals	reptiles	Elapidae	*Cryptophis boschmai*	Carpentaria whip snake		C		5/1
animals	reptiles	Gekkonidae	*Gehyra dubia*	dubious dtella		C		163/4
animals	reptiles	Gekkonidae	*Heteronotia binoei*	Bynoe's gecko		C		103
animals	reptiles	Gekkonidae	*Gehyra versicolor*			C		8
animals	reptiles	Pygopodidae	*Delma plebeia*	common delma		C		7/1
animals	reptiles	Pygopodidae	*Lialis burtonis*	Burton's legless lizard		C		6/1
animals	reptiles	Pygopodidae	*Delma tincta*	excitable delma		C		2
animals	reptiles	Pygopodidae	*Pygopus schraderi*	eastern hooded scaly-foot		C		5/1
animals	reptiles	Pygopodidae	*Paradelma orientalis*	brigalow scaly-foot		C		10
animals	reptiles	Pygopodidae	*Delma sp.*			C		1
animals	reptiles	Scincidae	*Anomalopus leuckartii*	two-clawed worm-skink		C		12/1
animals	reptiles	Scincidae	*Morethia taeniopleura*	fire-tailed skink		C		2
animals	reptiles	Scincidae	*Pygmaeascincus timlowi*	dwarf litter-skink		C		2
animals	reptiles	Scincidae	*Lerista punctatovittata*	eastern robust slider		C		18/2
animals	reptiles	Scincidae	*Cryptoblepharus pannosus*	ragged snake-eyed skink		C		7/1

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animals	reptiles	Scincidae	*Eremiascincus fasciolatus*	narrow-banded sand swimmer		C		6
animals	reptiles	Scincidae	*Carlia pectoralis sensu lato*			C		2
animals	reptiles	Scincidae	*Cryptoblepharus pulcher pulcher*	elegant snake-eyed skink		C		12
animals	reptiles	Scincidae	*Carlia sp.*			C		2
animals	reptiles	Scincidae	*Lerista sp.*			C		1
animals	reptiles	Scincidae	*Ctenotus sp.*			C		1
animals	reptiles	Scincidae	*Egernia rugosa*	yakka skink		V	V	2/1
animals	reptiles	Scincidae	*Lerista timida*	timid slider		C		7/1
animals	reptiles	Scincidae	*Menetia greyii*	common dwarf skink		C		5
animals	reptiles	Scincidae	*Tiliqua rugosa*	shingle-back		C		13
animals	reptiles	Scincidae	*Ctenotus ingrami*	unspotted yellow-sided ctenotus		C		9/1
animals	reptiles	Scincidae	*Lerista fragilis*	eastern mulch slider		C		16
animals	reptiles	Scincidae	*Carlia pectoralis*	open-litter rainbow skink		C		1
animals	reptiles	Scincidae	*Egernia striolata*	tree skink		C		10
animals	reptiles	Scincidae	*Liopholis modesta*	eastern ranges rock-skink		C		2
animals	reptiles	Scincidae	*Ctenotus spaldingi*	straight-browed ctenotus		C		26/1
animals	reptiles	Scincidae	*Tiliqua scincoides*	eastern blue-tongued lizard		C		52
animals	reptiles	Scincidae	*Lygisaurus foliorum*	tree-base litter-skink		C		13
animals	reptiles	Scincidae	*Morethia boulengeri*	south-eastern morethia skink		C		17/1
animals	reptiles	Scincidae	*Ctenotus taeniolatus*	copper-tailed skink		C		3
animals	reptiles	Typhlopidae	*Anilios ligatus*	robust blind snake		C		9/2
animals	reptiles	Typhlopidae	*Anilios affinis*	small-headed blind snake		C		2
animals	reptiles	Typhlopidae	*Anilios wiedii*	brown-snouted blind snake		C		3
animals	reptiles	Typhlopidae	*Anilios proximus*	proximus blind snake		C		2/1
animals	reptiles	Varanidae	*Varanus tristis*	black-tailed monitor		C		11
animals	reptiles	Varanidae	*Varanus gouldii*	sand monitor		C		9/1
animals	reptiles	Varanidae	*Varanus varius*	lace monitor		C		10/1
animals	reptiles	Varanidae	*Varanus panoptes*	yellow-spotted monitor		C		25
animals	uncertain	Indeterminate	*Indeterminate*	Unknown or Code Pending				2
fungi	arthoniomycetes	Chrysothricaceae	*Chrysothrix xanthina*			C		1/1
fungi	eurotiomycetes	Verrucariaceae	*Placidium lacinulatum*			C		2/2
fungi	eurotiomycetes	Verrucariaceae	*Placidium squamulosum*			C		1/1
fungi	eurotiomycetes	Verrucariaceae	*Endocarpon simplicatum*			C		1/1
fungi	lecanoromycetes	Acarosporaceae	*Acarospora citrina*			C		3/3
fungi	lecanoromycetes	Caliciaceae	*Buellia*					1/1
fungi	lecanoromycetes	Caliciaceae	*Buellia spuria var. spuria*			C		2/2
fungi	lecanoromycetes	Caliciaceae	*Amandinea punctata*			C		1/1
fungi	lecanoromycetes	Caliciaceae	*Pyxine subcinerea*			C		3/3
fungi	lecanoromycetes	Caliciaceae	*Buellia epigaella*			C		1/1
fungi	lecanoromycetes	Caliciaceae	*Pyxine petricola*			C		1/1
fungi	lecanoromycetes	Caliciaceae	*Buellia dispersa*			C		1/1
fungi	lecanoromycetes	Cladoniaceae	*Cladia beaugleholei*			C		1/1
fungi	lecanoromycetes	Cladoniaceae	*Cladia muelleri*			C		1/1
fungi	lecanoromycetes	Collemataceae	*Collema coccophorum*			C		2/2
fungi	lecanoromycetes	Graphidaceae	*Diploschistes euganeus*			C		1/1
fungi	lecanoromycetes	Graphidaceae	*Diploschistes sticticus*			C		1/1

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fungi	lecanoromycetes	Graphidaceae	*Diploschistes actinostomus*			C		2/2
fungi	lecanoromycetes	Lecanoraceae	*Lecanora pseudargentata*			C		1/1
fungi	lecanoromycetes	Lecanoraceae	*Lecanora pseudogangaleoides*			C		1/1
fungi	lecanoromycetes	Lecanoraceae	*Lecanora flavidomarginata*			C		1/1
fungi	lecanoromycetes	Lecanoraceae	*Lecanora helva*			C		2/2
fungi	lecanoromycetes	Lecideaceae	*Lecidea ochroleuca*			C		1/1
fungi	lecanoromycetes	Ochrolechiaceae	*Ochrolechia africana*			C		1/1
fungi	lecanoromycetes	Pannariaceae	*Physma ahtianum*			C		2/2
fungi	lecanoromycetes	Parmeliaceae	*Xanthoparmelia consociata*			C		1/1
fungi	lecanoromycetes	Parmeliaceae	*Austroparmelina subarida*			C		1/1
fungi	lecanoromycetes	Parmeliaceae	*Punctelia pseudocoralloidea*			C		2/2
fungi	lecanoromycetes	Parmeliaceae	*Austroparmelina conlabrosa*			C		1/1
fungi	lecanoromycetes	Parmeliaceae	*Xanthoparmelia exuviata*			C		1/1
fungi	lecanoromycetes	Parmeliaceae	*Xanthoparmelia aridella*			C		1/1
fungi	lecanoromycetes	Parmeliaceae	*Xanthoparmelia incerta*			C		1/1
fungi	lecanoromycetes	Parmeliaceae	*Xanthoparmelia hypoconstictica*			C		1/1
fungi	lecanoromycetes	Parmeliaceae	*Punctelia subflava*			C		1/1
fungi	lecanoromycetes	Parmeliaceae	*Parmotrema subsumptum*			C		1/1
fungi	lecanoromycetes	Parmeliaceae	*Parmotrema cristiferum*			C		1/1
fungi	lecanoromycetes	Parmeliaceae	*Parmotrema reticulatum*			C		1/1
fungi	lecanoromycetes	Pertusariaceae	*Pertusaria leucostomoides*			C		1/1
fungi	lecanoromycetes	Pertusariaceae	*Pertusaria planaica*			C		1/1
fungi	lecanoromycetes	Pertusariaceae	*Pertusaria clarkeana*			C		1/1
fungi	lecanoromycetes	Pertusariaceae	*Pertusaria thiospoda*			C		1/1
fungi	lecanoromycetes	Physciaceae	*Rinodina*					1/1
fungi	lecanoromycetes	Physciaceae	*Physcia nubila*			C		1/1
fungi	lecanoromycetes	Physciaceae	*Hyperphyscia pruinosa*			C		2/2
fungi	lecanoromycetes	Physciaceae	*Physcia jackii*			C		1/1
fungi	lecanoromycetes	Physciaceae	*Physcia undulata*			C		1/1
fungi	lecanoromycetes	Physciaceae	*Physcia neonubila*			C		1/1
fungi	lecanoromycetes	Physciaceae	*Rinodina ramboldii*			C		1/1
fungi	lecanoromycetes	Psoraceae	*Psora crystallifera*			C		1/1
fungi	lecanoromycetes	Schaereriaceae	*Schaereria xerophila*			C		1/1
fungi	lecanoromycetes	Teloschistaceae	*Athallia cerinelloides*			C		1/1
fungi	lecanoromycetes	Teloschistaceae	*Caloplaca yarraensis*			C		1/1
fungi	lecanoromycetes	Teloschistaceae	*Caloplaca kaernefeltii*			C		1/1
fungi	lecanoromycetes	Teloschistaceae	*Caloplaca rexfilsonii*			C		1/1
fungi	lecanoromycetes	Teloschistaceae	*Caloplaca montisfracti*			C		1/1
fungi	lecanoromycetes	Tephromelataceae	*Tephromela connivens*			C		1/1
fungi	lichinomycetes	Lichinaceae	*Heppia*					1/1
fungi	lichinomycetes	Lichinaceae	*Heppia lutosa*			C		2/2
fungi	lichinomycetes	Peltulaceae	*Peltula patellata*			C		1/1
plants	land plants	Acanthaceae	*Pseuderanthemum variabile*	pastel flower		C		1/1
plants	land plants	Acanthaceae	*Brunoniella australis*	blue trumpet		C		4
plants	land plants	Acanthaceae	*Dipteracanthus australasicus subsp. corynothecus*			C		2/2
plants	land plants	Acanthaceae	*Rostellularia adscendens var. adscendens*			C		2

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plants	land plants	Aizoaceae	*Tetragonia tetragonoides*	New Zealand spinach		C		1/1
plants	land plants	Amaranthaceae	*Nyssanthes erecta*			C		3/2
plants	land plants	Amaranthaceae	*Alternanthera nana*	hairy joyweed		C		1/1
plants	land plants	Amaranthaceae	*Ptilotus semilanatus*			C		2/1
plants	land plants	Amaranthaceae	*Gomphrena celosioides*	gomphrena weed	Y			1
plants	land plants	Apiaceae	*Actinotus gibbonsii*	dwarf flannel flower		C		1/1
plants	land plants	Apocynaceae	*Leichhardtia viridiflora subsp. viridiflora*			C		1/1
plants	land plants	Apocynaceae	*Parsonsia eucalyptophylla*	gargaloo		C		3/3
plants	land plants	Apocynaceae	*Parsonsia lanceolata*	northern silkpod		C		2/2
plants	land plants	Apocynaceae	*Alstonia constricta*	bitterbark		C		1
plants	land plants	Apocynaceae	*Orbea variegata*		Y			1/1
plants	land plants	Araliaceae	*Astrotricha biddulphiana*			C		1/1
plants	land plants	Asphodelaceae	*Aloe maculata*		Y			2/2
plants	land plants	Asteraceae	*Calotis lappulacea*	yellow burr daisy		C		1
plants	land plants	Asteraceae	*Erigeron canadensis*		Y			2/2
plants	land plants	Asteraceae	*Minuria integerrima*	smooth minuria		C		1/1
plants	land plants	Asteraceae	*Erigeron bonariensis*		Y			1/1
plants	land plants	Asteraceae	*Gamochaeta antillana*		Y			1/1
plants	land plants	Asteraceae	*Hypochaeris radicata*	catsear	Y			2/2
plants	land plants	Asteraceae	*Leiocarpa brevicompta*			C		2/2
plants	land plants	Asteraceae	*Podolepis longipedata*	tall copper-wire daisy		C		1/1
plants	land plants	Asteraceae	*Senecio brigalowensis*			C		3/3
plants	land plants	Asteraceae	*Pycnosorus chrysanthus*	golden billy buttons		C		2/2
plants	land plants	Asteraceae	*Senecio quadridentatus*	cotton fireweed		C		1/1
plants	land plants	Asteraceae	*Sigesbeckia orientalis*	Indian weed		C		1
plants	land plants	Asteraceae	*Ozothamnus cassinioides*			C		1/1
plants	land plants	Asteraceae	*Ozothamnus diotophyllus*			C		3/3
plants	land plants	Asteraceae	*Chrysocephalum apiculatum*	yellow buttons		C		2/1
plants	land plants	Asteraceae	*Pseudognaphalium luteoalbum*	Jersey cudweed		C		1/1
plants	land plants	Asteraceae	*Olearia canescens subsp. discolor*			C		1/1
plants	land plants	Asteraceae	*Vittadinia dissecta var. dissecta*			C		1/1
plants	land plants	Asteraceae	*Coronidium oxylepis subsp. lanatum*			C		2/2
plants	land plants	Asteraceae	*Olearia canescens subsp. canescens*			C		1/1
plants	land plants	Asteraceae	*Rhodanthe diffusa subsp. leucactina*			C		1/1
plants	land plants	Asteraceae	*Brachyscome whitei subsp. lophoptera*			C		1/1
plants	land plants	Asteraceae	*Leiocarpa semicalva subsp. tenuifolia*			C		2/2
plants	land plants	Asteraceae	*Xerochrysum bracteatum subsp. (Port Keats C.Dunlop+ 6459)*			C		1/1
plants	land plants	Asteraceae	*Calotis cuneifolia*	burr daisy		C		2/2
plants	land plants	Asteraceae	*Picris barbarorum*			V		1/1
plants	land plants	Asteraceae	*Camptacra barbata*			C		1/1
plants	land plants	Asteraceae	*Bidens pilosa*		Y			1
plants	land plants	Asteraceae	*Rhodanthe moschata*			C		1/1
plants	land plants	Asteraceae	*Eclipta platyglossa*			C		1/1
plants	land plants	Boraginaceae	*Cynoglossum australe*			C		1/1
plants	land plants	Brassicaceae	*Rorippa eustylis*			C		1/1

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plants	land plants	Brassicaceae	*Cardamine hirsuta*	common bittercress	Y			1/1
plants	land plants	Brassicaceae	*Stenopetalum nutans*			C		2/2
plants	land plants	Brassicaceae	*Lepidium*					1/1
plants	land plants	Brassicaceae	*Arabidella eremigena*			C		3/3
plants	land plants	Brassicaceae	*Lepidium fasciculatum*	fascicled peppercress		C		1/1
plants	land plants	Brassicaceae	*Stenopetalum lineare*			C		1/1
plants	land plants	Byttneriaceae	*Seringia collina*			C		1/1
plants	land plants	Byttneriaceae	*Commersonia pedleyi*			C		3/3
plants	land plants	Byttneriaceae	*Seringia corollata*			C		1/1
plants	land plants	Byttneriaceae	*Seringia hookeriana*			C		2/2
plants	land plants	Cactaceae	*Opuntia stricta*		Y			4
plants	land plants	Cactaceae	*Opuntia sulphurea*		Y			2/2
plants	land plants	Cactaceae	*Opuntia tomentosa*	velvety tree pear	Y			5/1
plants	land plants	Caesalpiniaceae	*Senna circinnata*			C		1/1
plants	land plants	Caesalpiniaceae	*Senna sophera var. (40Mile Scrub J.R.Clarkson+ 6908)*			C		1/1
plants	land plants	Caesalpiniaceae	*Senna artemisioides subsp. artemisioides*			C		1/1
plants	land plants	Caesalpiniaceae	*Petalostylis labicheoides*			C		1/1
plants	land plants	Caesalpiniaceae	*Erythrostemon gilliesii*		Y			1/1
plants	land plants	Caesalpiniaceae	*Senna coronilloides*			C		1/1
plants	land plants	Caesalpiniaceae	*Chamaecrista nomame*			C		1/1
plants	land plants	Caesalpiniaceae	*Senna pleurocarpa*			C		1/1
plants	land plants	Caesalpiniaceae	*Senna occidentalis*	coffee senna	Y			1/1
plants	land plants	Caesalpiniaceae	*Senna planitiicola*			C		1/1
plants	land plants	Campanulaceae	*Wahlenbergia graniticola*	granite bluebell		C		1
plants	land plants	Campanulaceae	*Wahlenbergia gracilis*	sprawling bluebell		C		1/1
plants	land plants	Campanulaceae	*Lobelia concolor*			C		1/1
plants	land plants	Capparaceae	*Capparis loranthifolia*			C		1
plants	land plants	Capparaceae	*Capparis mitchellii*			C		1
plants	land plants	Caryophyllaceae	*Gypsophila australis*			C		1/1
plants	land plants	Casuarinaceae	*Allocasuarina luehmannii*	bull oak		C		5
plants	land plants	Chenopodiaceae	*Enchylaena tomentosa var. tomentosa*			C		2/1
plants	land plants	Chenopodiaceae	*Sclerolaena muricata var. semiglabra*			C		2/2
plants	land plants	Chenopodiaceae	*Chenopodium desertorum subsp. anidiophyllum*			C		2/2
plants	land plants	Chenopodiaceae	*Einadia hastata*			C		1/1
plants	land plants	Chenopodiaceae	*Dysphania valida*			C		1/1
plants	land plants	Chenopodiaceae	*Maireana coronata*			C		1/1
plants	land plants	Chenopodiaceae	*Salsola australis*			C		3/1
plants	land plants	Chenopodiaceae	*Sclerolaena birchii*	galvanised burr		C		2/1
plants	land plants	Chenopodiaceae	*Maireana microphylla*			C		3/2
plants	land plants	Chenopodiaceae	*Sclerolaena convexula*			C		2/2
plants	land plants	Chenopodiaceae	*Sclerolaena diacantha*	grey copper burr		C		1/1
plants	land plants	Chenopodiaceae	*Maireana enchylaenoides*			C		2/2
plants	land plants	Chenopodiaceae	*Sclerolaena tetracuspis*	brigalow burr		C		1/1
plants	land plants	Chenopodiaceae	*Einadia nutans subsp. nutans*			C		2/1
plants	land plants	Chenopodiaceae	*Einadia nutans subsp. linifolia*			C		2

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plants	land plants	Chenopodiaceae	*Sclerolaena bicornis var. horrida*			C		2/2
plants	land plants	Chenopodiaceae	*Einadia trigonos subsp. stellulata*			C		1/1
plants	land plants	Commelinaceae	*Aneilema sclerocarpum*			C		1/1
plants	land plants	Commelinaceae	*Aneilema acuminatum*			C		1/1
plants	land plants	Commelinaceae	*Commelina diffusa*	wandering jew		C		3/2
plants	land plants	Convolvulaceae	*Evolvulus alsinoides*			C		1/1
plants	land plants	Convolvulaceae	*Evolvulus alsinoides var. decumbens*			C		2/2
plants	land plants	Crassulaceae	*Bryophyllum x houghtonii*		Y			2
plants	land plants	Crassulaceae	*Bryophyllum delagoense*		Y			1/1
plants	land plants	Cucurbitaceae	*Cucumis melo*			C		1/1
plants	land plants	Cucurbitaceae	*Sicyos australis*	star cucumber		C		1/1
plants	land plants	Cupressaceae	*Callitris glaucophylla*	white cypress pine		C		53
plants	land plants	Cyperaceae	*Eleocharis plana*	ribbed spikerush		C		1/1
plants	land plants	Cyperaceae	*Cyperus dactylotes*			C		1/1
plants	land plants	Cyperaceae	*Eleocharis pallens*	pale spikerush		C		1/1
plants	land plants	Cyperaceae	*Schoenus centralis*			C		1/1
plants	land plants	Cyperaceae	*Scleria sphacelata*			C		2/2
plants	land plants	Cyperaceae	*Bulbostylis barbata*			C		1/1
plants	land plants	Cyperaceae	*Cyperus leptocarpus*			C		1/1
plants	land plants	Cyperaceae	*Cyperus perangustus*			C		1/1
plants	land plants	Cyperaceae	*Cyperus alterniflorus*			C		1/1
plants	land plants	Cyperaceae	*Cyperus sanguinolentus*			C		1/1
plants	land plants	Cyperaceae	*Fimbristylis dichotoma*	common fringe-rush		C		1
plants	land plants	Cyperaceae	*Eleocharis cylindrostachys*			C		1/1
plants	land plants	Cyperaceae	*Cyperus gunnii subsp. gunnii*			C		1/1
plants	land plants	Cyperaceae	*Cyperus betchei subsp. betchei*			C		1/1
plants	land plants	Cyperaceae	*Cyperus gracilis*			C		3/1
plants	land plants	Cyperaceae	*Schoenus kennyi*			C		1/1
plants	land plants	Cyperaceae	*Cyperus fulvus*			C		1
plants	land plants	Cyperaceae	*Cyperus iria*			C		1/1
plants	land plants	Cyperaceae	*Cyperus*					2
plants	land plants	Cyperaceae	*Cyperus castaneus*			C		1/1
plants	land plants	Cyperaceae	*Cyperus concinnus*			C		1/1
plants	land plants	Cyperaceae	*Abildgaardia ovata*			C		1
plants	land plants	Dilleniaceae	*Hibbertia sp. (Barakula V.Hando 122)*			C		1/1
plants	land plants	Droseraceae	*Drosera lunata*			C		2/2
plants	land plants	Droseraceae	*Drosera finlaysoniana*			C		1/1
plants	land plants	Elatinaceae	*Elatine gratioloides*	waterwort		C		1/1
plants	land plants	Ericaceae	*Styphelia mitchellii*			C		4/4
plants	land plants	Euphorbiaceae	*Croton phebalioides*	narrow-leaved croton		C		2/2
plants	land plants	Euphorbiaceae	*Euphorbia dallachyana*			C		1
plants	land plants	Euphorbiaceae	*Euphorbia papillifolia var. papillifolia*			C		1/1
plants	land plants	Euphorbiaceae	*Bertya oleifolia*			C		3/3
plants	land plants	Euphorbiaceae	*Acalypha eremorum*	soft acalypha		C		1/1
plants	land plants	Fabaceae	*Glycine*					2/2
plants	land plants	Fabaceae	*Tephrosia sp. (Miriam Vale E.J.Thompson+ MIR33)*			C		1/1

Kingdom	Class	Family	Scientific Name	Common Name	I	Q	A	Records
plants	land plants	Fabaceae	*Glycine tabacina*	glycine pea		C		3/1
plants	land plants	Fabaceae	*Mirbelia pungens*			C		1/1
plants	land plants	Fabaceae	*Desmodium varians*	slender tick trefoil		C		3/1
plants	land plants	Fabaceae	*Rhynchosia minima*			C		1
plants	land plants	Fabaceae	*Swainsona luteola*	dwarf darling pea		C		1/1
plants	land plants	Fabaceae	*Glycine stenophita*			C		1/1
plants	land plants	Fabaceae	*Glycine tomentella*	woolly glycine		C		1
plants	land plants	Fabaceae	*Glycine microphylla*			C		1/1
plants	land plants	Fabaceae	*Indigofera brevidens*			C		1/1
plants	land plants	Fabaceae	*Desmodium brachypodum*	large ticktrefoil		C		1
plants	land plants	Fabaceae	*Desmodium campylocaulon*			C		1/1
plants	land plants	Fabaceae	*Templetonia stenophylla*	leafy templetonia		C		1/1
plants	land plants	Fabaceae	*Medicago minima var. minima*		Y			2/1
plants	land plants	Fabaceae	*Rhynchosia minima var. minima*			C		2/1
plants	land plants	Fabaceae	*Glycine clandestina var. sericea*			C		1
plants	land plants	Fabaceae	*Rhynchosia minima var. australis*			C		1
plants	land plants	Fabaceae	*Vigna lanceolata var. lanceolata*			C		2/2
plants	land plants	Fabaceae	*Medicago laciniata var. laciniata*		Y			2/2
plants	land plants	Fabaceae	*Zornia dyctiocarpa var. filifolia*			C		1/1
plants	land plants	Fabaceae	*Zornia muelleriana subsp. muelleriana*			C		4/4
plants	land plants	Fabaceae	*Crotalaria dissitiflora subsp. dissitiflora*			C		1/1
plants	land plants	Fabaceae	*Hovea longipes*	brush hovea		C		3/3
plants	land plants	Goodeniaceae	*Goodenia glabra*			C		1/1
plants	land plants	Goodeniaceae	*Goodenia delicata*			C		2/2
plants	land plants	Goodeniaceae	*Brunonia australis*	blue pincushion		C		1/1
plants	land plants	Goodeniaceae	*Scaevola spinescens*	prickly fan flower		C		1/1
plants	land plants	Goodeniaceae	*Goodenia rotundifolia*			C		2/2
plants	land plants	Gyrostemonaceae	*Codonocarpus attenuatus*			C		1/1
plants	land plants	Haloragaceae	*Gonocarpus urceolatus*			C		3/3
plants	land plants	Haloragaceae	*Haloragis heterophylla*	rough raspweed		C		1/1
plants	land plants	Hydrocharitaceae	*Ottelia ovalifolia subsp. ovalifolia*			C		1/1
plants	land plants	Juncaceae	*Juncus usitatus*			C		2/2
plants	land plants	Juncaceae	*Juncus aridicola*	tussock rush		C		2/2
plants	land plants	Juncaceae	*Juncus subglaucus*			C		2/2
plants	land plants	Juncaginaceae	*Cycnogeton multifructus*			C		1/1
plants	land plants	Lamiaceae	*Stachys arvensis*	stagger weed	Y			3/3
plants	land plants	Lamiaceae	*Teucrium junceum*			C		2/1
plants	land plants	Lamiaceae	*Marrubium vulgare*	white horehound	Y			1/1
plants	land plants	Lamiaceae	*Teucrium daucoides*			C		3/3
plants	land plants	Lamiaceae	*Prostanthera sp. (Baking Board V.Hando 135)*			C		2/2
plants	land plants	Lamiaceae	*Prostanthera ringens*			C		2/2
plants	land plants	Lamiaceae	*Prostanthera parvifolia*			C		2/2
plants	land plants	Lamiaceae	*Prostanthera lithospermoides*			C		1/1
plants	land plants	Lamiaceae	*Teucrium puberulum*			C		2/2
plants	land plants	Laxmanniaceae	*Lomandra multiflora subsp. multiflora*			C		3/1
plants	land plants	Laxmanniaceae	*Lomandra leucocephala subsp. leucocephala*			C		1/1

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plants	land plants	Laxmanniaceae	*Lomandra filiformis subsp. filiformis*			C		1/1
plants	land plants	Laxmanniaceae	*Lomandra filiformis*			C		1/1
plants	land plants	Laxmanniaceae	*Laxmannia gracilis*	slender wire lily		C		1/1
plants	land plants	Laxmanniaceae	*Laxmannia compacta*			C		1/1
plants	land plants	Loganiaceae	*Mitrasacme paludosa*			C		1/1
plants	land plants	Loranthaceae	*Lysiana exocarpi subsp. tenuis*			C		1/1
plants	land plants	Loranthaceae	*Dendrophthoe glabrescens*			C		2/2
plants	land plants	Loranthaceae	*Lysiana subfalcata*			C		1/1
plants	land plants	Loranthaceae	*Amyema miquelii*			C		3/3
plants	land plants	Lythraceae	*Ammannia multiflora*	jerry-jerry		C		1/1
plants	land plants	Malvaceae	*Sida*					1
plants	land plants	Malvaceae	*Sida laevis*			C		1/1
plants	land plants	Malvaceae	*Sida corrugata*			C		4/4
plants	land plants	Malvaceae	*Sida platycalyx*	lifesaver burr		C		1/1
plants	land plants	Malvaceae	*Hibiscus sturtii*			C		1/1
plants	land plants	Malvaceae	*Malva parviflora*	small-flowered mallow	Y			1/1
plants	land plants	Malvaceae	*Sida hackettiana*			C		1/1
plants	land plants	Malvaceae	*Abutilon oxycarpum*			C		4
plants	land plants	Malvaceae	*Abutilon tubulosum*			C		2/2
plants	land plants	Malvaceae	*Abutilon malvifolium*	bastard marshmallow		C		1/1
plants	land plants	Malvaceae	*Abutilon calliphyllum*	velvet lanternflower		C		1/1
plants	land plants	Malvaceae	*Abutilon oxycarpum var. incanum*			C		2/2
plants	land plants	Malvaceae	*Abutilon oxycarpum var. oxycarpum*			C		4/4
plants	land plants	Malvaceae	*Abutilon tubulosum var. tubulosum*			C		1/1
plants	land plants	Malvaceae	*Abutilon oxycarpum var. subsagittatum*			C		2/2
plants	land plants	Malvaceae	*Malvastrum americanum var. americanum*		Y			3/1
plants	land plants	Malvaceae	*Sida sp. (Musselbrook M.B.Thomas+ MRS437)*			C		1/1
plants	land plants	Marsileaceae	*Marsilea hirsuta*	hairy nardoo		C		1/1
plants	land plants	Mimosaceae	*Acacia leiocalyx subsp. leiocalyx*			C		3/3
plants	land plants	Mimosaceae	*Acacia buxifolia subsp. buxifolia*			C		1
plants	land plants	Mimosaceae	*Neptunia gracilis forma gracilis*			C		1
plants	land plants	Mimosaceae	*Acacia aneura var. major*			C		1/1
plants	land plants	Mimosaceae	*Acacia bancroftiorum*			C		1/1
plants	land plants	Mimosaceae	*Acacia spectabilis*	pilliga wattle		C		3/3
plants	land plants	Mimosaceae	*Acacia sparsiflora*			C		4/3
plants	land plants	Mimosaceae	*Acacia harpophylla*	brigalow		C		1/1
plants	land plants	Mimosaceae	*Acacia polybotrya*	western silver wattle		C		1
plants	land plants	Mimosaceae	*Acacia concurrens*			C		1
plants	land plants	Mimosaceae	*Acacia catenulata*	bendee		C		1/1
plants	land plants	Mimosaceae	*Acacia leiocalyx*			C		1
plants	land plants	Mimosaceae	*Acacia shirleyi*	lancewood		C		1/1
plants	land plants	Mimosaceae	*Acacia salicina*	doolan		C		4/2
plants	land plants	Mimosaceae	*Acacia oswaldii*	miljee		C		1/1
plants	land plants	Mimosaceae	*Acacia conferta*			C		4/4
plants	land plants	Mimosaceae	*Acacia jucunda*			C		2
plants	land plants	Mimosaceae	*Acacia aprepta*	Miles mulga		C		2/2

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plants	land plants	Mimosaceae	*Acacia decora*	pretty wattle		C		1/1
plants	land plants	Mimosaceae	*Neptunia*					3/3
plants	land plants	Myrtaceae	*Eucalyptus crebra x Eucalyptus melanophloia*			C		1/1
plants	land plants	Myrtaceae	*Eucalyptus bakeri*	Baker's mallee		C		2/2
plants	land plants	Myrtaceae	*Eucalyptus tereticornis subsp. tereticornis*			C		1/1
plants	land plants	Myrtaceae	*Eucalyptus melanophloia x Eucalyptus populnea*			C		1/1
plants	land plants	Myrtaceae	*Kardomia jucunda*			C		1/1
plants	land plants	Myrtaceae	*Eucalyptus sideroxylon subsp. sideroxylon*			C		1
plants	land plants	Myrtaceae	*Eucalyptus crebra x Eucalyptus populnea*			C		3/3
plants	land plants	Myrtaceae	*Eucalyptus fibrosa subsp. fibrosa*			C		3
plants	land plants	Myrtaceae	*Eucalyptus melanophloia*			C		11
plants	land plants	Myrtaceae	*Backhousia angustifolia*	narrow-leaved backhousia		C		1/1
plants	land plants	Myrtaceae	*Eucalyptus chloroclada*	Baradine red gum		C		4
plants	land plants	Myrtaceae	*Eucalyptus thozetiana*			C		1/1
plants	land plants	Myrtaceae	*Corymbia clarksoniana*			C		2/1
plants	land plants	Myrtaceae	*Micromyrtus sessilis*			C		4/4
plants	land plants	Myrtaceae	*Corymbia tessellaris*	Moreton Bay ash		C		1
plants	land plants	Myrtaceae	*Eucalyptus tenuipes*	narrow-leaved white mahogany		C		2/2
plants	land plants	Myrtaceae	*Eucalyptus populnea*	poplar box		C		7
plants	land plants	Myrtaceae	*Eucalyptus dealbata*	tumble-down red gum		C		2
plants	land plants	Myrtaceae	*Eucalyptus coolabah*	coolabah		C		1/1
plants	land plants	Myrtaceae	*Corymbia intermedia*	pink bloodwood		C		2
plants	land plants	Myrtaceae	*Angophora leiocarpa*	rusty gum		C		4
plants	land plants	Myrtaceae	*Melaleuca uncinata*			C		1/1
plants	land plants	Myrtaceae	*Eucalyptus exserta*	Queensland peppermint		C		3/2
plants	land plants	Myrtaceae	*Eucalyptus crebra*	narrow-leaved red ironbark		C		7/1
plants	land plants	Myrtaceae	*Eucalyptus melanophloia subsp. melanophloia*			C		2/2
plants	land plants	Nyctaginaceae	*Boerhavia pubescens*			C		1/1
plants	land plants	Nyctaginaceae	*Boerhavia dominii*			C		4
plants	land plants	Oleaceae	*Notelaea microcarpa*			C		3/3
plants	land plants	Oleaceae	*Jasminum didymum subsp. racemosum*			C		1/1
plants	land plants	Onagraceae	*Oenothera indecora subsp. bonariensis*		Y			1
plants	land plants	Ophioglossaceae	*Ophioglossum lusitanicum*	adder's tongue		C		1/1
plants	land plants	Orchidaceae	*Cymbidium canaliculatum*			C		7
plants	land plants	Orchidaceae	*Pterostylis*					5/5
plants	land plants	Orobanchaceae	*Buchnera*					1/1
plants	land plants	Papaveraceae	*Papaver somniferum subsp. setigerum*		Y			1/1
plants	land plants	Passifloraceae	*Passiflora aurantia var. aurantia*			C		1/1
plants	land plants	Pedaliaceae	*Josephinia eugeniae*	josephinia burr		C		1/1
plants	land plants	Phrymaceae	*Glossostigma diandrum*			C		1/1
plants	land plants	Phyllanthaceae	*Phyllanthus maderaspatensis*			C		1/1
plants	land plants	Phyllanthaceae	*Bridelia leichhardtii*			C		1/1
plants	land plants	Phyllanthaceae	*Flueggea leucopyrus*			C		1/1
plants	land plants	Phyllanthaceae	*Phyllanthus virgatus*			C		2/1
plants	land plants	Phyllanthaceae	*Phyllanthus gunnii*			C		3/2
plants	land plants	Phyllanthaceae	*Phyllanthus*					1/1

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plants	land plants	Picrodendraceae	*Petalostigma pubescens*	quinine tree		C		1/1
plants	land plants	Pittosporaceae	*Bursaria incana*			C		1/1
plants	land plants	Plantaginaceae	*Stemodia glabella*			C		1/1
plants	land plants	Plantaginaceae	*Veronica plebeia*	trailing speedwell		C		2/2
plants	land plants	Plantaginaceae	*Plantago debilis*	shade plantain		C		1/1
plants	land plants	Poaceae	*Dinebra decipiens var. peacockii*			C		3/1
plants	land plants	Poaceae	*Chloris divaricata var. divaricata*	slender chloris		C		3
plants	land plants	Poaceae	*Urochloa panicoides var. pubescens*		Y			1/1
plants	land plants	Poaceae	*Megathyrsus maximus var. pubiglumis*		Y			1/1
plants	land plants	Poaceae	*Bothriochloa decipiens var. decipiens*			C		4
plants	land plants	Poaceae	*Poa labillardierei var. labillardierei*	tussock grass		C		2/2
plants	land plants	Poaceae	*Aristida jerichoensis var. jerichoensis*			C		1/1
plants	land plants	Poaceae	*Aristida jerichoensis var. subspinulifera*			C		2
plants	land plants	Poaceae	*Panicum queenslandicum var. queenslandicum*			C		3/1
plants	land plants	Poaceae	*Digitaria divaricatissima var. divaricatissima*			C		3/3
plants	land plants	Poaceae	*Eriachne mucronata forma (Alpha C.E.Hubbard 7882)*			C		1/1
plants	land plants	Poaceae	*Perotis rara*	comet grass		C		2/2
plants	land plants	Poaceae	*Eriachne rara*			C		2/2
plants	land plants	Poaceae	*Melinis repens*	red natal grass	Y			1
plants	land plants	Poaceae	*Aristida ramosa*	purple wiregrass		C		4/3
plants	land plants	Poaceae	*Panicum effusum*			C		2/1
plants	land plants	Poaceae	*Eriochloa crebra*	spring grass		C		1/1
plants	land plants	Poaceae	*Themeda avenacea*			C		1/1
plants	land plants	Poaceae	*Themeda triandra*	kangaroo grass		C		5/2
plants	land plants	Poaceae	*Triraphis mollis*	purple plumegrass		C		2/2
plants	land plants	Poaceae	*Urochloa foliosa*			C		1
plants	land plants	Poaceae	*Aristida echinata*			C		2/1
plants	land plants	Poaceae	*Astrebla lappacea*	curly mitchell grass		C		1/1
plants	land plants	Poaceae	*Cenchrus ciliaris*		Y			3
plants	land plants	Poaceae	*Cenchrus setaceus*		Y			15
plants	land plants	Poaceae	*Digitaria diffusa*			C		1/1
plants	land plants	Poaceae	*Eragrostis pilosa*	soft lovegrass	Y			1/1
plants	land plants	Poaceae	*Sporobolus caroli*	fairy grass		C		1
plants	land plants	Poaceae	*Thellungia advena*	coolibah grass		C		3/1
plants	land plants	Poaceae	*Aristida personata*			C		3
plants	land plants	Poaceae	*Chloris ventricosa*	tall chloris		C		2
plants	land plants	Poaceae	*Chrysopogon fallax*			C		2/1
plants	land plants	Poaceae	*Eragrostis brownii*	Brown's lovegrass		C		3/2
plants	land plants	Poaceae	*Eragrostis curvula*		Y			2/2
plants	land plants	Poaceae	*Eragrostis sororia*			C		1/1
plants	land plants	Poaceae	*Eriachne mucronata*			C		1/1
plants	land plants	Poaceae	*Paspalum dilatatum*	paspalum	Y			1
plants	land plants	Poaceae	*Paspalum distichum*	water couch	Y			1/1
plants	land plants	Poaceae	*Digitaria ammophila*	silky umbrella grass		C		1/1
plants	land plants	Poaceae	*Homopholis belsonii*			E	V	1/1
plants	land plants	Poaceae	*Paspalidium gracile*	slender panic		C		3

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plants	land plants	Poaceae	*Tragus australianus*	small burr grass		C		3/1
plants	land plants	Poaceae	*Aristida platychaeta*			C		2/2
plants	land plants	Poaceae	*Aristida psammophila*			C		1
plants	land plants	Poaceae	*Cymbopogon refractus*	barbed-wire grass		C		2
plants	land plants	Poaceae	*Enneapogon avenaceus*			C		2
plants	land plants	Poaceae	*Eragrostis lacunaria*	purple lovegrass		C		2/2
plants	land plants	Poaceae	*Sporobolus elongatus*			C		1/1
plants	land plants	Poaceae	*Eragrostis parviflora*	weeping lovegrass		C		1/1
plants	land plants	Poaceae	*Heteropogon contortus*	black speargrass		C		3
plants	land plants	Poaceae	*Iseilema membranaceum*	small flinders grass		C		2/2
plants	land plants	Poaceae	*Sporobolus natalensis*		Y			1/1
plants	land plants	Poaceae	*Aristida caput-medusae*			C		3/2
plants	land plants	Poaceae	*Arundinella nepalensis*	reedgrass		C		2/2
plants	land plants	Poaceae	*Brachyachne convergens*	common native couch		C		1/1
plants	land plants	Poaceae	*Cleistochloa subjuncea*			C		2/2
plants	land plants	Poaceae	*Enneapogon lindleyanus*			C		1
plants	land plants	Poaceae	*Enteropogon acicularis*	curly windmill grass		C		3
plants	land plants	Poaceae	*Eragrostis alveiformis*			C		3
plants	land plants	Poaceae	*Eragrostis cilianensis*		Y			1/1
plants	land plants	Poaceae	*Eragrostis trichophora*		Y			2/2
plants	land plants	Poaceae	*Paspalidium globoideum*	sago grass		C		1/1
plants	land plants	Poaceae	*Setaria paspalidioides*			C		2/2
plants	land plants	Poaceae	*Thyridolepis xerophila*			C		2/2
plants	land plants	Poaceae	*Ancistrachne uncinulata*	hooky grass		C		1
plants	land plants	Poaceae	*Dactyloctenium radulans*	button grass		C		1/1
plants	land plants	Poaceae	*Eragrostis megalosperma*			C		1/1
plants	land plants	Poaceae	*Paspalidium caespitosum*	brigalow grass		C		1/1
plants	land plants	Poaceae	*Rytidosperma bipartitum*			C		2/2
plants	land plants	Poaceae	*Capillipedium spicigerum*	spicytop		C		2/1
plants	land plants	Poaceae	*Paspalidium albovillosum*			C		2/2
plants	land plants	Poaceae	*Walwhalleya subxerophila*			C		1/1
plants	land plants	Poaceae	*Diplachne fusca var. fusca*			C		1/1
plants	land plants	Poaceae	*Eriochloa pseudoacrotricha*			C		4/4
plants	land plants	Poaceae	*Dinebra decipiens var. decipiens*			C		1/1
plants	land plants	Polygalaceae	*Polygala triflora*			C		1/1
plants	land plants	Polygonaceae	*Persicaria decipiens*	slender knotweed		C		1/1
plants	land plants	Portulacaceae	*Portulaca bicolor*			C		1/1
plants	land plants	Portulacaceae	*Portulaca pilosa*		Y			1/1
plants	land plants	Pottiaceae	*Trichostomum brachydontium*			C		1/1
plants	land plants	Pottiaceae	*Syntrichia laevipila*			C		4/4
plants	land plants	Proteaceae	*Grevillea striata*	beefwood		C		3/1
plants	land plants	Proteaceae	*Hakea purpurea*			C		2/2
plants	land plants	Proteaceae	*Hakea lorea subsp. lorea*			C		1/1
plants	land plants	Pteridaceae	*Pteris platyzomopsis*			C		2/2
plants	land plants	Pteridaceae	*Pellaea falcata*			C		1/1
plants	land plants	Pteridaceae	*Cheilanthes distans*	bristly cloak fern		C		1

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plants	land plants	Ptychomitriaceae	*Ptychomitrium australe*			C		4/4
plants	land plants	Ranunculaceae	*Clematis microphylla*			C		1/1
plants	land plants	Ranunculaceae	*Ranunculus sessiliflorus var. sessiliflorus*			C		1/1
plants	land plants	Rhamnaceae	*Cryptandra armata*			C		1/1
plants	land plants	Rhamnaceae	*Alphitonia excelsa*	soap tree		C		1/1
plants	land plants	Rhamnaceae	*Cryptandra longistaminea*			C		1/1
plants	land plants	Rubiaceae	*Psydrax odorata subsp. australiana*			C		1/1
plants	land plants	Rubiaceae	*Asperula geminifolia*			C		1/1
plants	land plants	Rubiaceae	*Psydrax johnsonii*			C		1/1
plants	land plants	Rubiaceae	*Asperula conferta*			C		1
plants	land plants	Rubiaceae	*Richardia brasiliensis*	white eye	Y			1/1
plants	land plants	Rutaceae	*Geijera parviflora*	wilga		C		6/1
plants	land plants	Rutaceae	*Phebalium nottii*	pink phebalium		C		1/1
plants	land plants	Rutaceae	*Philotheca difformis subsp. difformis*			C		1/1
plants	land plants	Santalaceae	*Anthobolus leptomerioides*			C		1/1
plants	land plants	Sapindaceae	*Alectryon oleifolius subsp. elongatus*			C		1
plants	land plants	Sapindaceae	*Dodonaea triangularis*			C		1/1
plants	land plants	Sapindaceae	*Dodonaea lanceolata var. subsessilifolia*			C		1/1
plants	land plants	Sapindaceae	*Dodonaea stenophylla*			C		1/1
plants	land plants	Sapindaceae	*Dodonaea filifolia*			C		2/2
plants	land plants	Sapindaceae	*Atalaya hemiglauca*			C		3/2
plants	land plants	Sapindaceae	*Dodonaea biloba*			C		2/2
plants	land plants	Sapotaceae	*Planchonella cotinifolia var. pubescens*			C		1/1
plants	land plants	Scrophulariaceae	*Eremophila longifolia*	berrigan		C		1
plants	land plants	Scrophulariaceae	*Eremophila mitchellii*			C		12/2
plants	land plants	Scrophulariaceae	*Myoporum acuminatum*	coastal boobialla		C		1/1
plants	land plants	Scrophulariaceae	*Verbascum virgatum*	twiggy mullein	Y			2/2
plants	land plants	Scrophulariaceae	*Eremophila deserti*			C		5/5
plants	land plants	Solanaceae	*Lycium ferocissimum*	African boxthorn	Y			1/1
plants	land plants	Solanaceae	*Solanum ellipticum*	potato bush		C		2/1
plants	land plants	Solanaceae	*Solanum jucundum*			C		3/3
plants	land plants	Solanaceae	*Solanum esuriale*	quena		C		2/2
plants	land plants	Solanaceae	*Solanum parvifolium subsp. parvifolium*			C		2/2
plants	land plants	Solanaceae	*Physalis lanceifolia*		Y			1/1
plants	land plants	Solanaceae	*Solanum ferocissimum*			C		5/5
plants	land plants	Solanaceae	*Solanum mitchellianum*			C		2/2
plants	land plants	Solanaceae	*Nicotiana megalosiphon subsp. megalosiphon*			C		1/1
plants	land plants	Stackhousiaceae	*Stackhousia viminea*	slender stackhousia		C		1/1
plants	land plants	Thymelaeaceae	*Pimelea trichostachya*	flaxweed		C		4/4
plants	land plants	Thymelaeaceae	*Pimelea microcephala subsp. microcephala*			C		1/1
plants	land plants	Typhaceae	*Typha domingensis*			C		1/1
plants	land plants	Verbenaceae	*Glandularia aristigera*		Y			4/1
plants	land plants	Verbenaceae	*Verbena litoralis var. litoralis*		Y			1/1
plants	land plants	Verbenaceae	*Verbena incompta*		Y			1/1
plants	land plants	Violaceae	*Pigea stellarioides*			C		2/2
plants	land plants	Viscaceae	*Viscum whitei subsp. whitei*			C		1/1

Kingdom	Class	Family	Scientific Name	Common Name	I	Q	A	Records
plants	land plants	Viscaceae	*Korthalsella rubra subsp. geijericola*			C		3/3
plants	land plants	Zygophyllaceae	*Zygophyllum apiculatum*	gall weed		C		1/1

CODES

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

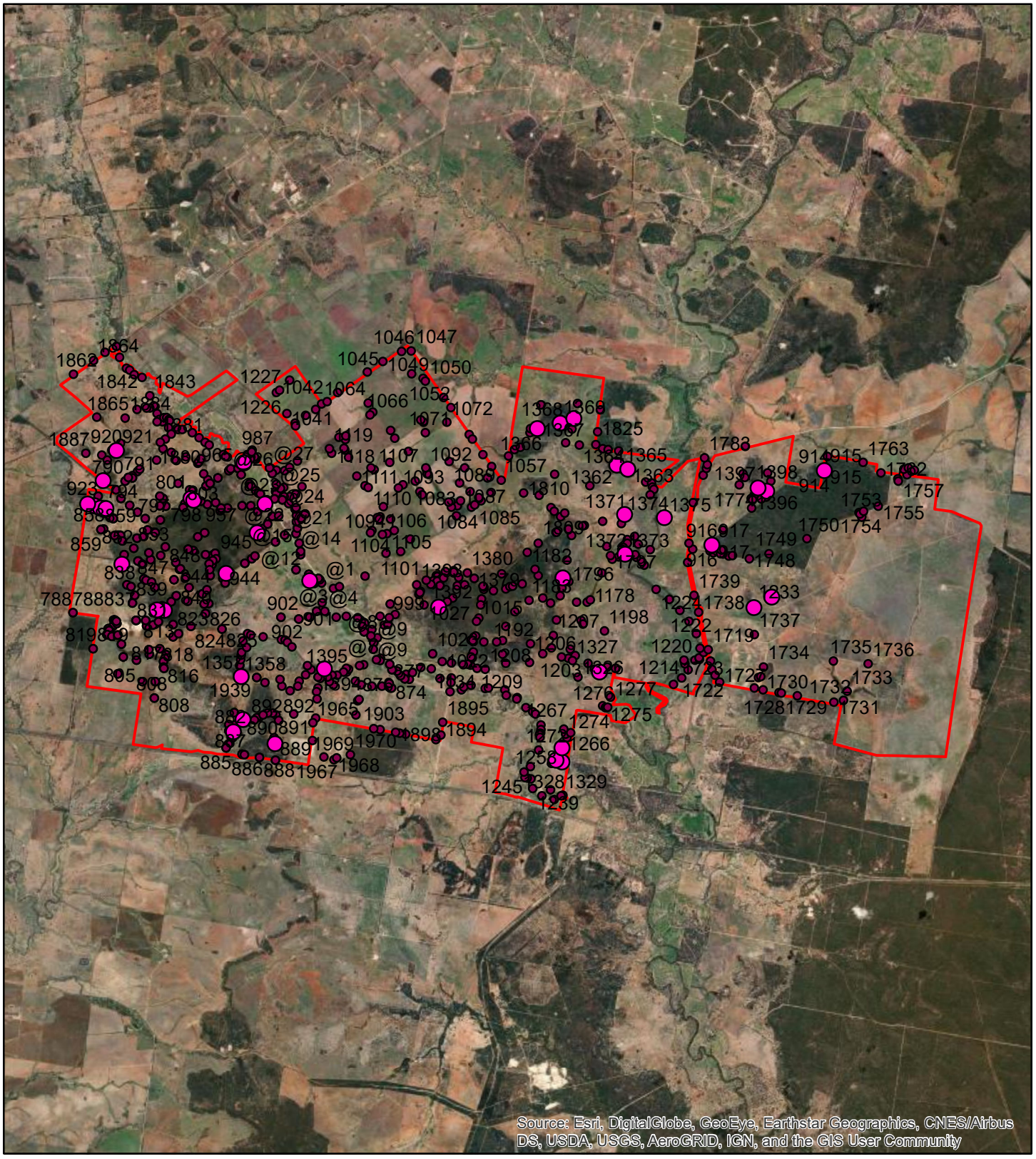
Q - Indicates the Queensland conservation status of each taxon under the *Nature Conservation Act 1992.* The codes are Extinct in the Wild (PE), Endangered (E), Vulnerable (V), Near Threatened (NT), Least Concern (C) or Not Protected ( ).

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.

Appendix C

Field Survey Site Locations



0 0.5 1 2 3 4 Kilometers

N

Legend

- Biocondition sites
- Field Survey Sites

APPENDIX FIGURE A

State 1:100,000 Regional Ecosystem Mapping

SD22 East Ecological Constraints Mapping

AD 25/03/21
Job No. 0237

terrestria
ECOLOGICAL MANAGEMENT

Appendix D

Field Survey Site Data: RE Code Site Sheets

A 3.3 Sheet D – Regional Ecosystem type assessment site

1719

Location

Site No. 1 **Recorder:** A DANIEL **Day Date:** 23/11/2020

Purpose 2022

Locality: (inc. distance/direction to nearest town) WYEMBA (YELARBON)

GPS: 55 | 0738923 | 7039140 GDA'94

3151

Vegetation structure

Median height of the EDL is to be measured

Stratum	Median height	Height interval	Est. cover density (D,M,S,V)
E	9	8 - 10	VS
T1	7	6 - 8	VS
T2	4	3 - 6	S
T3		-	
S1		-	
S2		-	
G		-	

Structural formation: (including height) Open 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	Casuarina cristata
E	d	Eucalyptus populnea
T2	d	Acacia farnesiana

Geology, landform, soils

Geology map/scale/year:

Geology code and rock types:

Land system:

Landform:

Soils:

Field observation and notes:

Landzone: 9

RE code changes

Existing RE code:

Proposed RE code: non-rem non-functional

END

A 3.3 Sheet D – Regional Ecosystem type assessment site

Location

Site No. 2 **Recorder:** A Danks **Day Date:** 23/11/2020

Purpose SD22

Locality: (inc. distance/direction to nearest town) HILSTON

GPS: 54 | 0739097 | 7058474 | GDA 94

1722 3151

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	9 - 12	
T2		-	
T3		-	
S1		-	
S2		-	
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
T1	d	Callitris collumaris
T1	a	Eucalyptus populnea
T1	r	Angophora leiocarpa

Geology, landform, soils

Geology map/scale/year:

Geology code and rock types:

Land system:

Landform:

Soils:

Field observation and notes:

Landzone: 5

RE code changes

Existing RE code: 11.5.5/11.5.1

Proposed RE code: 11.5.5.

END

A 3.3 Sheet D – Regional Ecosystem type assessment site

Location

Site No. 3 **Recorder:** A. Daniel **Day Date:** 23/11/2020

Purpose SD 22

Locality: (inc. distance/direction to nearest town) WYENA (HILTON)

GPS: 55 0740344 7056096 9D094

1727

Vegetation structure

Median height of the EDL is to be measured 3161 3162

Stratum	Median height	Height interval	Est. cover density (D,M,S,V)
E		-	
T1	6	5 - 7	S
T2	3	2 - 5	S
T3		-	
S1		-	
S2		-	
G		-	

Structural formation: (including height) 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	Eucalyptus populnea
T1	a	Callitris glaucophylla
T2	d	Callitris glaucophylla
T2	a	Eucalyptus populnea
G	d	Aristida sp.

Geology, landform, soils

Geology map/scale/year:

Geology code and rock types:

Land system:

Landform:

Soils: Orange Sand

Field observation and notes:

Landzone: 5

RE code changes

Existing RE code: HVR

Proposed RE code: Non-rem 11.5.5

END

A 3.3 Sheet D – Regional Ecosystem type assessment site

Location

Site No. 4 **Recorder:** [redacted] **Day Date:** 23/11/2020

Purpose SD22

Locality: (inc. distance/direction to nearest town) WYENNA

GPS: 55 0742530 7058055 **D**

Vegetation structure

Median height of the EDL is to be measured 1733 3172/3

Stratum	Median height	Height interval	Est. cover density (D,M,S,V)
E		-	
T1	12	11 - 14	S
T2	10	8 - 11	S
T3		-	
S1		-	Absent
S2		-	
G		-	

Structural formation: (including height)

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	Eucalyptus melanophloia
T1	a	Angophora leiocarpa
T2	d	Callitris glaucophylla
G		native grasses.

Geology, landform, soils

Geology map/scale/year:

Geology code and rock types:

Land system:

Landform:

Soils: pale sand

Field observation and notes:

Landzone: 5

RE code changes

Existing RE code: 11.5.5/11.5.1

Proposed RE code: 11.5.5

END

A 3.3 Sheet D – Regional Ecosystem type assessment site

Location

Site No. 5 **Recorder:** A. DANIEL **Day Date:** 24/11/2020

Purpose SD22

Locality: (inc. distance/direction to nearest town) WYENA

GPS: 55 0738673 7060116 GDA 94

1738

5945/6

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 - 14	S
T2	10	8 - 11	S
T3		-	
S1		-	
S2		-	
G		-	

Structural formation: (including height)

Ecologically dominant layer:

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	Eucalyptus populnea
T2	d	Casuarina cristata

Geology, landform, soils

Geology map/scale/year:

Geology code and rock types:

Land system:

Landform:

Soils:

Field observation and notes:

Landzone: 9

RE code changes

Existing RE code: Not Mapped

Proposed RE code: 11.9.12 (SIZE?) ESA V

END

A 3.3 Sheet D – Regional Ecosystem type assessment site

Location

Site No. 6 **Recorder:** A. Dittrich **Day/Date:** 23/11/2020

Purpose SD22

Locality: (inc. distance/direction to nearest town)

GPS: 55 [ ][ ][ ][ ][ ][ ][ ] [ ][ ][ ][ ][ ][ ][ ] GDA '94

1740 5948 km 9

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	
T3		-	
S1		-	
S2		-	
G		-	

Structural formation: (including height) Tall Woodland

Ecologically dominant layer: T_1

Plant species

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

Str.	Rel. dom.	Scientific Name
T_1	d	Eucalyptus populnea
T_2	d	Eucalyptus orgadophila

Geology, landform, soils

Geology map/scale/year:

Geology code and rock types:

Land system:

Landform: plain

Soils: Sandy clay

Field observation and notes:

Landzone: 9

RE code changes

Existing RE code:

Proposed RE code: Remnant 11.9.10

END

A 3.3 Sheet D – Regional Ecosystem type assessment site

Location

Site No. 7 **Recorder:** A. Daniel **Day/Date:** 23/11/2020

Purpose SD22

Locality: (inc. distance/direction to nearest town) W45NA

GPS: 55 [ ] [ ] 9DA94

1741 5950

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	4 - 6	VS
T3		-	
S1	4	2 - 4	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*** – co-dominant; **s** - subdominant, ***a*** – associated.

Str.	Rel. dom.	Scientific Name
T1	d	Eucalyptus populnea
T2	d	Eucalyptus populnea
S1	d	Eremophila mitchellii

no crustals or bogy-low <15cm width

Geology, landform, soils

Geology map/scale/year:

Geology code and rock types:

Land system:

Landform:

Soils: light Sandy clay

Field observation and notes:

Landzone: 9

RE code changes

Existing RE code:

Proposed RE code: Non-Eucl 11.9.7

END

A 3.3 Sheet D – Regional Ecosystem type assessment site

Location

Site No. 8 **Recorder:** A. DANIEL **Day/Date:** 23/11/2020

Purpose SD22

Locality: (inc. distance/direction to nearest town) WYENA

GPS: 55 0739245 7061634 GPN 94

1744

Vegetation structure

Median height of the EDL is to be measured 5954/5

Stratum	Median height	Height interval	Est. cover density (D,M,S,V)
E		-	
T1	12	11 - 15	S
T2	8	6 - 10	MD
T3		-	
S1		-	
S2		-	
G		-	

Structural formation: (including height) Tall woodland

Ecologically dominant layer: T_1

Plant species

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

Str.	Rel. dom.	Scientific Name
T_1	d	Eucalyptus melanophloia
T_1	a	Eucalyptus brownii ?
T_2	d	Callitris glaucophylla
g	d	Aristida sp.

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: 11.3.2 / 11.3.25

Proposed RE code: 11.5.5

END

Habitat Characters - Abundance

Site No. 9 **Recorder:** A.DANIEL **Day/Date:** 23/11/2020

Purpose SD22

Locality: (inc. distance/direction to nearest town) WYENA

GPS coordinates: Zone 55 E 0~~0~~~~7~~~~7~~ 737245 N 7~~9~~6161634 **Datum:** ~~GDA~~ 94

1744
5959/5

	Abundance (0 – 7)	Notes
Hollows in trees & stags	2	Some
Fallen logs (>10cm diam.)	5	Previous logging evident, fallen timber & logs
Decorticating bark	3	Callitris mainly young Eucalyptus Melaleuca
Course litter (>2cm diam.)	3	
Fine litter (<2cm diameter)	5	
Bare ground	5	
Grass	2	Sandy grass cover is native but sparse
Soil cracks	0	
Stones (20-60cm)	0	
Boulders (61cm-2m)	0	
Large boulders (>2m)	0	
Rock crevices	0	
Exfoliating rock		

Abundance key
0 = Nil 4 = Occasional to common 1 = Rare 5 = Commo 2 = Rare to Occasional 6 = Common to Abundant 3 = Occasional 7 = Abundant

A 3.3 Sheet D – Regional Ecosystem type assessment site

Location

Site No. 10 **Recorder:** A. DANIEL **Day Date:** 23/11/2020

Purpose SD22

Locality: (inc. distance/direction to nearest town) WYEAMA

GPS: 55 | 0783954 | 7061587 | 9 | DA 94

1747

Vegetation structure

Median height of the EDL is to be measured 5958 5959

Stratum	Median height	Height interval	Est. cover density (D,M,S,V)
E		-	
T1	12	11 - 15	S
T2	7	6 - 9	VS
T3		-	
S1	4	3 - 5	VS
S2		-	
G		-	

Structural formation: (including height) Tall Woodland

Ecologically dominant layer: T_1

Plant species

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

Str.	Rel. dom.	Scientific Name
T_1	d	Angophora leiocarpa
T_1	c	Eucalyptus populnea
T_1	c	Callitris glaucophylla
T_2		As above
S,	d	Acacia cretata
g	D	Aristida caput-medusae

Geology, landform, soils

Geology map/scale/year:

Geology code and rock types:

Land system:

Landform:

Soils: Deep red sand

Field observation and notes:

Landzone: 5

RE code changes

Existing RE code: 11.5.5 / 11.5.1

Proposed RE code:

END

Habitat Characters - Abundance

Site No. 10 **Recorder:** A DANIEL **Day/Date:** 23/11/2020

Purpose 322

Locality: (inc. distance/direction to nearest town) WYEMA

GPS coordinates: Zone 55 E 0739543 N 6761583 **Datum:** GDA 94

1747

	Abundance (0 – 7)	Notes	
Hollows in trees & stags	2		
Fallen logs (>10cm diam.)	6		
Decorticating bark	2		
Course litter (>2cm diam.)	3		
Fine litter (<2cm diameter)	3		
Bare ground	6		
Grass	6		
Soil cracks	0		
Stones (20-60cm)	0		
Boulders (61cm-2m)	0		
Large boulders (>2m)	0		
Rock crevices	0		
Exfoliating rock			

Abundance key

0 = Nil 4 = Occasional to common 1 = Rare 5 = Commo 2 = Rare to Occasional 6 = Common to Abundant 3 = Occasional 7 = Abundant

A 3.3 Sheet D – Regional Ecosystem type assessment site

Location

Site No. 1 **Recorder:** A. Daniel **Day/Date:** 23/11/2020

Purpose SD22

Locality: (inc. distance/direction to nearest town) Wuenha

GPS: 55 [ ] [ ] GDA 94

Vegetation structure

Median height of the EDL is to be measured

5960 5961 5748

Stratum	Median height	Height interval	Est. cover density (D,M,S,V)
E		-	
T1	13	11 - 14	S
T2	6	4 - 7	S
T3		-	
S1		-	
S2		-	
G		-	

Structural formation: (including height) Tall woodland

Ecologically dominant layer: T_1

Plant species

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

Str.	Rel. dom.	Scientific Name
T_1	d	Casuarina glaucophylla
T_1	c	Corymbia sp
T_2	d	Eucalyptus populnea
T_2	a	Callitris glaucophylla

evidence of logging

Geology, landform, soils

Geology map/scale/year:

Geology code and rock types:

Land system:

Landform:

Soils: Sand

Field observation and notes:

Landzone: 5

RE code changes

Existing RE code: 11.5.1 / 11.5.5

Proposed RE code: 11.5.5

END

A 3.3 Sheet D – Regional Ecosystem type assessment site

Location

Site No. 12 **Recorder:** A. Butler **Day/Date:** 23/11/2020

Purpose SD22

Locality: (inc. distance/direction to nearest town) W of NM

GPS: 55 1758 5976 17 49 94

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	12 - 16	S
T2	10	8 - 12	S
T3		-	
S1		-	
S2		-	
G		-	

Structural formation: (including height) Tall Woodland

Ecologically dominant layer: T_1

Plant species

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

Str.	Rel. dom.	Scientific Name
T_1	d	Eucalyptus populnea
T_2	c	Eucalyptus populnea
T_2	c	Callitris glaucophylla

Geology, landform, soils

Geology map/scale/year:

Geology code and rock types:

Land system:

Landform:

Soils: Sand

Field observation and notes:

Landzone: 5

RE code changes

Existing RE code: 11.5.3 / 11.5.1

Proposed RE code: 11.5.3

END

A 3.3 Sheet D – Regional Ecosystem type assessment site

Location

Site No. 13 **Recorder:** A DANIEL **Day/Date:** 23/11/2020

Purpose SD22

Locality: (inc. distance/direction to nearest town) Bendemeer

GPS: 55 0744014 7063837 GDA'94

1759 5978/9

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	S
T3		-	
S1	5	3 - 6	VS
S2		-	
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
T_1	d	Eucalyptus populnea
T_1	a	Callitris glaucophylla
T_2	d	Callitris glaucophylla
T_2	a	Eucalyptus populnea
S_1	d	Callitris glaucophylla
G	D	Cenchrus ciliaris

Good live ground

Geology, landform, soils

Geology map/scale/year:

Geology code and rock types:

Land system:

Landform:

Soils: deep sand

Field observation and notes:

Landzone: 5

RE code changes

Existing RE code: 11.3.25

Proposed RE code: 11.3.5

END

A 3.3 Sheet D – Regional Ecosystem type assessment site

Location

Site No. 14 **Recorder:** A Brown ICC **Day/Date:** 23/11/2020

Purpose SD22

Locality: (inc. distance/direction to nearest town) W Hann

GPS: 55 | 0740463 | 7963744 | T **D** 94

1765

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	10 - 13	MP
T2		-	
T3		-	
S1	1.8	1 - 2	S
S2		-	
G		-	

Structural formation: (including height) Tall open forest

Ecologically dominant layer: T1

Plant species

E. fibrosa subsp. nubila

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

Str.	Rel. dom.	Scientific Name E. ~~dentricorn~~ S
E	d	Eucalyptus? virens
T1	d	Acacia Shirleyi
S1	d	Geijera parviflora

Note Bryalow below on edge 1 tree wide

Geology, landform, soils

Geology map/scale/year:

Geology code and rock types:

Land system:

Landform:

Soils: Stony clay

Field observation and notes:

Landzone: 7

RE code changes

Existing RE code: 11.5.5 / 11.5.1

Proposed RE code: 11.7.2

END

Habitat Characters - Abundance

Site No. 19 **Recorder:** A. DANIEL **Day/Date:** 23/11/2020

Purpose SD22

Locality: (inc. distance/direction to nearest town) WHENUA

GPS coordinates: Zone 55 E 0740463 N 7963741 **Datum:**

1765

	Abundance (0 – 7)	Notes	
Hollows in trees & stags	0		
Fallen logs (>10cm diam.)	7		
Decorticating bark	5		
Course litter (>2cm diam.)	5		
Fine litter (<2cm diameter)	4		
Bare ground	7		
Grass	2		
Soil cracks	0		
Stones (20-60cm)	3		
Boulders (61cm-2m)	0		
Large boulders (>2m)	0		
Rock crevices	0		
Exfoliating rock			

Abundance key

0 = Nil 4 = Occasional to common 1 = Rare 5 = Commo 2 = Rare to Occasional 6 = Common to Abundant 3 = Occasional 7 = Abundant

A 3.3 Sheet D – Regional Ecosystem type assessment site

Location

Site No. 15 **Recorder:** A Daniel **Day/Date:** 23/11/2020

Purpose SD22

Locality: (inc. distance/direction to nearest town) Wyena

GPS: 55 [ ][ ][ ][ ][ ][ ][ ] [ ][ ][ ][ ][ ][ ][ ] GDA'94

1766 5989590

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	MD
T3		-	
S1	2	1 - 3	VS
S2		-	
G		-	

Structural formation: (including height) Tall Woodland

Ecologically dominant layer: T_1

Plant species

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

Str.	Rel. dom.	Scientific Name
T_1	d	Eucalyptus crebra
T_2	d	Callitris glaucophylla
S_1		Gegeria paniflora

Geology, landform, soils

Geology map/scale/year:

Geology code and rock types:

Land system:

Landform:

Soils: Sand

Field observation and notes:

Landzone: 5

RE code changes

Existing RE code: 11.5.5 / 11.5.1

Proposed RE code: 11.5.1

END

Habitat Characters - Abundance

Site No. 15 **Recorder:** A Daniel **Day/Date:** 23/11/2020

Purpose SD22

Locality: (inc. distance/direction to nearest town) WENA

GPS coordinates: Zone 55 E 0740294 N 7763061 **Datum:**

766
5993

	Abundance (0 – 7)	Notes
Hollows in trees & stags	1	
Fallen logs (>10cm diam.)	6	
Decorticating bark	5	
Course litter (>2cm diam.)	5	
Fine litter (<2cm diameter)	7	
Bare ground	4	
Grass	2	
Soil cracks	0	
Stones (20-60cm)	3	
Boulders (61cm-2m)	0	
Large boulders (>2m)	0	
Rock crevices	0	
Exfoliating rock		

Abundance key
0 = Nil 4 = Occasional to common 1 = Rare 5 = Commo 2 = Rare to Occasional 6 = Common to Abundant 3 = Occasional 7 = Abundant

A 3.3 Sheet D – Regional Ecosystem type assessment site

Location

Site No. 16 **Recorder:** A DANIEL **Day/Date:** 23/11/2020

Purpose 9D22

Locality: (inc. distance/direction to nearest town) WYENA

GPS: 55 [ ][ ][ ][ ][ ][ ] [ ][ ][ ][ ][ ][ ] GDA'94

Vegetation structure

Median height of the EDL is to be measured 1767 5991

Stratum	Median height	Height interval	Est. cover density (D,M,S,V)
E		-	
T1	T2	10 - 14	~~V~~ V
T2	9	7 - 10	S
T3		-	
S1		-	
S2		-	
G		-	

Structural formation: (including height)

Ecologically dominant layer:

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	Eucalyptus nubila
T2	c	Callitris glaucophylla
T2	c	Acacia shirleyi

Geology, landform, soils

Geology map/scale/year:

Geology code and rock types:

Land system:

Landform:

Soils: Lithosols

Field observation and notes:

Landzone: 7

RE code changes

Existing RE code:

Proposed RE code: 11.7.X

END

A 3.3 Sheet D – Regional Ecosystem type assessment site

Location

Site No. 17 **Recorder:** A. Daniel **Day Date:** 23/11/2020

Purpose SD22

Locality: (inc. distance/direction to nearest town) WYENA

GPS: 55 0740294 7063961 **D**

1768
5993/4/5

Vegetation structure

Median height of the EDL is to be measured

Stratum	Median height	Height interval	Est. cover density (D,M,S,V)
E	16	14 - 17	VS
T1	12	10 - 14	S
T2	9	7 - 10	VS
T3		-	
S1		-	
S2		-	
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
E	d	Eucalyptus nubila
T1	d	Casuarina cristata
T2	c	Callitris glaucophylla
T2	c	Casuarina cristata
T2	c	Petalostigma pubescens

Geology, landform, soils

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: HVR

Proposed RE code: 11.9.5

END

A 3.3 Sheet D – Regional Ecosystem type assessment site

Location

Site No. 16 **Recorder:** A. DANIEL **Day/Date:** 24/11/2020

Purpose SD22

Locality: (inc. distance/direction to nearest town)

GPS: 55 GPA 194

11783 6014/5/6

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		-	
S2		-	
G		-	

Structural formation: (including height) Tall Woodland

Ecologically dominant layer: T_1

Plant species

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

Str.	Rel. dom.	Scientific Name
T_1	d	Eucalyptus camaldulensis
T_1	a	Angophora
T_2	d	Melaleuca bracteata

Geology, landform, soils

Geology map/scale/year:

Geology code and rock types:

Land system:

Landform:

Soils:

Field observation and notes:

Landzone: 3

RE code changes

Existing RE code:

Proposed RE code: Rem 11.3.25

END

A 3.3 Sheet D – Regional Ecosystem type assessment site

Location

Site No. 19 **Recorder:** A Daniel **Day/Date:** 23/11/2020

Purpose SD22

Locality: (inc. distance/direction to nearest town) ~~WINTON~~ MOSTYN

GPS: 55 0737171 7061423 GDA 94

1784

Vegetation structure

Median height of the EDL is to be measured 60.7 60.4

Stratum	Median height	Height interval	Est. cover density (D,M,S,V)
E		-	
T1	16	14 - 18	S
T2		-	
T3		-	
S1		-	
S2		-	
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
T1	d	Eucalyptus tectrocorys
T1	a	Angophora floribunda

Geology, landform, soils

Geology map/scale/year:

Geology code and rock types:

Land system:

Landform:

Soils:

Field observation and notes:

Landzone: 3

RE code changes

Existing RE code: 11.3.2 / 11-3.25

Proposed RE code: 11-3-~~7~~26

END

A 3.3 Sheet D – Regional Ecosystem type assessment site

Location

Site No. 20 **Recorder:** A. DANIEL **Day/Date:** 29/11/2020

Purpose SD22

Locality: (inc. distance/direction to nearest town) MOSTYN

GPS: [ ][ ] 0736513 7060190 **Datum:** GDA94

Vegetation structure

Median height of the EDL is to be measured 1791 6028/24

Stratum	Median height	Height interval	Est. cover density (D,M,S,V)
E		-	
T1	9	6 - 18	VS
T2		-	
T3		-	
S1	2	1 - 3	S
S2		-	
G	0.5	0 - 1	MD

Structural formation: (including height) Open 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~~ c	Eucalyptus coronaldensis
T1	c	Acacia salicina
T1	c	Eucalyptus populnea
S1	d	Acacia farnesiana
G	d	Cenchrus ciliaris

Geology, landform, soils

Geology map/scale/year:

Geology code and rock types:

Land system:

Landform:

Soils: clay ~~dark~~ grey light pale brown

Field observation and notes:

Landzone: 3

RE code changes

Existing RE code: 11.3.2

Proposed RE code: non-remnant

END

A 3.3 Sheet D – Regional Ecosystem type assessment site

Location

Site No. 21 **Recorder:** A. DANIEL **Day Date:** 25/11/2020

Purpose SD22

Locality: (inc. distance/direction to nearest town) MOSTYN

GPS: 55 0735644 7062368 GDA 197

1801

Vegetation structure

Median height of the EDL is to be measured 6046/47

Stratum	Median height	Height interval	Est. cover density (D,M,S,V)
E		-	
T1	8	6 - 10	S
T2	4	3 - 6	MD
T3		-	
S1	2	1 - 3	S
S2		-	
G	0·2	0 - 0·3	S

Structural formation: (including height) Woodland

Ecologically dominant layer: T_1

Plant species

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

Str.	Rel. dom.	Scientific Name
T_1	d	Eucalyptus populnea
T_2	d	Eremophila mitchellii
T_2	a	Acacia excelsa
S_1	d	Geijera parviflora
G	d	Enteropogon ascicularis

Geology, landform, soils

Geology map/scale/year:

Geology code and rock types:

Land system:

Landform:

Soils: Pale orange sandy clay

Field observation and notes:

Landzone: 9

RE code changes

Existing RE code: HVR

Proposed RE code: Functional 11.9.7

END

litter ✓

FWM ✓

A 3.3 Sheet D – Regional Ecosystem type assessment site

Location

Site No. 22 **Recorder:** A Dowle **Day Date:** 25/11/2020

Purpose SD22

Locality: (inc. distance/direction to nearest town) Normanton

GPS: 54 0734913 7062747 GDA94

1807

Vegetation structure

Median height of the EDL is to be measured 60S/54

Stratum	Median height	Height interval	Est. cover density (D,M,S,V)
E		-	
T1	9	7 - 11	S
T2	6	4 - 7	MD
T3		-	
S1	3	2 - 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*** – co-dominant; **s** - subdominant, ***a*** – associated.

Str.	Rel. dom.	Scientific Name
T1	d	Eucalyptus papuana
T2	d	Lysicarpus cristatus
S1	d	Acacia [illegible]

Geology, landform, soils

Geology map/scale/year:

Geology code and rock types:

Land system:

Landform:

Soils:

Field observation and notes:

Landzone: 9

RE code changes

Existing RE code: HVR

Proposed RE code: 11.9.10 functional

END

A 3.3 Sheet D – Regional Ecosystem type assessment site

Location

Site No. 23 Recorder: A Daniel Day Date: 25/11/2020

Purpose SD22

Locality: (inc. distance/direction to nearest town) MOSTYN

GPS: 55 | 0733871 | 7064346 | GDA 94

1812

Vegetation structure

Median height of the EDL is to be measured 6061/61

Stratum	Median height	Height interval	Est. cover density (D,M,S,V)
E		-	
T1	14	12 - 16	S
T2	10	8 - 12	S
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*** – co-dominant; **s** - subdominant, ***a*** – associated.

Str.	Rel. dom.	Scientific Name
T1	d	Acacia harpophylla
T1	a	Casuarina cristata
T2	d	Acacia harpophylla
S1	d	Geijera parviflora

Geology, landform, soils

Geology map/scale/year:

Geology code and rock types:

Land system:

Landform:

Soils: pale orange Sandy clay

Field observation and notes:

Landzone: 9

RE code changes

Existing RE code: 11.9.5

Proposed RE code: 11.9.5

END

A 3.3 Sheet D – Regional Ecosystem type assessment site

Location

Site No. 24 **Recorder:** A. DANIEL **Day Date:** 25/11/2020

Purpose SD22

Locality: (inc. distance/direction to nearest town) MOSTYN

GPS: 55 0734283 7064792 GDA 94

1814

Vegetation structure

Median height of the EDL is to be measured 6065/6

Stratum	Median height	Height interval	Est. cover density (D,M,S,V)
E		-	
T1	9	7 - 11	S
T2	6	4 - 7	S
T3		-	
S1	3	1 - 4	S
S2	0.6	0.5 - 1	VS
G		-	

Structural formation: (including height) Woodland

Ecologically dominant layer: T_1

Plant species

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

Str.	Rel. dom.	Scientific Name
		Eucalyptus crebra
T_1	d	Eucalyptus populnea
T_2	d c	Acacia harpophylla
T_2	c	Casuarina cristata
S_1	d	Casuarina cristata
S_1	a	Acacia harpophylla
S_2	d	Carissa ovata
G	d	Aristida calycina

Geology, landform, soils

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: Not Mapped

Proposed RE code: Functional 11.9.10

END

A 3.3 Sheet D – Regional Ecosystem type assessment site

Location

Site No. 25 **Recorder:** A. Dwyer **Day/Date:** 25/11/2020

Purpose SD22

Locality: (inc. distance/direction to nearest town) MOSTYN

GPS: 55 0734294 7064903 GDA'94

1815

Vegetation structure

Median height of the EDL is to be measured 6067/8

Stratum	Median height	Height interval	Est. cover density (D,M,S,V)
E	22	20 - 24	VS
T1		-	
T2		-	
T3		-	
S1	6	5 - 7	MD
S2		-	
G		-	

Structural formation: (including height)

Ecologically dominant layer: S1

Plant species

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

Str.	Rel. dom.	Scientific Name
E	d	Eucalyptus crebra
T1		Absent
S1	d	Acacia melvillei (Bacon?)

Mallee form

Geology, landform, soils

Geology map/scale/year:

Geology code and rock types:

Land system:

Landform:

Soils: orange clay

Field observation and notes:

Landzone: 9

RE code changes

Existing RE code: 11.9.5

Proposed RE code: 11.9.6

END

A 3.3 Sheet D – Regional Ecosystem type assessment site

Location

Site No. 26 **Recorder:** A. DANIEL **Day/Date:** 25/11/2020

Purpose SD22

Locality: (inc. distance/direction to nearest town) MOSTYN

GPS: 55 0734568 7065514 GDA 94

1816

6069/70

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 - 30	S
T2	8	7 - 12	VS
T3		-	
S1	5	4 - 7	MD
S2		-	
G		-	

Structural formation: (including height) Tall Woodland

Ecologically dominant layer: T_1

Plant species

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

Str.	Rel. dom.	Scientific Name
T_1	c	Eucalyptus crebra
T_1	c	Eucalyptus populnea
T_2	d	Eucalyptus populnea
S_1	c	Eremophila mitchellii
S_1	c	Geijera parviflora
S_1	a	Grevillea striata

Geology, landform, soils

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: not mapped

Proposed RE code: 11.9.7

END

A 3.3 Sheet D – Regional Ecosystem type assessment site

Location

Site No. 27 **Recorder:** A. DANIEL **Day/Date:** 25/11/2020

Purpose SD22

Locality: (inc. distance/direction to nearest town) MOSTYN

GPS: 55 | 0735519 | 7065557 | GDA94

1818

Vegetation structure

Median height of the EDL is to be measured 60% 1/2

Stratum	Median height	Height interval	Est. cover density (D,M,S,V)
E		-	
T1	12	10 - 14	S
T2	9	8 - 11	VS
T3		-	
S1	4	3 - 6	S
S2		-	
G		-	

Structural formation: (including height) Tall Woodland

Ecologically dominant layer: T_1

Plant species

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

Str.	Rel. dom.	Scientific Name
T_1	d	Eucalyptus populnea
T_1	a	Eucalyptus crebra
T_2	d	Eucalyptus populnea
S_1	d	Callitris glaucophylla

Geology, landform, soils

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: Not Mapped

Proposed RE code: 11.9.7 Enchanced

END

A 3.3 Sheet D – Regional Ecosystem type assessment site

Location

Site No. 28 **Recorder:** A Dannock **Day/Date:** 25/11/2020

Purpose SDSS

Locality: (inc. distance/direction to nearest town) MOSTYN

GPS: [ ][ ] 0735424 7065162 GDA94

1819
6073/4

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	
T2	10	8 - 12	
T3		-	
S1		-	
S2		-	
G		-	

Structural formation: (including height) Tall Woodland

Ecologically dominant layer: T_1

Plant species

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

Str.	Rel. dom.	Scientific Name
T_1	d	Eucalyptus melanophloia
T_1	a	Eucalyptus populnea
T_2	d	Eucalyptus [illegible]
T_2	a	Eremophila mitchellii
T_2	a	Eucalyptus populnea
T_2	a	Corymbia glaucophylla

Koala poo

Geology, landform, soils

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: 11.9.10

Proposed RE code: 11.9.7

END

A 3.3 Sheet D – Regional Ecosystem type assessment site

Location

Site No. 29 **Recorder:** A. DANIEL **Day/Date:** 25/11/2020

Purpose SD22

Locality: (inc. distance/direction to nearest town)

GPS: GDA94

Vegetation structure

Median height of the EDL is to be measured

1830 6089 H0

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

Structural formation: (including height) Tall woodland

Ecologically dominant layer: T_1

Plant species

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

Str.	Rel. dom.	Scientific Name
T_1	d	Eucalyptus populnea
T_2	d	Callitris glaucophylla

Geology, landform, soils

Geology map/scale/year:

Geology code and rock types:

Land system:

Landform:

Soils: pale clay

Field observation and notes:

Landzone: 9

RE code changes

Existing RE code:

Proposed RE code: 11.9.7

END

A 3.3 Sheet D – Regional Ecosystem type assessment site

Location

Site No. 30 **Recorder:** A Daniel **Day/Date:** 25/11/2020

Purpose SD22

Locality: (inc. distance/direction to nearest town)

GPS: 1831 6093/4 GDA'94

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	10	8 - 12	VS
T3		-	
S1		-	
S2		-	
G		-	

Structural formation: (including height)

Ecologically dominant layer:

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	Eucalyptus nubila
T2	d	Callitris glaucophylla

Geology, landform, soils

Geology map/scale/year:

Geology code and rock types:

Land system:

Landform: Swamp up

Soils:

Field observation and notes:

Landzone: 7

RE code changes

Existing RE code:

Proposed RE code:

END

A 3.3 Sheet D – Regional Ecosystem type assessment site

Location

Site No. 31 **Recorder:** A Dannock **Day/Date:** 25/11/2020

Purpose SD22

Locality: (inc. distance/direction to nearest town) HOSTYN

GPS: 55 0736165 7062482 GDA94

1833 6095/6

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	4	3 - 6	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*** – co-dominant; **s** - subdominant, ***a*** – associated.

Str.	Rel. dom.	Scientific Name
T_1	d	Eucalyptus populnea
T_2	d	Eucalyptus populnea
S_1		Eremophila mitchellii

Geology, landform, soils

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: not mapped >20m wide

Proposed RE code: Functional 11.9.7

END

> FwM
< Stone/rock
< litter

A 3.3 Sheet D – Regional Ecosystem type assessment site

Location

Site No. 32 **Recorder:** A DANIEL **Day Date:** 26/11/2020

Purpose SD22

Locality: (inc. distance/direction to nearest town) WILGAVALE

GPS: S 27 07 23976 7066306 GDA 94

1641

Vegetation structure

Median height of the EDL is to be measured 6/07/18

Stratum	Median height	Height interval	Est. cover density (D,M,S,V)
E		-	
T1	18	16 - 22	S
T2	14	12 - 16	
T3		-	
S1		-	
S2		-	
G		-	

Structural formation: (including height)

Ecologically dominant layer:

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	Eucalyptus cancellata? S
T1	a	Eucalyptus melanophloia
T1/2	d	Eucalyptus [illegible]
G	d	Aristida (white)

Geology, landform, soils

Geology map/scale/year:

Geology code and rock types:

Land system:

Landform:

Soils: pale sandy clay

Field observation and notes:

Landzone: 3

RE code changes

Existing RE code: 11.9.2

Proposed RE code: 11.9.2

END

A 3.3 Sheet D – Regional Ecosystem type assessment site

Location

Site No. 33 **Recorder:** A Dannel **Day/Date:** 26/11/2020

Purpose SD22

Locality: (inc. distance/direction to nearest town) Willgamble

GPS: 55 0724485 7065492 GDA94

1644

Vegetation structure

Median height of the EDL is to be measured 6111/2

Stratum	Median height	Height interval	Est. cover density (D,M,S,V)
E	10	9 - 12	VS
T1	7	5 - 9	VS
T2		-	
T3		-	
S1	4	2 - 5	S
S2		-	
G	0.3	0 - 0.5	S

Structural formation: (including height) Open 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
E	d	Eucalyptus populnea
T1	d	Eucalyptus populnea
S1	d	Eremophila mitchellii
G	D	Aristida sp.

Geology, landform, soils

Geology map/scale/year:

Geology code and rock types:

Land system:

Landform: gently undulating

Soils: pale sandy clay gently

Field observation and notes:

Landzone: 9

RE code changes

Existing RE code: Non-rem

Proposed RE code: non-rem non-fram 11-9-7

END

A 3.3 Sheet D – Regional Ecosystem type assessment site

Location

Site No. 34 **Recorder:** A Dymock **Day/Date:** 26/11/2020

Purpose STRE

Locality: (inc. distance/direction to nearest town) Wilsonton

GPS: 54 0724892 7965096 GDA 94

1852

Vegetation structure

Median height of the EDL is to be measured 6/21/2

Stratum	Median height	Height interval	Est. cover density (D,M,S,V)
E	20	10 - 24	VS
T1	8	6 - 10	S
T2		-	
T3		-	
S1		-	
S2		-	
G		-	

Structural formation: (including height) 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
E	d	Eucalyptus populnea
T1	d	Acacia excelsa
T1	a	Eucalyptus populnea

Geology, landform, soils

Geology map/scale/year:

Geology code and rock types:

Land system:

Landform: undulating

Soils: pale orange sandy clay

Field observation and notes:

Landzone: 9?

RE code changes

Existing RE code: 11.9.7

Proposed RE code: non-woody regrowth 11.9.7 / 11.3.2

END

A 3.3 Sheet D – Regional Ecosystem type assessment site

Location

Site No. 35 **Recorder:** A Dwyer **Day/Date:** 26/11/2020

Purpose SD22

Locality: (inc. distance/direction to nearest town) WILLOWVALE

GPS: 55 | 0972300 | 7065192 GDA 94

1865

Vegetation structure

Median height of the EDL is to be measured

6137/8

Stratum	Median height	Height interval	Est. cover density (D,M,S,V)
E		-	
T1	11	9 - 13	S
T2	7	6 - 9	S
T3		-	
S1	4	3 - 6	S
S2	0.6	0.4 - 0.8	VS
G	0.2	0 - 0.4	VS

Structural formation: (including height) Tall Woodland

Ecologically dominant layer: T_1

Plant species

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

Str.	Rel. dom.	Scientific Name
T_1	d	Eucalyptus populnea
T_1	a	Casuarina cristata
T_2	c	Eucalyptus populnea
T_2	c	Casuarina cristata
S_1	c	Eremophila mitchellii
S_1	c	Geijera parviflora
S_2	c	Marionae villosa
S_2	c	Carpobrotus/Ehretia
G_1	d	Aristida sp

Geology, landform, soils

Geology map/scale/year:

Geology code and rock types:

Land system:

Landform: flat

Soils: pale Sandy clay

Field observation and notes:

Landzone: 9

RE code changes

Existing RE code: HVR

Proposed RE code: REM 11.9.10

END

> Hollows
= Decort
> FWM
> coarse litter
> fine litter
mature grass

A 3.3 Sheet D – Regional Ecosystem type assessment site

Location

Site No. 36 **Recorder:** A Dwinnell **Day/Date:** 26/11/2020

Purpose SD22

Locality: (inc. distance/direction to nearest town)

GPS: GDA'94

Vegetation structure

1871

Median height of the EDL is to be measured

Stratum	Median height	Height interval	Est. cover density (D,M,S,V)
E		-	
T1	12	9 - 15	MD
T2	7	6 - 9	S
T3		-	
S1	4	3 - 6	VS
S2		-	
G		-	

Structural formation: (including height)

Ecologically dominant layer:

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	Casuarina cristata
T2	d	Casuarina cristata
T1	a	Eucalyptus populnea
S1	d	Eremophila mitchellii

Geology, landform, soils

Geology map/scale/year:

Geology code and rock types:

Land system:

Landform:

Soils:

Field observation and notes:

Landzone: 9

RE code changes

Existing RE code:

Proposed RE code:

END

A 3.3 Sheet D – Regional Ecosystem type assessment site

Location

Site No. 37 **Recorder:** A DANIEL **Day/Date:** 26/11/2020

Purpose 2022

Locality: (inc. distance/direction to nearest town) WILGAMUNE

GPS: 55 0727943 7064284 GDA94

1877

Vegetation structure

Median height of the EDL is to be measured 6152/53

Stratum	Median height	Height interval	Est. cover density (D,M,S,V)
E		-	
T1	5	4 - 7	VS
T2	3	2 - 4	S
T3		-	
S1		-	
S2		-	
G		-	

Structural formation: (including height) Woodland

Ecologically dominant layer: T_1

Plant species

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

Str.	Rel. dom.	Scientific Name
T_1	c	Acacia harpophylla
T_1	c	Casuarina cristata
T_1	c	Geijera parviflora
T_1	c	Eremophila mitchellii
T_2		As Above

Geology, landform, soils

Geology map/scale/year:

Geology code and rock types:

Land system:

Landform: flat

Soils: Sandy clay - water polished stones mixed origin

Field observation and notes:

Landzone: 9

RE code changes

Existing RE code: not Mapped

Proposed RE code: non-fun Remnant 11.9.16

END

A 3.3 Sheet D – Regional Ecosystem type assessment site

Location

Site No. 38 **Recorder:** A. DANIEL **Day/Date:** 27/11/2020

Purpose SD22

Locality: (inc. distance/direction to nearest town) REUBEN DOWNS

GPS: 55 0731043 7056939 GDA94

1896

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	8	7 - 10	VS
T2	6	5 - 7	VS
T3		-	
S1		-	
S2		-	
G		-	

Structural formation: (including height) Woodland

Ecologically dominant layer: T_1

Plant species

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

Str.	Rel. dom.	Scientific Name
T_1	d	Eucalyptus populnea
T_2	d	Eucalyptus populnea
T_2	c	Eucalyptus melanophloia
T_2	c	Callitris glaucophylla

Geology, landform, soils

Geology map/scale/year:

Geology code and rock types:

Land system:

Landform: plain

Soils: Dark sandy clay

Field observation and notes:

Landzone: 9

RE code changes

Existing RE code:

Proposed RE code: non-rem Fundamental 11.9.7

END

A 3.3 Sheet D – Regional Ecosystem type assessment site

Location

Site No. 39 **Recorder:** A. Daniel **Day/Date:** 27/11/2020

Purpose 5022

Locality: (inc. distance/direction to nearest town) Rowbon Downs

GPS: 55 0727148 7655647 GDA 94

1916 6200/1

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	8	6 - 11	S
T2	5	3 - 6	S
T3		-	
S1	2	1 - 3	VS
S2	0.5	0.2 - 1	VS
G	0.2	0 - 0.3	VS

Structural formation: (including height) Woodland

Ecologically dominant layer: T_1

Plant species

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

Str.	Rel. dom.	Scientific Name
T_1	d	Eucalyptus populnea
T_2	d	Casuarina cristata
S_1	d	Eremophila mitchellii
S_2		Casuarina cristata
G	d	Aristida sp

Geology, landform, soils

Geology map/scale/year:

Geology code and rock types:

Land system:

Landform: Plain

Soils: Pale Clay

Field observation and notes:

Landzone: 9

RE code changes

Existing RE code: not mapped

Proposed RE code: Functional 11.9.10

END

FWH ✓
Cover ✓
Native grass ✓
litter

A 3.3 Sheet D – Regional Ecosystem type assessment site

Location

Site No. 40 **Recorder:** A Daniel **Day/Date:** 27/11/2020

Purpose SD22

Locality: (inc. distance/direction to nearest town) Reuben downs / Paddock

GPS: 55 | 0726928 | 7059551 | GDA 94

MGA

Vegetation structure

Median height of the EDL is to be measured 6238/19

Stratum	Median height	Height interval	Est. cover density (D,M,S,V)
E		-	
T1	18	16 - 20	S
T2	12	10 - 14	S
T3		-	
S1	6	4 - 7	VS
S2		-	
G	0.1	0 - 0.3	VS

Structural formation: (including height) Tall woodland

Ecologically dominant layer: T_1

Plant species

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

Str.	Rel. dom.	Scientific Name
T_1	d	Eucalyptus papuana
T_2	d	Corymbia confertiflora
G	d	Eremophila mitchellii
G	d	Enneapogon scoparius

Geology, landform, soils

Geology map/scale/year:

Geology code and rock types:

Land system:

Landform:

Soils: plain pale sandy clay

Field observation and notes:

Landzone: 9

RE code changes

Existing RE code: not Mapped

Proposed RE code: Remnant Fraxinus 1.9.10

END

Site 41

A. Daniels

27/11/2020

WRT 1968

~~Site~~ 202

Parkes Downs

55 0729171 7056276 from '94

GD 94

Med interval Cover

T_1	12	10 – 14	S
T_2	9	7 – 10	S
S_1	5	3 – 7	VS
S_2	0.4	0.2 – 0.6	VS
G	0.3	0 – 0.4	MD

St	D Dom	SN
T_1	d	Eucalyptus moluccana
T_1	d c	Eucalyptus populnea
T_2	d	Eucalyptus orgadophila
S_1	d	Geijera parviflora
S_1	e	Acacia shirleyi
S_2	d	Cassia ovata
G	d	Maytenus cunninghamii

Soils

pale brown clay

LZ 9

Mapped not mapped

Remnant from mid 11.9.

Photos 6261 6262

A 3.3 Sheet D – Regional Ecosystem type assessment site

Location

Site No. 42 **Recorder:** A Daniel **Day/Date:** 23/11/2020

Purpose SD22

Locality: (inc. distance/direction to nearest town) W Tenin

GPS: 55 [ ][ ][ ][ ][ ][ ][ ] [ ][ ][ ][ ][ ][ ][ ] GDA 94

1760 5980 Bl

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		-	
S2		-	
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
T1	d	Eucalyptus populnea
T2		Callitris glaucophylla

Geology, landform, soils

Geology map/scale/year:

Geology code and rock types:

Land system:

Landform:

Soils: Sand

Field observation and notes:

Landzone: 5

RE code changes

Existing RE code: 11.5.5 / 11.5.1

Proposed RE code: 11.5.5

END

A 3.3 Sheet D – Regional Ecosystem type assessment site

Location

Site No. 43 **Recorder:** A. DANIEL **Day/Date:** 25/11/2020

Purpose 2022

Locality: (inc. distance/direction to nearest town)

GPS: 9DA'94

Vegetation structure

Median height of the EDL is to be measured 1836 1600/01

Stratum	Median height	Height interval	Est. cover density (D,M,S,V)
E		-	
T1	14	12 - 16	VS
T2	10	8 - 12	S
T3		-	
S1		-	
S2		-	
G		-	

Structural formation: (including height) Tall Woodland

Ecologically dominant layer: T_1

Plant species

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

Str.	Rel. dom.	Scientific Name
T_1	d	Eucalyptus melanophloia
T_2	d	Callitris glaucophylla

Geology, landform, soils

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:

Proposed RE code:

END

A 3.3 Sheet D – Regional Ecosystem type assessment site

Location

Site No. 44 **Recorder:** A. Daniel **Day/Date:** 27/11/2020

Purpose SOZZ

Locality: (inc. distance/direction to nearest town)

GPS: GDA94

Vegetation structure

Median height of the EDL is to be measured (920 6206/7

Stratum	Median height	Height interval	Est. cover density (D,M,S,V)
E		-	
T1	11	9 - 13	S
T2	7	6 - 9	S-MD
T3		-	
S1		-	
S2		-	
G		-	

Structural formation: (including height) Tall woodland

Ecologically dominant layer: T_1

Plant species

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

Str.	Rel. dom.	Scientific Name
T_1	d	Eucalyptus populnea
T_2	d	Callitris glaucophylla

Geology, landform, soils

Geology map/scale/year:

Geology code and rock types:

Land system:

Landform:

Soils: pale Sandy clay

Field observation and notes:

Landzone: 7

RE code changes

Existing RE code:

Proposed RE code: 11.9.7 regrowth

END

A 3.3 Sheet D – Regional Ecosystem type assessment site

Location

Site No. 45 **Recorder:** A. Daniel **Day/Date:** 27/11/2020

Purpose 3D22

Locality: (inc. distance/direction to nearest town)

GPS: 9DM194

1957 6249/50

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	10	8 - 14	S
T3		-	
S1		-	
S2		-	
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
T1	d	Eucalyptus crebra
T2	d	Eucalyptus crebra
	s	Grevillea striata
	a	Acacia shirleyi

Geology, landform, soils

Geology map/scale/year:

Geology code and rock types:

Land system:

Landform:

Soils: red sand polished pebble

Field observation and notes:

Landzone: 5

RE code changes

Existing RE code:

Proposed RE code:

END

A 3.3 Sheet D – Regional Ecosystem type assessment site

Location

Site No 46 **Recorder:** A Dowker **Day/Date:** 25/11/2020

Purpose SD22

Locality: (inc. distance/direction to nearest town)

GPS: 55 [ ][ ][ ][ ][ ][ ] [ ][ ][ ][ ][ ][ ] GDA 94

Vegetation structure

Median height of the EDL is to be measured 1821 6077/8

Stratum	Median height	Height interval	Est. cover density (D,M,S,V)
E		-	
T1	14	12 - 16	S
T2	8	6 - 12	S
T3		-	
S1		-	
S2		-	
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
T1	d	Eucalyptus populnea
T1	a	Eucalyptus crebra
T2	d	Callitris glaucophylla

No cristata or hugophylla

Geology, landform, soils

Geology map/scale/year:

Geology code and rock types:

Land system:

Landform:

Soils:

Field observation and notes:

Landzone: 9

RE code changes

Existing RE code:

Proposed RE code: 11.9.7

END

A 3.3 Sheet D – Regional Ecosystem type assessment site

Location

Site No. 47 **Recorder:** A Daniel **Date:** 25/11/2020

Purpose SD22

Locality: (inc. distance/direction to nearest town)

GPS: 55 [ ][ ][ ][ ][ ][ ][ ] [ ][ ][ ][ ][ ][ ][ ] GDA 94

Vegetation structure

1823 6080/81

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	VS
T2	7	4 - 9	S
T3		-	
S1		-	
S2		-	
G		-	

Structural formation: (including height) Tall Woodland

Ecologically dominant layer: T_1

Plant species

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

Str.	Rel. dom.	Scientific Name
T_1	d	Eucalyptus melanophloia
T_2	d	Callitris glaucophylla

Geology, landform, soils

Geology map/scale/year:

Geology code and rock types:

Land system:

Landform: plain

Soils: Sandy clay

Field observation and notes:

Landzone: 9

RE code changes

Existing RE code:

Proposed RE code: 11.9.7 (Non-Functional)

END

Vegetation Structure Site Inspection Sheet - Proforma

Location

Site No. 48 **Recorder:** A Dunkel **Day/Date:** 23/11/2020

Regional ecosystem: 9D22 RE 11.9.10

Locality: (inc. distance/direction to nearest town) WYENA

Vegetation structure

Median height of the EDL is to be measured 5965/6
Cover density is to be estimated

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	0.8	0.5 - 1	VS
G	0.5	0 - 1	VS

Structural formation: (including height)
Tall open Woodland

Ecologically dominant layer: T_1

Notes:
Abundant FWM litter
native grass under

functional ESA Cat B.

Plant species

5967

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

Str.	Rel. dom.	Scientific Name
T_1	d	Eucalyptus populnea
T_2	d	Casuarina cristata
T_2	c	Acacia harpophylla
S_1	d	Geijera parviflora
S_1	a	Alectryon diversifolius
S_2	d	Carissa ovata
G	d	Aristida [illegible]
G	d	Enteropogon [illegible]

Notes

11.9.10

Disturbance: logging, previous clearing

Weeds:

Landzone:

A 3.3 Sheet D – Regional Ecosystem type assessment site

Location

Site No. 1 **Recorder:** DS M.H. **Day/Date:** 23/11/20

Purpose

Locality: (inc. distance/direction to nearest town) Wallumbilla

GPS: 55 0723426 7057757 **D** 766

Vegetation structure

Median height of the EDL is to be measured

Stratum	Median height	Height interval	Est. cover density (D,M,S,V)
E	~~5~~	~~15-18~~	
T1	18	16-20	M
T2	15	12-18	S
T3	3	2-5	V
S1		-	
S2		-	
G	<1	-	M

Structural formation: (including height) ~~10~~ 16m 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	E fibrosa subtilis
T2	D	A. shirleyi
T3	D	E. rhodoglon
	O	Petalostigma pubescens
G	D	Aristrachne uncinulata
	O	Aristida caput-medusae

Photos

N 5928

S 5929

E 5930

W 5931

G 5932

Geology, landform, soils

Geology map/scale/year:

Geology code and rock types:

Land system: Sand plain

Landform: Ridgetop

Soils: DK Brown loam Lots of rock

Field observation and notes: ridgetop with lots of fallen timber, lots of logs rocks, mature, small Eucalypts and shrubs **Landzone:** ~~10~~ 7

RE code changes

Existing RE code: 11.9.5/11.9.10

Proposed RE code: ~~11.10.3~~

END 11.7.7

A 3.3 Sheet D – Regional Ecosystem type assessment site

Location

Site No. 2 **Recorder:** MN DS **Day/Date:** 23/11/20

Purpose

Locality: (inc. distance/direction to nearest town) Wallumbilla hpt

GPS: 55 0723508 7058747 D 771

N 5940
S
E 5941
W 5942
W 5943

Vegetation structure

Median height of the EDL is to be measured

Stratum	Median height	Height interval	Est. cover density (D,M,S,V)
E	~~6~~	~~5-8~~	~~D~~
T1	~~6~~ 0.5	1-8	D
T2	~~2~~	~~1.0-3~~	~~M~~
T3		-	
S1		-	
S2		-	
G		-	

Structural formation: (including height)
low open Eucalypt 4-5m

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	A. cadoxylon

Geology, landform, soils

Geology map/scale/year:

Geology code and rock types:

Land system: quarry

Landform: sloping from ridge to lower rock

Soils: brown soil/loam

Field observation and notes: disturbed earth, regrowth & A. cadoxylon as monoculture. Lots of loose rocks. edge of quarry. **Landzone:** ~~6~~ 7

RE code changes

Existing RE code: HVR

Proposed RE code: ~~11.7.3~~ regrowth (not remnant)

END 11.7.2

A 3.3 Sheet D – Regional Ecosystem type assessment site

Location

Site No. 3 **Recorder:** DS MH **Day/Date:** Tue 24/11/20

Purpose

Locality: (inc. distance/direction to nearest town) Wallumbilla

GPS: S 55 0723298 7059689 D 772

N 5826
S 2829
E 5830
W 5837
S 5832

N 5833
S 5834
E 5835
W 5836
Soil 5837

Vegetation structure

Median height of the EDL is to be measured

P-20 (20-30)

Stratum	Median height	Height interval	Est. cover/ density (D,M,S,V)
E	12	11 - 13	V
T1	8	5 - 89	S
T2	3	3 - 5	S
T3	~~4~~	~~1 - 2~~	~~V~~
S1	1	1 - 2	V
S2		-	
G	less than 1	01 - ~~5~~ 1	D

Structural formation: (including height) low open 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
e	c	E. populnea
e	c	E. Crebra
e	c	C. Cristata
T1	d	C. cristata
T1	c	E. mitchelliana
T1	c	A. salicina
T1	a	Brachychiton ~~Populneus~~ rupestris
T2	c	A. ~~leiog~~ harpophyla
T2	c	E. mitchelliana
S1	d.	E. mitchelli
g	d	Enchylaena Ciliaris (buffel grass)
g	a	Aristida oxycarpoton
g	a	Enchylaena tomentosa
g	a	Marianthus micrantha
g	a	Carissa ovata
g	a	Capparis lasiantha
g	a	Sclerolaena birchii

Geology, landform, soils

Geology map/scale/year:

Geology code and rock types:

Land system: rocky jump up country

Landform: bottom & slope

Soils: light brown, finer dusty soil, small % rocks coverage, silty clay

Field observation and notes: gloss layer dominated by buffel grass less than 50% cover

Landzone: 9

RE code changes

Existing RE code: HUR

Proposed RE code: ~~11.9.2~~ ~~11.9~~ HUR (11.9.5)

END

A 3.3 Sheet D – Regional Ecosystem type assessment site

Location

Site No. 4 **Recorder:** DS MH **Day/Date:** 24/11/20

Purpose

Locality: (inc. distance/direction to nearest town) Wallumbilla mpt

GPS: 55 | 0726332 5 | 7059622 Z 773

Vegetation structure

Median height of the EDL is to be measured

Stratum	Median height	Height interval	Est. cover density (D,M,S,V)
E		[redacted]	
T1	11	10 - 12	M
T2	6	4 - 8	S
T3		-	
S1	1	0 - 2	✓
S2		-	
G		< 1	

Structural formation: (including height) Woodland to 11m

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	[redacted] Acacia shirleyi
T2	a	Owenia reticulata ?
	a	Acacia harpophylla
	c	Acacia shirleyi
S1	D	Carissa ovata
G	D	Aristida ramosa
	s	Cenchrus ciliaris

a Aristida calycina

Geology, landform, soils

Geology map/scale/year:

Geology code and rock types:

Land system: Rocky gumpuf

Landform: bottom of slope

Soils: Light brown silty clay

Field observation and notes: small patch of lancewood **Landzone:** 7

RE code changes

Existing RE code: HVR

Proposed RE code: 11.7.2

END

Abutilon oxycarpum

~~Brachychiton~~ sp.

Paper daisy

Dysphania ambrosioides

A 3.3 Sheet D – Regional Ecosystem type assessment site

Location

Site No. 5 **Recorder:** DS MH **Day/Date:** 24/11/20

Purpose

Locality: (inc. distance/direction to nearest town) Wallumbilla

GPS: 792 55 0724626 7059903 D AGD 94 GDA

Vegetation structure

Median height of the EDL is to be measured

Stratum	Median height	Height interval	Est. cover density (D,M,S,V)
E	18	18 - 19	V
T1	9	7 - 10	M
T2	6	4 - 7	V
T3		-	
S1		-	
S2		-	
G		<50cm	S

Structural formation: (including height)

Ecologically dominant layer:

N S852
S S854
E S859
W S860
Sml S861

Plant species

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

Str.	Rel. dom.	Scientific Name
E	D	E. Fibrosa subsp.
T1	D	Ac. Rhodoxylon
T2	D	Acacia cambagei
G	D	Cenchrus ciliaris,
		Aristida calycina
		Dichanthium sericeum

Geology, landform, soils

Geology map/scale/year:

Geology code and rock types:

Land system: Jump-ups

Landform: foot of slope

Soils: Grey Clay

Field observation and notes: Lots of fallen timber to edge of quarry

Landzone: 4

RE code changes

Existing RE code: 11.7.5 / 11.9.10

Proposed RE code: 11.7.2

END

A 3.3 Sheet D – Regional Ecosystem type assessment site

Location

Site No. 6 **Recorder:** DS + MH **Day/Date:** 24/11/2020

Purpose

Locality: (inc. distance/direction to nearest town) Wallumbilla

GPS: 784 S S J 0 7 2 4 3 0 1 7 0 6 9 7 3 5 D

N 5862
S 5863
E 5864
W 5865
Soil 5866

Vegetation structure

Median height of the EDL is to be measured

Stratum	Median height	Height interval	Est. cover density (D,M,S,V)
E	20	18 - 21	M
T1	17	15 - 18	M
T2	6	5 - 7	M
T3		-	
S1	less than 1m	0.5 - 1	V
S2		-	
G	less than 0.5m	-	M

Structural formation: (including height) open forest

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
E	d	E Crebra
T1	d	A. Shirleii
T2	d	A. rodwayan
S1	d	parasitic plant (to look up
g	s	Ia nandra phylafolia
g	s	Cyperus exaltata
g	s	Aristida capramedusi
g	s	Chloris truncata
g	d	Aristrati bromulata

Geology, landform, soils

Geology map/scale/year:

Geology code and rock types:

Land system: jump ups

Landform: Watercourse, leading away from ridge

Soils: brown, sandy, loam

Field observation and notes: mapped as non remnant bgs, very tall iron bark with [illegible] canopy within

Landzone: 7

RE code changes

Existing RE code: non remnant

Proposed RE code: 11.7.3

END

A 3.3 Sheet D – Regional Ecosystem type assessment site

Location

Site No. 7 **Recorder:** DS MH **Day/Date:** 24/11/20

Purpose

Locality: (inc. distance/direction to nearest town) Wallumbilla B[illegible]oo Bi kini

GPS: mPT 785 55 0724461 7059780 **D** AGD94

Vegetation structure

Median height of the EDL is to be measured

Stratum	Median height	Height interval	Est. cover density (D,M,S,V)
E	16	15 - 18	V
T1	11	10 - 12	M
T2	8	7 - 9	S
T3		-	
S1		-	
S2		-	
G		< 0.3m	V

Structural formation: (including height)

Ecologically dominant layer:

Plant species

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

Str.	Rel. dom.	Scientific Name
E	D	E. crebra
	C	E. fibrosa
T1	D	Ac. shirleyi
T2	D	Ac. shirleyi
G		Ar. capit medusae
		Lomandra sp.
		Aristida ramosa
		Aristida calycina

N 5467
S 5468
E 5869
L 5870
G 5871

Geology, landform, soils

Geology map/scale/year:

Geology code and rock types:

Land system: J-mp - ups

Landform: ~~slope~~ Ridge - Top

Soils: Brown silty clay Lots of rock

Field observation and notes:

Landzone: 7

RE code changes

Existing RE code: ~~11.7.2~~ / 11.5.1

Proposed RE code: 11.7.2

END

A 3.3 Sheet D – Regional Ecosystem type assessment site

Location

Site No. 4 **Recorder:** DS MH **Day/Date:** 24/11/20

Purpose

Locality: (inc. distance/direction to nearest town) Wallumbilla

GPS: wpt 746 55 0724607 7059860 D AGD94

Vegetation structure

Median height of the EDL is to be measured

Stratum	Median height	Height interval	Est. cover density (D,M,S,V)
E	15	14 - 16	S
T1	12	8 - 14	D
T2		-	
T3		-	
S1		-	
S2		-	
G	0.3	-	V

Structural formation: (including height) open forest.

Ecologically dominant layer: T1

N - 5872
S - 5873
E - 5874
W - 5875
Soil - 5876

Plant species

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

Str.	Rel. dom.	Scientific Name
E	c	E fibrosa
~~T1~~ E	c	E crebra
T1	d	E shirleyi
g	d	Lomandra sp.

Geology, landform, soils

Geology map/scale/year:

Geology code and rock types:

Land system: jump ups

Landform: ridge slopes, undulating, rocky interspersed

Soils: brown, clay loam

Field observation and notes: rolling hills, on slope from ridge, rocky on slopes, not rocky further away in distance, coffee rock **Landzone:** 7

RE code changes

Existing RE code: 11.7.2 / 11.5.1

Proposed RE code: 11.7.2

END

A 3.3 Sheet D – Regional Ecosystem type assessment site

Location

Site No. 9 **Recorder:** DS MH **Day/Date:** 24/4/20

Purpose

Locality: (inc. distance/direction to nearest town) wilga vale

GPS: wpt 759 55 0723923 7036144 D MGD 94

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	10 - 14	S
T2	6	5 - 8	S/M
T3		-	
S1	1	1 - 2	S
S2		-	
G		< 0.5	S

N 5842
S 5883
E 5884
W 5885
G 5886

Structural formation: (including height) open woodland to 14m

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	E. [illegible]
	a	Co[illegible] crebra
T2	d	Eremophila mitchellii
	c	Geijera parviflora
S	d	Carissa ovata
	a	Lithosporum spinescens
	a	Alstonia constricta
G		Chloris truncata
		Aristida calycina

Geology, landform, soils

Geology map/scale/year:

Geology code and rock types:

Land system: Plain

Landform: flat

Soils: brown clay silt

Field observation and notes: very flat

Landzone: 9 ?

RE code changes

Existing RE code: Not mapped

Proposed RE code: ~~[illegible]~~ 11.9.10 ?

END

A 3.3 Sheet D – Regional Ecosystem type assessment site

Location

Site No. 10 **Recorder:** DS MH **Day/Date:** 24/11/20

Purpose

Locality: (inc. distance/direction to nearest town) Mulgavale

GPS: 55 0724659 7065251 D 161 94

797

Vegetation structure

Median height of the EDL is to be measured

Stratum	Median height	Height interval	Est. cover density (D,M,S,V)
E	18	17 - 20	V
T1	10	9 - 12	M
T2	6	3.5 - 7.5	V
T3		-	
S1		-	
S2		-	
G		-	

Structural formation: (including height) open forest

Ecologically dominant layer: T1

N 5893
S 5890
E 5895
W 5896
G 5897

Plant species

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

Str.	Rel. dom.	Scientific Name
E	d	E populnea
E	s	C chrysota
T1	d	C chrysota
T2	d	Geijera parviflora
T2	c	~~E~~ Eremophila mitchelli

Geology, landform, soils

Geology map/scale/year:

Geology code and rock types:

Land system: low rolling plains, flat

Landform:

Soils: pale clay, with pebbles

Field observation and notes: ground and shrub layer stony, not to much litter plenty of small stones/pebbles

Landzone: ~~11.9.10~~ 9

RE code changes

Existing RE code: 11.9.10

Proposed RE code:

END

A 3.3 Sheet D – Regional Ecosystem type assessment site

Location

Site No. 12 **Recorder:** DS MH **Day/Date:** 24/11/20

Purpose

Locality: (inc. distance/direction to nearest town) Wilgavale

GPS: wpt 799 55 | 0724646 | 7082891 | DAGD 94

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	5
T2	8	8 - 10	V
T3	5	4 - 5	5
S1		-	
S2		-	
G		<20cm -	5

N 5899
S 5900
E 5901
W 5902
G 5903

Structural formation: (including height)

Ecologically dominant layer:

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	E. populnea
~~T1~~	~~C~~	~~E. populnea~~
T1	C	Cas cristata
T2		E. populnea
T2	D	Eremophila mitchellii
	a	E. Populnea
G		Enteropogon acicularis
		Aristida calycina
		Chloris truncata

Geology, landform, soils

Geology map/scale/year:

Geology code and rock types:

Land system: Plain

Landform: flat

Soils: Light brown silt

Field observation and notes:

Landzone:

RE code changes

Existing RE code: HvR

Proposed RE code: HvR (11.9.10)

END

A 3.3 Sheet D – Regional Ecosystem type assessment site

Location

Site No. 13 **Recorder:** DS mH **Day/Date:** 24/11/20

Purpose

Locality: (inc. distance/direction to nearest town)

GPS: 400 S S 0724725 7063083 D AGD94

Vegetation structure

Median height of the EDL is to be measured

Stratum	Median height	Height interval	Est. cover density (D,M,S,V)
E	~~11~~	~~8 - 12~~	
T1	11	8 - 12	M
T2	4	3 - 6	S
T3		-	
S1	1	0.5 - 1.5	S
S2		-	
G	less than 0.5m	0.2 - 0.5	V

Structural formation: (including height)

Ecologically dominant layer: T1

N 5904
S 5905
E 5906
W 5907
soil 5908

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	E populnea
T2	C	~~E~~ Eremophila mitchelii
T2	C	Wilga
S1	C	D viscos
S1	C	~~ote~~ A. excelsa
S1	C	Maireana microphylla
S1	C	Erchinea tomentosa
g	C	~~d~~ enteropogon asiculatus
g	C	aristidus caruana
g	C	dichanthium sericeum
g	C	buffel grass

Geology, landform, soils

Geology map/scale/year:

Geology code and rock types:

Land system: plains

Landform: flat, some low hills

Soils: light brown, silty clay

Field observation and notes: large regrowth area dominated by E populnea very little grass cover.

Landzone: 9

RE code changes

Existing RE code: none

Proposed RE code: HVR (11.9.10)

END

wp 800

Site No. 13	Project	Recorder MH : OS		Date 24/11/20
ZONE	EASTING	NORTHING	LATITUDE	LONGITUDE
55	072472	7063084		

Tree	Starts	Stop	Species	Ht		Condition	Age
	2.5	5	Popla	0			
	33.5	36.5	Popla		1		
	36.5	39	Popla	1	0		
	39	41	Popla		1		
	42.5	44	"		10		
	45.5	47.5	"	1	0		
	46.5	49.5	"	1			
	48.5	50 ~~49.5~~	"	1	0		
	50	52	"	1	0		
	54	56	"		9		
	56	60	"		12		
	63	65	"	8			
	70.5	76	"		1		
	92	95	"		8		
	95.5	100	Cas Cristata	1	0		

End
55 072464O
7063134

A 3.3 Sheet D – Regional Ecosystem type assessment site

Location

Site No. 14 **Recorder:** DS MN **Day/Date:** 25/11/20

Purpose

Locality: (inc. distance/direction to nearest town) Boondoroo

GPS: wpt 405 55 0724038 7058466 D AGD94

Vegetation structure

Median height of the EDL is to be measured

Stratum	Median height	Height interval	Est. cover density (D,M,S,V)
E	11	10 - 12	V
T1	6	4 - 8	M
T2		-	
T3		-	
S1		-	
S2		-	
G		<0.3cm	

Structural formation: (including height) open forest / low open forest 10-11m

Ecologically dominant layer: T1

N 5926
S 5929
E 5928
W 5929
C 5930
5931
Fire 5932

Plant species

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

Str.	Rel. dom.	Scientific Name
E	D	Ac. harpophylla
T1	D	Ac. harpophylla
	a	Owenia acidula
	a	Brachychiton rupestris
	a	Geijera parviflora
	a	Eremophila mitchellii
G		Atriplex sp?
		Salsola australis
		Ac. harpophylla seedlings

Malva americanum
Abutilon oxycarpum

Geology, landform, soils

Geology map/scale/year:

Geology code and rock types:

Land system: Jumpup's

Landform: Bottom of slope

Soils: Brown silty loam

Field observation and notes: Small patch irregular regrowth
Lots of canopy recruitment

Landzone: 9

RE code changes

Existing RE code: Non Rem

Proposed RE code: HVR (11.9.5a)

END

A 3.3 Sheet D – Regional Ecosystem type assessment site

Location

Site No. 15 **Recorder:** MH + DS **Day/Date:** 25/11/20

Purpose

Locality: (inc. distance/direction to nearest town) Bikini

GPS: 848 55 s 0724750 7098646 D

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	9	8 - 11	M
T2	7	5 - 8	S
T3		-	
S1		-	
S2		-	
G		-	M

N 5960
S 5961
E 5962
W 5963
9 5964

Structural formation: (including height) open forest

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	A harpophyla
T2	d	Brachychiton rupestris
T2	a	E populnea
T2	a	A harpophyla
g	c	Paspalidium distans
g	c	Buffel grass
g	c	Aristital calycogn ?
g	c	Enteropogon acyculans
g	c	Chloris gayana
g	c	Eragrostis brownii

Geology, landform, soils

Geology map/scale/year:

Geology code and rock types:

Land system: undulating country on fine grain sedimentary rock

Landform: bottom of slope, leading out to plain

Soils: light brown, pale clay

Field observation and notes: open forest, regrowth, ground layer 0-5% functional, animal trails throughout

Landzone: 7

RE code changes

Existing RE code:

Proposed RE code: 11VR (11.9.5a)

END

817 beginning and end of polygon walk around

A 3.3 Sheet D – Regional Ecosystem type assessment site

Location

Site No. 15A **Recorder:** DS MH **Day/Date:** 25/11/20

Purpose

Locality: (inc. distance/direction to nearest town) Bikani

GPS: wpt 815 55 0729447 7081915 D AGD 94

Vegetation structure

Median height of the EDL is to be measured

Stratum	Median height	Height interval	Est. cover density (D,M,S,V)
E	19	19-20	V
T1	12	10-13	M
T2		-	
T3		-	
S1	3	2-6	S
S2		-	
G		<1	S

Structural formation: (including height)

Ecologically dominant layer:

N 5954
S 5955
E 5956
W 5957
G 5958

Plant species

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

Str.	Rel. dom.	Scientific Name
E	D	E fibrosa Nubila
T1	c	E fibrosa Nubila
T1	c	E crebra
	c	~~Acacia Shirleyi~~ E. exserta
S1	a	Bursaria incana
S1	a	Hakea lorea
S1	D	Calytrix gracilis ?
	a	Psydrax odorata
G	D	Aristrachne unicinulata

Geology, landform, soils

Geology map/scale/year:

Geology code and rock types:

Land system: Jump-ups

Landform: Top of ridge

Soils: Skeletal brown silty clay - Lots of surface rock present

Field observation and notes: Top of Jump up

Landzone: 7

RE code changes

Existing RE code: 11.9.5/11.9.10

Proposed RE code: 11.7.7

END

A 3.3 Sheet D – Regional Ecosystem type assessment site

Location

Site No. 16 **Recorder:** DS MW **Day/Date:** 25/11/20

Purpose

Locality: (inc. distance/direction to nearest town) W. Ilgarvale

GPS: wpt 820 55 0724698 7606286 D AGD 94

N 5966
S 5967
E 5968
W 5969
G 5970

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	8	7 - 9	M
T2	4	4 - 5	M
T3		-	
S1		-	
S2		-	
G		-	

Structural formation: (including height)

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	E. shirleii
T1	a	E. crebra
		~~E. tereticornis~~
T2	c	Eucalyptus erythrophloia
T2	~~c~~	~~Acacia~~
T2	a	Melaleuca decora
g	c	Capparis mitchellii
g	c	Dysphania carinata

Geology, landform, soils

Geology map/scale/year:

Geology code and rock types:

Land system: Jump up formation

Landform: top of slope

Soils: brown red clay.

Field observation and notes: historical extensive ring barking very recent ~~ST~~ indication of thinning / tree harvesting **Landzone:** 7

RE code changes

Existing RE code: 11.7.2 / 11.5.1

Proposed RE code: 11.7.2

END

A 3.3 Sheet D – Regional Ecosystem type assessment site

Location

Site No. 17 **Recorder:** DS MH **Day/Date:** 25/11/20

Purpose

Locality: (inc. distance/direction to nearest town) Wilgavale

GPS: wpt 927 55 0725791 7103734 D MGD 94

Vegetation structure

Median height of the EDL is to be measured

Stratum	Median height	Height interval	Est. cover density (D,M,S,V)
E	14	13 - 15	V
T1	4.5	3 - 6	M
T2		-	
T3		-	
S1		-	
S2		-	
G		< 0.2m -	√

Structural formation: (including height)

Ecologically dominant layer:

N 5977
S 5995
E 5979
W 5980
G 5981

Plant species

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

Str.	Rel. dom.	Scientific Name
E	D	E. crebra (Cpreset)
T1		Callitris endlicheri
		~~Eucalyptus sp.~~
		Allocasuarina leuhmannii
G		Ar Caput-medusae
		Fallax

Geology, landform, soils

Geology map/scale/year:

Geology code and rock types:

Land system: rolling downs

Landform: Midslope

Soils: Pale sandy clay

Field observation and notes: Not rupat highly disturbed strip along track

Landzone: 9

RE code changes

Existing RE code: 11.7.2 / 11.5.1

Proposed RE code: NR (11.5.1)

END

A 3.3 Sheet D – Regional Ecosystem type assessment site

Location

Site No. 18 **Recorder:** DS MH **Day/Date:** 26/11/20

Purpose

Locality: (inc. distance/direction to nearest town) Wilgavale

GPS: wpt 833 55 0724225 7060979 **Datum** GDA 94

Vegetation structure

Median height of the EDL is to be measured

Stratum	Median height	Height interval	Est. cover density (D,M,S,V)
E	~~10~~	~~9-11~~	
T1	10	9-11	M
T2		-	
T3		-	
S1		-	
S2		-	
G		<0.5 -	

Structural formation: (including height)

Ecologically dominant layer:

N 5989
S 5990
E 5991
W 5992
G 5993

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	A. shirleyi
		E. creberrima
G		Lomandra filiformis
		Pseudoraphis distans

Geology, landform, soils

Geology map/scale/year:

Geology code and rock types:

Land system: Hills

Landform: Mid slope

Soils: Brown clay loam Lots of small rock

Field observation and notes: Well developed Ac. shirleyi Forest dominated by much ground cover compared to open woodland.

Landzone: 7

RE code changes

Existing RE code: 11.7.2 / 11.5.1

Proposed RE code: 11.7.2

END

A 3.3 Sheet D – Regional Ecosystem type assessment site

Location

Site No. 19 **Recorder:** DS MH **Day/Date:** 26/9/20

Purpose

Locality: (inc. distance/direction to nearest town) Wilgarvale

GPS: ~~S~~ upt 55 0725155 7061232 D AGD 94

842

Vegetation structure

Median height of the EDL is to be measured

Stratum	Median height	Height interval	Est. cover density (D,M,S,V)
E	~~15~~	~~15-20~~	
T1	13	11 - 20	M
T2	7	5 - 8	S
T3		-	
S1	3	2 - 4	S
S2		-	
G		<0.3	

Structural formation: (including height) Open forest 13m tall

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	E. crebra
	c	Callitris glaucophylla
T2	c	Casuarina cristata
	c	Callitris glaucophylla
	a	Eremophila mitchellii
S1	D	Geijera parviflora
		Eremophila mitchellii
G		Aristida caput-medusae
		Digitaria sp.
		Panicum effusum
		Aristida calycina
		Chrysopogon fallax
		Solanum sp.

~ 6007
S 6008
E 6009
W 6010
G 6011

Geology, landform, soils

Geology map/scale/year:

Geology code and rock types:

Land system: Rolling hills

Landform: Top of hill

Soils: Redbrown clay

Field observation and notes: obvious dark strip on Aerial ~30m wide

Landzone: 7

RE code changes

Existing RE code: Not rem

Proposed RE code: ~~11.5.2~~ remnant 11.5.1

END

A 3.3 Sheet D – Regional Ecosystem type assessment site

Location

Site No. 20 **Recorder:** DS MH **Day/Date:** 26/11/20

Purpose

Locality: (inc. distance/direction to nearest town) wilgavale

GPS: apt 847 55 | 0714359 | 7061664 **D** AGD 94

Vegetation structure

Median height of the EDL is to be measured

Stratum	Median height	Height interval	Est. cover density (D,M,S,V)
E	~~20~~	~~18-22~~	
T1	20	18-22	S
T2	12	10-13	S
T3	4	4-5	S
S1		-	
S2		-	
G		<0.3 -	V

Structural formation: (including height) Woodland to 22m

Ecologically dominant layer: T1

N 6017
S 6018
E 6019
W 6020
G 6021

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	E crebra
T1	a	E populnea
T2	D	Callitris glaucophylla
	a	E crebra
	a	Acacia leiocarpa
	a	Acacia cowinia endlicheri
	a	E Poplar
T3	D	Callitris glaucophylla
G		Chrysopogon fallax
		Aristida capt-medusae

Geology, landform, soils

Geology map/scale/year:

Geology code and rock types:

Land system: sedimentary plains

Landform: Top of hill

Soils: reddish sand

Field observation and notes: Historically ~~cleared~~ cleared

Landzone: 5

RE code changes

Existing RE code: 11.7.2 / 11.5.1

Proposed RE code: 11.5.1

END

A 3.3 Sheet D – Regional Ecosystem type assessment site

Location

Site No. 21 **Recorder:** DS MH **Day/Date:** 26/11/20

Purpose

Locality: (inc. distance/direction to nearest town) W. Igarate

GPS: wpt 852 55 0724051 7762038 **D** AGD94

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	18-23	S
T2	16	12-18	S
T3	6	5-8	V
S1		-	
S2		-	
G		<1-2m	

Structural formation: (including height)

Ecologically dominant layer:

N 6026
S 6029
E 6029
W 6029
G 6030

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	E. Populnea
		E. crebra
T2		Callitris glaucophylla
		E. crebra
T3		Petalostigma pubescens
		Aristida constricta
		Callitris glaucophylla
G		Aristida calycina
		Aristida caput-medusae

Geology, landform, soils

Geology map/scale/year:

Geology code and rock types:

Land system: Sedimentary plains

Landform: Flat rolling hills

Soils: Pale sand

Field observation and notes:

Landzone: 9

RE code changes

Existing RE code: ~~11.5.1~~ 11.5.1 11.9.10 11.5.1

Proposed RE code: 11.5.1 11.9.10

END

A 3.3 Sheet D – Regional Ecosystem type assessment site

Location

Site No. 22 **Recorder:** DS MW **Day/Date:** 26/11/20

Purpose

Locality: (inc. distance/direction to nearest town) Wilgavale

GPS: 853 55 0723954 7011785 **D** AGD94

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	7 - 9	M
T3		-	
S1	2	0 - 2	V
S2		-	
G		<0-3 -	

Structural formation: (including height)

Ecologically dominant layer:

N 6031
S 6032
E 6033
W 6034
G 6035

Plant species

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

Str.	Rel. dom.	Scientific Name
T1	c	Corymbia intermedia
	c	Angophora leiocarpa
	c	E. crebra
		E. portuensis
		Callitris glaucophylla
T2	d	Callitris glaucophylla
	a	Angophora leiocarpa
S1		Callitris
		parlar
G		Aristida calycina
		Chrysopogon fallax

Echinopogon ntans?

Geology, landform, soils

Geology map/scale/year:

Geology code and rock types:

Land system: Sedimentary plain

Landform: slope

Soils: Reddish sandy clay

Field observation and notes: very open canopy missing Crebra

Landzone: 5

RE code changes

Existing RE code: 11.7.2 / 11.5.1

Proposed RE code: 11.5.1 ?

END

A 3.3 Sheet D – Regional Ecosystem type assessment site

Location

Site No. 23 **Recorder:** DS MH **Day/Date:** 26/11/20

Purpose

Locality: (inc. distance/direction to nearest town) Wilgavale

GPS: 854 | 55 | 0723319 | 7062638 | D 16D TY

N 6036
S 6037
E 6038
W 6039
G 6040

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 - 8	M
T3		-	
S1		-	
S2		-	
G		<0.2 -	S

Structural formation: (including height) Woodland 11m

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	Eucalyptus crebra
	a	Brachychiton populneus
T2	D	Callitris glaucophylla
	a	Geijera parviflora
	a	Capparis lasiantha/lucida
G		Digitaria
		Echinopogon ovatus
		Plectrachne sp.
		Aristida calycina

Aristida capt-medusae

Geology, landform, soils

Geology map/scale/year:

Geology code and rock types: Jump-ups

Land system: Top of Jumpup

Landform:

Soils: Pale reddish Sand

Field observation and notes: Lots of large rock

Landzone: 7

RE code changes

Existing RE code: 11.7.6

Proposed RE code: 11.7.6 – Citriodora not present

END

A 3.3 Sheet D – Regional Ecosystem type assessment site

Location

Site No. 24 **Recorder:** DS MH **Day/Date:** 26/11/20

Purpose

Locality: (inc. distance/direction to nearest town) Mitgarvale

GPS: 856 | 55 | 0723428 | 7062565 | DAGD 94

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	8-10	M
T2	6	5-7	V
T3		-	
S1	1	1-2	V
S2		-	
G		<0.3	S

Structural formation: (including height)

Ecologically dominant layer:

N 6041
S 6042
E 6043
W 6044
6 6045

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	Ac. harpophylla
	S	E. Populnea
T2		Santalum lanceolatum
		Geijera parviflora
		Eremophila mitchellii
S1		Santalum lanceolatum
		Geijera parviflora
		Ac. harpophylla (seedling)
G		Enteropogon acicularis
		Sporobolus creber
		Chloris truncata
		Aristida calycina

Geology, landform, soils

Geology map/scale/year:

Geology code and rock types:

Land system: Sedimentary plains

Landform: Foot of slope

Soils: Pale brown clay

Field observation and notes:

Landzone:

RE code changes

Existing RE code: NR

Proposed RE code: NR – <0.5 ha

END

855 start of Polygon
857 End of Polygon

A 3.3 Sheet D – Regional Ecosystem type assessment site

Location

Site No. 25 **Recorder:** MH + DS **Day/Date:**

Purpose

Locality: (inc. distance/direction to nearest town) Willgandale

GPS: 795 | 55 | 0728109 | 7022688 | D

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	12m	9 - 13	M
T2	5	2 - 6	S
T3		-	
S1	3	1 - 4	S
S2		-	
G		-	

Structural formation: (including height)

Ecologically dominant layer:

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	A harpophylla
T1	a	E populnea
T1	a	C Castata
T2	c	C Castata
T2	c	Callitris glauca
T2	c	E Mitchelli
S1	c	Wilga
g	c	Dianella frutiata
g	c	Bare
g	c	Eremophila accularis
g	c	Indigofera Tomentosa
g	c	Bulbine exycarpa
g	c	Sclerolaena birchii

Geology, landform, soils

Geology map/scale/year:

Geology code and rock types:

Land system: clay/ sedimentary plain

Landform: Flat land.

Soils: light brown dusty, fine clay

Field observation and notes: Bargalow, boat, more seen in the center and down toward edges.

Landzone: 9

RE code changes

Existing RE code: Non remnant.

Proposed RE code: 11.9.5a

END

858 = beginning and end of polygon

A 3.3 Sheet D – Regional Ecosystem type assessment site

Location

Site No. 26 **Recorder:** MA + DS **Day/Date:** 27/11/20

Purpose

Locality: (inc. distance/direction to nearest town) Wilgavale

GPS: 860 55 0723613 7021110 **D**

Vegetation structure

Median height of the EDL is to be measured

Stratum	Median height	Height interval	Est. cover density (D,M,S,V)
~~E~~	~~10~~	~~9 - 12~~	~~M~~
T1	10	9 - 12	M
T2	4	2 - 6	S
T3		-	
S1		-	
S2		-	
G	less than 1cm	-	

Structural formation: (including height)

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	s	E Coolabra
T1	s	Caltrus glaucaphila
T1	d	A Shirleyi
T2	c	A shirleyi
T2	c	Caltrus glaucaphila
g		[illegible] carissoides
g		[illegible] coprarnodes.

Geology, landform, soils

Geology map/scale/year:

Geology code and rock types:

Land system: rocky steep up

Landform: sloping, near top of slope

Soils: light sandy soil

Field observation and notes: rocky, not much under story - relatively open

Low level vegetation along creek running between lower fields of irrigation and top end of mixed woodland

Landzone: 7

RE code changes

Existing RE code: 11.7.2 / 11.5.1

Proposed RE code: 11.7.2

END

A 3.3 Sheet D – Regional Ecosystem type assessment site

Location

Site No. 27 **Recorder:** DS MH **Day/Date:** 27/11/20

Purpose

Locality: (inc. distance/direction to nearest town) Wilgavale

GPS: 865 | 55 | 0723018 | 7065951 | **D** AGD94

Vegetation structure

Median height of the EDL is to be measured

Stratum	Median height	Height interval	Est. cover density (D,M,S,V)
E	~~8~~	~~10-15~~	
T1	13	12 - 15	S
T2	9	8 - 11	MS
T3		-	
S1	1	1 - 1.5	V
S2		-	
G		<0.2	D

Structural formation: (including height)

Ecologically dominant layer:

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	E crebra
T2	D	Callitris glaucophylla
S1	D	Cassinia ovata
G		Eragrostis sallina
		Aristida ramosa
		Eragrostis sp
		Aristida capt-medusae

~~2 6062~~
~~S 6063~~
~~E 6064~~
~~W 6065~~
~~G 6066~~

Geology, landform, soils

Geology map/scale/year:

Geology code and rock types:

Land system: Rolling hills

Landform: Slope

Soils: Red sand

Field observation and notes:

Landzone: 5

RE code changes

Existing RE code: 11.7.6 ~~[illegible]~~

Proposed RE code: ~~[illegible]~~ 11.7.6 - Eucalyptus not present

END

A 3.3 Sheet D – Regional Ecosystem type assessment site

Location

Site No. 28 **Recorder:** MH:DS **Day/Date:** 27/11/20

Purpose

Locality: (inc. distance/direction to nearest town) Wilgavale

GPS: 867 | S | S | 0 7 2 4 0 7 4 | 7 0 6 1 4 5 2 | D

Vegetation structure

Median height of the EDL is to be measured

Stratum	Median height	Height interval	Est. cover density (D,M,S,V)
E	19	18 - 22	V
T1	10	9 - 13	M
T2	4	4 - 6	S
T3		-	
S1		-	
S2		-	
G	less than 1m	-	

Structural formation: (including height) open forest.

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
E	d	Eucalyptus Cebra
T1	d	Acacia Harpophylla
T1	a	Eucalyptus [illegible]
~~T2~~	~~d~~	~~Acacia [illegible]~~
T2	d	Eucalyptus [illegible]
T2	a	[illegible] Psydrax odorata
G		~~[illegible]~~ [illegible] Aristida ~~[illegible]~~ [illegible] uncinulata
g		[illegible]ulfed
g		Sporobolus creber
g		Enteropogon ascicularis
g		Carissa ovata

E 6067
S 6069
E 6069
W 6070
g 6071

Geology, landform, soils

Geology map/scale/year:

Geology code and rock types:

Land system: undulating country

Landform: bottom & slope between two ridges

Soils: Clay to drainage line. → brown clay

Field observation and notes: heavily brigalow dominated, no rocks or [illegible]sphyll **Landzone:** 9

RE code changes

Existing RE code: 11.7.2 / 11.5.1

Proposed RE code: 11.9.5a

END

A 3.3 Sheet D – Regional Ecosystem type assessment site

Location

Site No. 201 **Recorder:** DS MH **Day/Date:** 30/1/20

Purpose

Locality: (inc. distance/direction to nearest town) Reuben Downs

GPS: ~~S~~ 54 55 | 0 7 R 6 5 7 6 | 7 0 5 7 4 9 6 **D** AGD 94

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	9	~~7~~ 7-10	S
T2		-	
T3		-	
S1	2	1-4	✓
S2		-	
G		< 0.3	M

Structural formation: (including height)

Ecologically dominant layer:

N 6090
S 6091
E 6092
W 6093
G 6094

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	A. shirleyi
		E. crebra
S1	D	A. shirleyi seedlings
G	D	Aristida caput-medusae
		Aristadena uniaulata
		Lomandra sp

Geology, landform, soils

Geology map/scale/year:

Geology code and rock types:

Land system: Rocky Jump-ups

Landform: Top of jump-up

Soils: Light brown silty clay lots of pebbles

Field observation and notes:

Landzone: 7

RE code changes

Existing RE code: 11.7.2 / 11.51

Proposed RE code: 11.7.2

END

A 3.3 Sheet D – Regional Ecosystem type assessment site

Location 2087

Site No. ~~2766~~ **Recorder:** JS MH **Day/Date:** 30/11/20

Purpose

Locality: (inc. distance/direction to nearest town) Ruby Downs

GPS: 884 | 55 | 0726421 | 7956727 | D 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	15	14 - 16	S
T1	7	6 - 10	M/S
T2	4	2 - 5	V
~~T3~~	~~1~~	~~0.5 - 1.5~~	
S1	1	0.5 - 1.5	V
S2		-	
G	less than 1 hour	-	D/M

Structural formation: (including height) open forest

Ecologically dominant layer: T1

N 6101
S 6102
E 6103
W 6104
G 6105

Plant species

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

Str.	Rel. dom.	Scientific Name
E	D	E populnea
T1	c	E populnea
T1	c	A harpophyla
~~T1~~		~~A Shirleyi~~
T1	c	A olga
T1	c	A Atalaya hemiglauca
T1	c	E Mitchellii
T2	D	E Mitchellii
T2	S	A olga
T2	S	A harpophyla
T2	S	Atalaya hemiglauca
S1	c	Atalaya Lemiglauca
S1	c	Dodonaea viscosa
S1	c	E populnea
g	c	Paleum fusca
g	c	Olbiorus truncata
g	c	Dichanthium sericeum
g	c	Aristida caticana

Geology, landform, soils

Geology map/scale/year:

Geology code and rock types:

Land system: undulating hills/downs

Landform: bottom of slope

Soils: light brown clay

Field observation and notes: open woodland, diverse forest

Landzone: 3

RE code changes

Existing RE code: none

Proposed RE code: ~~11.3.2~~ 11.9.10

END

A 3.3 Sheet D – Regional Ecosystem type assessment site

Location

Site No. 214 **Recorder:** MH + OS **Day/Date:** 30/11/20

Purpose

Locality: (inc. distance/direction to nearest town) Ruby Downs

GPS: 892 | S | S | 0 | 7 | 2 | 7 | 7 | 3 | 9 | 7 | 0 | 5 | 7 | 2 | 9 | 9 | **D**

Vegetation structure

Median height of the EDL is to be measured

Stratum	Median height	Height interval	Est. cover density (D,M,S,V)
~~E~~	~~15~~	~~12 - 17~~	~~S~~
T1	15	12 - 17	S
T2	10	8 - 10	S
T3	~~2~~	~~1 - 4~~	~~V~~
S1	2	1 - 4	V
S2		-	
G	less than 30cm	-	M

Structural formation: (including height)

Ecologically dominant layer: T1

N 6113
S 6114
E 6115
W 6116
G 6117

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	E Eucalyptus Cadora.
~~T1~~		~~E Eucalyptus~~
T1	S	E Eucalyptus shirleyi
T1	S	C Corymbia citriodora
T2	c	C Corymbia citriodora
T2	c	E Eucalyptus shirleyi
S1	d	E Eucalyptus shirleyi
g	cg	Aristida caput-medusae
g	cg	Aristida calycina
g	c	Enneapogon lindleyanus

g c buffel grass

Geology, landform, soils

Geology map/scale/year:

Geology code and rock types:

Land system: undulating hills

Landform: hills, running off ridge up country

Soils: reddish, silty clay

Field observation and notes: lots of tall open forest, med / less understory

Landzone:

RE code changes

Existing RE code: 11.5.1 / 11.5.5

Proposed RE code: ~~11.5.1~~ 11.7.2

END

A 3.3 Sheet D – Regional Ecosystem type assessment site

Location

Site No. 223 **Recorder:** MH + DS **Day/Date:** 1/12/20

Purpose

Locality: (inc. distance/direction to nearest town) The paddock

GPS: wpt 901 | 55 | 0728260 | 7059936 | D

Vegetation structure

Median height of the EDL is to be measured

Stratum	Median height	Height interval	Est. cover density (D,M,S,V)
E	~~11~~	~~8 -12~~	~~M~~
T1	11	8 -12	M
T2	6	4 -8	S
T3		-	
S1	0.5	0.5 - 1	V
S2		-	
G	0.3	-	

Structural formation: (including height)

Ecologically dominant layer: T1

N 6126
S 6127
E 6128
W 6129
U 6130

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	C cristata
T2	D	C cristata
T2	S	E papulnea
S1	C	[illegible]
S1	C	C cristata
g	c	bulbel
g	c	panicum effusum
g	c	digitaria sp
g	c	chloropogon asciculata
g	c	salsola australis

Geology, landform, soils

Geology map/scale/year:

Geology code and rock types:

Land system: plains, undulating

Landform: water courses, #

Soils: very light brown, clay silty

Field observation and notes: drainage courses, trees growing along sloping sides greater than 0.5 ha

Landzone:

RE code changes

Existing RE code: none, not remnant.

Proposed RE code: 11.3.1 ??

END

A 3.3 Sheet D – Regional Ecosystem type assessment site

Location

Site No. 231 **Recorder:** MH + OS **Day/Date:** 1/12/20

Purpose

Locality: (inc. distance/direction to nearest town) Burnside

GPS: J 5 | 0726462 | 7061334 **D**

909

Vegetation structure

Median height of the EDL is to be measured

Stratum	Median height	Height interval	Est. cover density (D,M,S,V)
E	~~10~~	~~9 - 11~~	
T1	10	9 - 11	M
T2		-	
T3		-	
S1		.2 - .4	M
S2		-	
G		-	

N 6140
E ~~6141~~
W 6142
G 6143

Structural formation: (including height)

Ecologically dominant layer:

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	A harpophyla
T1	a	C populnea
T1	s	C cristata
		~~C cristata~~
S1	d	wilga

Geology, landform, soils

Geology map/scale/year:

Geology code and rock types:

Land system: undulating hills

Landform: on slope, mid at bottom

Soils: light brown/grey silty clay

Field observation and notes: lots of brigalow greater than 5ha (estimate) mainly from neighbour property

Landzone: 9

RE code changes

Existing RE code: 11.72/11.5.1

Proposed RE code: 11.9.5a

END

possible brigalow thicket site - remnant.

A 3.3 Sheet D – Regional Ecosystem type assessment site

Location

Site No. 27A **Recorder:** MM + DS **Day/Date:** 3/12/20

Purpose Scatos

Locality: (inc. distance/direction to nearest town) ~~0726~~ Burnside

GPS: 943 | 55 | ~~0726~~ | ~~323~~ | ~~2061124~~ | D

0726312 7061105

Vegetation structure

Median height of the EDL is to be measured

Stratum	Median height	Height interval	Est. cover density (D,M,S,V)
E	18	16 - 18	V
T1	9	8 - 10	M
T2	4	3 - 6	S
T3		-	
S1	0.5	-	
S2		-	
G	less than 5cm	-	V

Structural formation: (including height)

Ecologically dominant layer: T1

N 6209
S 6210
E 6211
W 6212
G 6213

Plant species

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

Str.	Rel. dom.	Scientific Name
E	d	E. populnea
T1	d	A. harpophyla
T2	c	C. onstata
T2	c	E. ilga
T2	c	A. harpophyla
T2	a	E. mitchelii
S1	a	C. onstata
S1	a	tubular flower shrub
g	a	capril madusi

Geology, landform, soils

Geology map/scale/year:

Geology code and rock types:

Land system: undulated slopes.

Landform: on slope

Soils: light brown Fine sandy

Field observation and notes: large bugalow forest, very little understorey, loose soil with many small stones less than 5cm **Landzone:** 9

RE code changes

Existing RE code: 11.7.2 / 11.5.1

Proposed RE code: 11.9.5a

END

A 3.3 Sheet D – Regional Ecosystem type assessment site

Location

Site No. 313 **Recorder:** MH + OS **Day/Date:** 4/12/20

Purpose

Locality: (inc. distance/direction to nearest town) Burnside

GPS: wpt 983 | 55 | 0726997 | 7064996 | **D**

Vegetation structure

Median height of the EDL is to be measured

Stratum	Median height	Height interval	Est. cover density (D,M,S,V)
E		~~15~~ -	
T1	18	15 - 19	S
T2	12	~~09~~ - 14	S
T3		-	
S1		-	
S2		-	
G	less than 20 cm	less than 20 cm	

Structural formation: (including height)

Ecologically dominant layer: T1

N 6264
S 6265
E 6266
W 6267
g 6268

Plant species

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

Str.	Rel. dom.	Scientific Name
T1	c	E. camaldulensis
T1	c	E. populnea
T2	d	E. populnea
T2	a	C. cristata
T2	a	W. lycioides
T2	a	B. rupestris
T2	a	B. papulnea
g	s	Solanum sp
g	d	Atriplex spp.
g	d	Calotis sp. little hooked burr
g	s	Dichanthium sericeum
g	a	Isoetes digitata
g	a	Schoenoplectus dioecus
g	a	Xanthium spinosum
g	a	Eragrostis Vulgaris
g	a	Argemone ochroleuca
g	a	Cassinia laevigata

Geology, landform, soils

Geology map/scale/year:

Geology code and rock types:

Land system: quaternary alluvial systems

Landform: dried depression / ~~wetland~~ wetland

Soils: light brown silty alluvial clay / fine.

Field observation and notes: lake & wetland / marsh area weeds, land area is depression leading to creek. Ephemeral wetland/overflow area

Landzone:

RE code changes

lots of low damage. camaldulensis only around the ~~perimeter~~ area of d sheet. The rest of the polygon dominated by E. populnea.

Existing RE code: 11.~~9~~3.2

Proposed RE code: 11.3.25.

END

A 3.3 Sheet D – Regional Ecosystem type assessment site

Location

Site No. 309 **Recorder:** MH + DS **Day/Date:** 3/12/20

Purpose

Locality: (inc. distance/direction to nearest town) Braeside

GPS: wpt978 | 55 | 0727324 | 7062846 | **D**

Vegetation structure

Median height of the EDL is to be measured

Stratum	Median height	Height interval	Est. cover density (D,M,S,V)
E	~~15~~	~~12 - 15~~	~~M~~
T1	14	10 - 15	M/S
T2	4	3 - 6	S
T3		-	
S1	0.75	0.5 - 1m	V
S2		-	
G		-	

Structural formation: (including height)

Ecologically dominant layer: T1

N 6255
S 6256
E 6257
W 6258
G 6259

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	E populnea
T2	C	Casuarina cristata
T2	C	E. microtheca
T2	C	Acacia wilga
S1	C	E. microtheca
T2	a	Citrus glauca
S1	a	Citrus glauca
S1	C	Alectryon diversifolius
S1	C	Dodonaea adenophora
S1		~~Acacia~~ Acacia wilga
G		Aristida calycina

Geology, landform, soils

Geology map/scale/year:

Geology code and rock types:

Land system: alluvial flats

Landform: flat close to creek

Soils: light brown silty clay

Field observation and notes: very flat land running along side of creek

Landzone: 3

RE code changes

Existing RE code: 11.3.2

Proposed RE code: 11.3.2

END

A 3.3 Sheet D – Regional Ecosystem type assessment site

Location

Site No. 299 **Recorder:** DJ MN **Day/Date:** 3/12/20

Purpose

Locality: (inc. distance/direction to nearest town) Burnside

GPS: wpt 968 55 0726928 7064151 D AGD 94

Vegetation structure

Median height of the EDL is to be measured

Stratum	Median height	Height interval	Est. cover density (D,M,S,V)
E	~~20~~	~~18 - 21~~	~~M~~
T1	20	18 - 21	M
T2	13	12 - 15	S
T3		-	
S1	5	3 - 6	
S2		-	
G		-	

Structural formation: (including height)

Ecologically dominant layer:

N 6239
E 6240
S 6241
W 6242
G 6243

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	E. tereticornis
	a	E. camaldulensis
T2	c	E. tereticornis
	c	E. melanophloia
	c	E. camaldulensis
S1	D	Geijera parviflora
		Citrus glauca
		Ac. excelsa
G		Cenchrus ciliaris

Chamaesyce drummondii
Maireana microphylla
Sclerolaena birchii

Geology, landform, soils

Geology map/scale/year:

Geology code and rock types:

Land system: Alluvial

Landform: watercourse - overflow area

Soils: Brown sand

Field observation and notes: Dominated by buffel

Landzone: 3

RE code changes

Existing RE code: 11.3.2

Proposed RE code: 11.3.2

END overflow area 966 - 967 in a circle

A 3.3 Sheet D – Regional Ecosystem type assessment site

Location

Site No. M1 **Recorder:** MH **Day/Date:** 1/12/20

Purpose

Locality: (inc. distance/direction to nearest town) The paddock

GPS: WPT 01 | 2 6 | 5 5 5 4 3 4 | 1 4 9 2 8 7 2 6 | DWGS84

555 07288 51 7606873

Vegetation structure

Median height of the EDL is to be measured

Stratum	Median height	Height interval	Est. cover density (D,M,S,V)
E	~~15~~	~~13 - 18~~	M
T1	16	13 - 18	M
T2	4	4 - 6	V
T3	too small	-	D
S1		-	
S2		-	
G		-	

Structural formation: (including height)

Ecologically dominant layer: T1

N 6266
S 6267
W 6268
E 6269
G 6270

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	E	Corymbia clarksoniana
T1	S	E	Poplulnea
T2	r		wilga
T2	S		melaleuca/Mel. bracteata??
T2	S	E	pepulnea
G	D		buffel

Geology, landform, soils

Geology map/scale/year:

Geology code and rock types:

Land system: water causeway

Landform: creek edge,

Soils: very light brown/clay

Field observation and notes: Mix of tall grass with sub dominant

peppers bordering water course **Landzone:** 3

RE code changes

Existing RE code: 11.3.25

Proposed RE code: 11.3.25

END

WK3

A 3.3 Sheet D – Regional Ecosystem type assessment site

Location

Site No. 405 **Recorder:** DS MH **Day/Date:** 15/12/20

Purpose

Locality: (inc. distance/direction to nearest town) Wyatta

GPS: wpt 996 55 0730418 7659776 D AGD 96

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	M
T2	3	3 - 4	M
T3		-	
S1	1	0.5 - 2	S
S2		-	
G		20 - 2 -	S

Structural formation: (including height)

Ecologically dominant layer:

N 6288
S 6286 6289
E
W 6288
G 6289

Plant species

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

Str.	Rel. dom.	Scientific Name
T1		E. crebra
		Cor. intermedia
		Callitris glaucophylla
T2		Callitris glaucophylla
		Grevillea parallela
		Eremophila mitchellii
S1		Callitris glaucophylla (seedlg)
		Eremophila mitchellii
		Citrus glauca
G		Enteropogon ramosus

Aristida calycina
Aristida ramosa

Geology, landform, soils

Geology map/scale/year:

Geology code and rock types:

Land system: Rocky jump-ups

Landform: Top of ridge

Soils: Brown silty sand

Field observation and notes: Mapped NVR

Landzone: 7

RE code changes

Existing RE code: NVR

Proposed RE code: NVR 11.7.7?

END

A 3.3 Sheet D – Regional Ecosystem type assessment site

Location

Site No. 408 **Recorder:** DF MH **Day/Date:** 15/12/20

Purpose

Locality: (inc. distance/direction to nearest town)

GPS: wpt 1000 | 55 | 0730369 | 7960007 | D AGD 94

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	5	4 - 6	S
T2		-	
T3		-	
S1		-	
S2		-	
G		<0.4 -	✓

N 6293
S 6294
E 6295
W 6296
G 6297

Structural formation: (including height)

Ecologically dominant layer:

Plant species

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

Str.	Rel. dom.	Scientific Name
T1		Callitris glaucophylla
		Eucalyptus exserta
		Ac. shirleyi
		Euc populnea
G		Aristrachne uncinulata

Geology, landform, soils

Geology map/scale/year:

Geology code and rock types:

Land system: Rocky jumpups

Landform: top of hill

Soils: Gravel

Field observation and notes: Low regrowth - open - mixed sp

Landzone: 7

RE code changes

Existing RE code: NR

Proposed RE code: May be 11.9.R

END

A 3.3 Sheet D – Regional Ecosystem type assessment site

Location

Site No. 409 **Recorder:** D MH **Day/Date:** 15/12/20

Purpose

Locality: (inc. distance/direction to nearest town)

GPS: wpT 100 | 55 | 0730633 | 7606325 | D AGD 94

N 6298
S 6299
E 6300
W 6301
G 6302

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	4	3 - 5	S
T2		-	
T3		-	
S1		-	
S2		-	
G		<0.5 -	

Structural formation: (including height)

Ecologically dominant layer:

Plant species

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

Str.	Rel. dom.	Scientific Name
T1		A. leucadendra
		A. sp.
		Alstonia constricta
		C. calora
G		Cyclosorus fallax
		Melanthes sericea
		Oncinus alexis

Geology, landform, soils

Geology map/scale/year:

Geology code and rock types:

Land system:

Landform:

Soils: orange-brown silty clay

Field observation and notes: R.F. intermittent

Landzone:

RE code changes

Existing RE code: Low regrowth vine forest

Proposed RE code:

END

A 3.3 Sheet D – Regional Ecosystem type assessment site

Location

Site No. 411 **Recorder:** MH + DS **Day/Date:** 15/12/2020

Purpose

Locality: (inc. distance/direction to nearest town) Myalla

GPS: wpt1003 S 27 03 22 87 E 146 11 38 D

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	M
T2	6	5 - 8	M
T3		-	
S1	1.5	1 - 3	S
S2		-	
G	leaf litter 0.5	-	V

Structural formation: (including height) T1

Ecologically dominant layer:

N 6305
S 6306
E 6307
W 6308
G 6309

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	E. populnea
T1	S	C. costata
T2	D	C. costata
T2	a	A. o. lumenii
T2	S	E. populnea
S1	D	C. costata
S1	S	V. glga
g	d	capet medusi

Geology, landform, soils

Geology map/scale/year:

Geology code and rock types:

Land system: undulating hills

Landform: on the slope

Soils: light brown, sandy

Field observation and notes: lots of poplar, no bonyong, with a few significant underlying of C. costata

Landzone: 11.9.10

RE code changes

Existing RE code: 11.9.10 / 11.9.5

Proposed RE code: 11.9.10

END

A 3.3 Sheet D – Regional Ecosystem type assessment site

Location

Site No. 42 **Recorder:** Mitt DS **Day/Date:** 15.12.20

Purpose

Locality: (inc. distance/direction to nearest town) Myalla.

GPS: wp1 100 | | 0 0 3 2 4 2 0 | 7 8 6 1 0 1 8 | **D**

Vegetation structure

Median height of the EDL is to be measured

Stratum	Median height	Height interval	Est. cover density (D,M,S,V)
E		1 -	
T1	12	10 - 14	S
T2	8	6 - 7	V
T3		-	
S1	3	3 - 5	V
S2		-	
G	less than 0.5	-	M

Structural formation: (including height)

Ecologically dominant layer: T1

N 6310
W 6311
E 6312
L 6313
G 6314

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	E melanophloia
T1	S	E crebra
T1	S	E chloroclada
T1	S	Callitris glaucophylla
T1	S	E populnea
T2	D	Callitris
S1	d	Lulga
S1	S	Carissa ovata
g	c	Aristida calycina
g	c	Aristida caput-medusae
g	c	Goodenia [illegible]

Geology, landform, soils

Geology map/scale/year:

Geology code and rock types:

Land system: undulating hills / slopes

Landform: higher on stony land.

Soils: light brown sandy

Field observation and notes: sparse forest, maybe historically cleared gone back to remnant.

Landzone: 5

RE code changes

Existing RE code: 11.5.5

Proposed RE code: 11.5.5

END

A 3.3 Sheet D – Regional Ecosystem type assessment site

Location

Site No. 413 **Recorder:** MH + DS **Day/Date:** 15/12/20

Purpose

Locality: (inc. distance/direction to nearest town) Myall a

GPS: ~~WPT 1005~~ | | | 0 | 7 | 3 | 2 | 2 | 7 | 1 | | 7 | 6 | 0 | 4 | 8 | 0 | **D**

Vegetation structure

Median height of the EDL is to be measured

Stratum	Median height	Height interval	Est. cover density (D,M,S,V)
E	15	16 - 18	S
T1	12	10 - 13	M
T2		-	
T3		-	
S1		-	
S2		-	
G	less than 0.5	-	

Structural formation: (including height)

Ecologically dominant layer: T1

N 6315
S 6316
E 6317
W 6318
G 6319

Plant species

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

Str.	Rel. dom.	Scientific Name
E	D	E. cebra
T1	S	E. cebra
T1	D	A. shirleyi
g	D	Capparis medusi

Geology, landform, soils

Geology map/scale/year:

Geology code and rock types:

Land system: jump ups

Landform: ridge top

Soils: brown silt clay

Field observation and notes: ridge top with small stone sloping away into gully. Clearly dominated by A. shirleyi. Dark patches in satellite image represent A. shirleyi 11.7.2

Landzone: 7

RE code changes

Existing RE code: 11.5.5

Proposed RE code: 11.7.2

END

A 3.3 Sheet D – Regional Ecosystem type assessment site

Location

Site No. 419 **Recorder:** DS MH **Day/Date:** 15/12/20

Purpose

Locality: (inc. distance/direction to nearest town) Myalla

GPS: wpt 1012 55 0732993 7906030 Z 6D1 7H

Vegetation structure

Median height of the EDL is to be measured

Stratum	Median height	Height interval	Est. cover density (D,M,S,V)
E	12	12 - 13	V
T1	3	2 - 3.5	D
T2		-	
T3		-	
S1		-	
S2		-	
G		<0.4 -	S

Structural formation: (including height)

Ecologically dominant layer: T1

N 6331
S 6332
E 6333
W 6334
G 6335
plant 6336

Plant species

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

Str.	Rel. dom.	Scientific Name
E	D	Eucalyptus
T1	D	Melaleuca tamariscina
G		Pogonatherum distans
		Solanum sp.
		Cyperaceae sp

Geology, landform, soils

Geology map/scale/year:

Geology code and rock types:

Land system: undulating hills

Landform: top of hill

Soils: Red-brown brown clay-loam

Field observation and notes: Eucalyptus senescing

Landzone: 5

RE code changes

Existing RE code: 11.5.5

Proposed RE code: 11.5.10

END

A 3.3 Sheet D – Regional Ecosystem type assessment site

Location

Site No. 420 **Recorder:** DS MH **Day/Date:** 15/12/20

Purpose

Locality: (inc. distance/direction to nearest town) Myalla

GPS: WPT 015 55 0732898 7059879 **D** GDA 94

Vegetation structure

Median height of the EDL is to be measured

Stratum	Median height	Height interval	Est. cover density (D,M,S,V)
E	20	18 - 20	V
T1	12	10 - 13	M
T2	6	5 - 7	S
T3		-	
S1		<.5	
S2		-	
G		<0.2	

Structural formation: (including height)

Ecologically dominant layer: T1

6337N
6339S
6339E
6340W
6341G

Plant species

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

Str.	Rel. dom.	Scientific Name
E	D	E. crebra
T1	D	E. crebra
T2	D	Ac. leiocarpa
		Callitris glaucophylla
		Eremophila mitchellii
		Allocasuarina leuhmannii
G		Cyperus exaltata?
		Aristida caput-medusae
		Chrysopogon fallax
		Eragrostis collina
		Lomandra sp.

Geology, landform, soils

Geology map/scale/year:

Geology code and rock types:

Land system: undulating hills

Landform: hill top

Soils: reddish sandy clay

Field observation and notes:

Landzone: 5

RE code changes

Existing RE code: 11.5.5

Proposed RE code: 11.5.1

END

A 3.3 Sheet D – Regional Ecosystem type assessment site

Location

Site No. 923 **Recorder:** DS MH **Day/Date:** 15/12/20

Purpose

Locality: (inc. distance/direction to nearest town) Myalla

GPS: 1017 55 0732786 7059380 DGDN 94

N 6343
S 6344
E 1345
W 6346
G 6347

Vegetation structure

Median height of the EDL is to be measured

Stratum	Median height	Height interval	Est. cover density (D,M,S,V)
E	20	19 - 20	V
T1	7	6 - 8	V
T2	5	4 - 6	D
T3		-	
S1		-	
S2		-	
G		<0.4 -	

Structural formation: (including height)

Ecologically dominant layer: T2

Plant species

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

Str.	Rel. dom.	Scientific Name
E	D	E. trebra
T1		E. exserta
T2		A. burrai ?
G		Eragrostis sp.
		Aristida sp.

Geology, landform, soils

Geology map/scale/year:

Geology code and rock types:

Land system: Undulating hills

Landform: Slope

Soils:

Field observation and notes: Brown isl clay

Landzone: 7?

RE code changes

Existing RE code: ~~11.5.5~~ NVR

Proposed RE code: 11.7.2 NVR young regrowth ?

END

No rocks here but very rocky adjacent
No shirley II here but Lots adjacent
Large eagle nest close

A 3.3 Sheet D – Regional Ecosystem type assessment site

Location

Site No. 430 **Recorder:** DS MH **Day/Date:** 15/12/20

Purpose

Locality: (inc. distance/direction to nearest town) Myalla

GPS: 55 0731389 7060574 **D** GDA 94

Vegetation structure

Median height of the EDL is to be measured

Stratum	Median height	Height interval	Est. cover density (D,M,S,V)
E		~~8~~ -	
T1	10	8 - ~~14~~	S
T2	6	5 - 7	S
T3		-	
S1	1	1 - 2	✓
S2		-	
G		<0.5	S

Structural formation: (including height)

Ecologically dominant layer:

N 6354
S 6355
E 6356
W 6357
G 6358
Bridelow 6359

Plant species

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

Str.	Rel. dom.	Scientific Name
T1	c	E. chloroclada
		E. populnea
T2		A. leptophylla
		Acacia decora
S1		Geijera parviflora
		Eremophila sp.
		Eremophila mitchellii
G		Aristida calycina
		Aristiadiane uncinulata

Chloris truncata

Geology, landform, soils

Geology map/scale/year:

Geology code and rock types:

Land system: undulating hilly

Landform: slope

Soils: red clay-loam

Field observation and notes: Mapped as remnant 11.5.5 but is regrowth with bridelow

Landzone: 5

RE code changes

Existing RE code: 11.5.5

Proposed RE code: NVR

END

A 3.3 Sheet D – Regional Ecosystem type assessment site

Location

Site No. 433 **Recorder:** MH+OS **Day/Date:** 16/12/20

Purpose

Locality: (inc. distance/direction to nearest town) Angry Jungle

GPS: wpt 1028 | | | 0729163 | 7060738 | **D**

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	18 - 23	S
T2	12	8 - 15	S
T3		-	
S1	3	2 - 3	V
S2	1	0.5 - 1	V
G	less than 0.5	-	

N 6363
S 6364
E 6365
W 6366
G 6367

Structural formation: (including height)

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	E. camaldulensis
T2	c	E. papuana
T2	c	E. camaldulensis
S1	d	A. salicena
S2	d	E. papuana
S2	s	Native orange
S2	a	A. salicena
S2	a	Hygrobia
S2	a	E. mitchelli
G	c	Atriplex sp
G	c	Nitrariafilum??
G	c	Juncus usitatus
G	c	Cynodon dactylon
G	a	Xanthium pungens

Geology, landform, soils

Geology map/scale/year:

Geology code and rock types:

Land system: river flats

Landform: ephemeral wetland

Soils: brown/dark brown clay soil

Field observation and notes: large ephemeral wetland, sign of clear modification toward northern extent.

Landzone: 3

RE code changes

Existing RE code: not mapped

Proposed RE code: 11.3.27 ??

END

A 3.3 Sheet D – Regional Ecosystem type assessment site

Location

Site No. 435 **Recorder:** DS MH **Day/Date:** 16/12/20

Purpose

Locality: (inc. distance/direction to nearest town) Angry Jungle

GPS: 1037 | 55 | 0728163 | 7865040 | D GDA 94

Vegetation structure

Median height of the EDL is to be measured

Stratum	Median height	Height interval	Est. cover density (D,M,S,V)
E	16	13 - 16	✓
T1	14	5 - 10	M
T2		-	
T3		-	
S1	2	1 - 2	✓
S2		-	
G		< 0.7	D

Structural formation: (including height)

Ecologically dominant layer:

N 6371
S 6372
E 6373
W 6374
G 6375

Plant species

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

Str.	Rel. dom.	Scientific Name
E		Casuarina cristata
T1		Acacia harpophylla
		Santalum lanceolatum
		Eremophilum mitchellii
S1		Gossia fragrantissima
		Notelaea longifolia
G	D	Cenchrus ciliaris
G		Panicum effusum
G		Zygophyllum ??

Geology, landform, soils

Geology map/scale/year:

Geology code and rock types:

Land system: Downs

Landform: flat

Soils: DK Brown loamy clay

Field observation and notes: ~20m on South side of road
~15m on North side of road **Landzone:** 9

RE code changes

Existing RE code: Not mapped

Proposed RE code: 11.9.5

END

Vegetation Structure Site Inspection Sheet - Proforma

Location

Site No. 448 **Recorder:** _____ **Day/Date:** 16/12/20

Regional ecosystem: 11.9.10 (not mapped)

Locality: (inc. distance/direction to nearest town) Angry jungle

Vegetation structure

1049 1050

Median height of the EDL is to be measured
Cover density is to be estimated

Stratum	Median height	Height interval	Est. cover density (D,M,S,V)
E	16	14 - 20	S
T1	10	8 - 14	S
T2		-	
T3		-	
S1	1.5	1 - 2	V
S2		-	
G		-	

N 6391
S 6392
E 6393
W 6394
G 6395

Structural formation: (including height)

Ecologically dominant layer: T1

Notes:

ground cover dominated by buffel, up to 90% of ground cover.
Non mapped habitat, containing tall poplars and bungalows.

Plant species

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

Str.	Rel. dom.	Scientific Name
E	c	Bungalow
E	c	E populnea
T1	c	Bungalow
T1	c	E populnea
T1	c	A salicina
T1	c	C. citrus
E	a	E melanophloia
S1	c	Capparis lasianthefolia/canescens??
S1	c	Native citrus
S1	c	Bungalow
S1	c	Yulga
S1	a	Flectrox diversifolia
g	d	Buffel grass
g	s	Aristida bacinulata
g	s	Chloris truncata
g	s	Eragrostis cilianensis
g	s	Eragrostis verticillata

Notes

Disturbance: heavily grazed

Weeds: buffel dominated

Landzone: 9

A 3.3 Sheet D – Regional Ecosystem type assessment site

Location

Site No. 452 **Recorder:** MH + DS **Day/Date:** 16/12/20

Purpose

Locality: (inc. distance/direction to nearest town) Angry Jungle

GPS: 55 | 0732777 | 7064625 **D**

1025

Vegetation structure

Median height of the EDL is to be measured

Stratum	Median height	Height interval	Est. cover density (D,M,S,V)
E	11	10 - 14	V
T1	5	4 - 8	S
T2		-	
T3		-	
S1	1	0.5 - 1.5	V
S2		-	
G	less than 0.5	-	

Structural formation: (including height)

Ecologically dominant layer:

N 6399
S 6400
E 6401
W 6402
G 6403

Plant species

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

Str.	Rel. dom.	Scientific Name
E	d	Bargalow
E	s	C. cristata
T1	d	Bargalow
T1	a	Alwenia ascidula
T1	s	C cristata
S1	d	Bargalow
g	d	Buffel

Geology, landform, soils

Geology map/scale/year:

Geology code and rock types:

Land system: undulating hills

Landform: downs

Soils: brown clay soil

Field observation and notes: ~~flow~~ flow about 16m wide, bargalow forest running along fence line, lots of buffel

Landzone: 9

RE code changes

Existing RE code: none

Proposed RE code: 11.9.5a

END

A 3.3 Sheet D – Regional Ecosystem type assessment site

Location

Site No. 455 **Recorder:** MHr OS **Day/Date:** 16/12/20

Purpose

Locality: (inc. distance/direction to nearest town) Tingha jungle

GPS: 55 | 0 2 3 3 7 6 6 | 2 0 6 3 6 1 4 **D**

Vegetation structure

Median height of the EDL is to be measured

Stratum	Median height	Height interval	Est. cover density (D,M,S,V)
E	14	14 - 16	V
T1	9	8 - 10	S
T2	4	3 - 5	S
T3		-	
S1	1.5	1 - 2	V
S2		-	
G		-	

Structural formation: (including height)

Ecologically dominant layer:

N 6408
S 6409
E 6410
W 6411
G 6412

Plant species

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

Str.	Rel. dom.	Scientific Name
E	D	E. propelmo
T1		angaloa
T1		C. cristata
T1		E. populnea
T2		A. falcata
T2		Vulga
S1		Vulga
S1		Native citrus
G		coffee
G		Zygophyllum sp
G		Chloris truncata
G		Sporobolus caricis ??
S1		Cassia conescense

Geology, landform, soils

Geology map/scale/year:

Geology code and rock types:

Land system: undulating downs

Landform: flat.

Soils: light brown clay

Field observation and notes: regrowth site, brigalow dominating

Landzone: 9

RE code changes

Existing RE code: HVR

Proposed RE code: HVR 11.9.5

END

A 3.3 Sheet D – Regional Ecosystem type assessment site

Location

Site No. 655 **Recorder:** DS MH **Day/Date:** 16/12/20

Purpose

Locality: (inc. distance/direction to nearest town) Ansco Jungle

GPS: 1059 55 0173326 7063233 **D** GDA 94

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	8	7 - 10	S
T2		-	
T3		-	
S1	3	1 - 3	S
S2		-	
G		< 0.3	

Structural formation: (including height)

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		Acacia pendula
S1		Eremophila sp.
		Capparis perulata
G		Cenchrus ciliaris
		Sclerolaena birchii
		Malvastrum americanum
		Abutilon oxycarpum
		Chloris truncata
		Philotheca sp.

Geology, landform, soils

Geology map/scale/year:

Geology code and rock types:

Land system: Downs

Landform: watercourse

Soils: Brown clay

Field observation and notes: Dominated by Myall (Acacia pendula) but significant canopy death

Landzone:

RE code changes

Existing RE code: NVR

Proposed RE code: NVR

END

Vegetation Structure Site Inspection Sheet - Proforma

Location

Site No. 457 **Recorder:** MH + DS **Day/Date:** 16/12/20

Regional ecosystem:

Locality: (inc. distance/direction to nearest town) Angry Jungle

Vegetation structure 1060 1061

Median height of the 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	9	8 - 11	M
T2	4	3 - 5	S
T3		-	
S1	1	1 - 2	VS
S2		-	
G	less than 5	-	M

Structural formation: (including height)

Ecologically dominant layer: T1

Notes:
C. cristata dominated with lots of bluegrass coming through buffel growing throughout possible HVR

N 6418
S 6419
E 6420
W 6421
G 6422

Plant species

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

Str.	Rel. dom.	Scientific Name
T1	c	C cristata
T1	c	bluegrass
T1	a	myall
T1	a	Eucalyptus
T2	c	mitchelii
T2	a	wilga
S1	a	Dodonaea viscosa
S1	a	native citrus
T2	c	bluegrass
G		buffel
G		Chloris truncata
G		Enteropogon ascicularis

Notes

Disturbance:

Weeds:

Landzone:

A 3.3 Sheet D – Regional Ecosystem type assessment site

Location

Site No. 460 **Recorder:** DS MH **Day/Date:** 17/12/20

Purpose

Locality: (inc. distance/direction to nearest town) ~~At~~ Angry Jungle

GPS: wpt 1064 55 0730067 7065566 **D** GDA 94

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	M
T2		-	
T3		-	
S1	3	3 - 4	V
S2		-	
G		<0.6 -	D

N 6429
S 6430
E 6431
W 6432
G 6433

Structural formation: (including height)

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	Acacia harpophylla
	a	Casuarina cristata
S1	D	Geijera parviflora
G	D	Cenchrus ciliaris

Geology, landform, soils

Geology map/scale/year:

Geology code and rock types:

Land system: Rolly downs

Landform: slope

Soils: Brown clay

Field observation and notes: Shrub layer thin Ground 100% buffel

Landzone: 9

RE code changes

Existing RE code: 11.9.5 / 11.9.10

Proposed RE code: 11.9.5a

END

WK3(2)

Vegetation Structure Site Inspection Sheet - Proforma

Location

Site No. 461 **Recorder:** DS MH **Day/Date:** 17/12/20

Regional ecosystem:

Locality: (inc. distance/direction to nearest town) ~~Agatha~~ Argyle jungle

Vegetation structure

1065
1066

Median height of the 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	6	5 - 8	S
T2		-	
T3		-	
S1	3	3 - 5	V
S2	1	0.5 - 1	V
G		<0.2 -	D

Structural formation: (including height)

Ecologically dominant layer:

Notes: 11.9.5a advanced regrowth very open

N 6434
S 6435
E 6436
W 6437
G 6438

Plant species

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

Str.	Rel. dom.	Scientific Name
T1	D	Acacia harpophylla
		Brachychiton rupestris
S1	D	Geijera parviflora
		Geijera salicifolia
		Citrus glauca
		Dalbergia lanceolaria
S2		Geijera ovata
		Citrus glauca
		Alectryon diversifolius
G	D	Enchylaena tomentosa
		Chloris truncata
		Jasminum didymum
		Malvastrum americanum

Notes

Disturbance:

Weeds: Ground 100% buffel

Landzone: 9

A 3.3 Sheet D – Regional Ecosystem type assessment site

Location

Site No. 462 **Recorder:** DS MH **Day/Date:** 17/12/20

Purpose

Locality: (inc. distance/direction to nearest town) Argyle jungle

GPS: wpt 1067 | 55 | 0730654 | 7064851 | D GDA 96

N 6439
S 6440
E 6444
W 6442
G 6443

Vegetation structure

Median height of the EDL is to be measured

Stratum	Median height	Height interval	Est. cover density (D,M,S,V)
E		~~13-15~~	
T1	14	13 - 15	V
T2	10	9 - 11	S
T3		-	
S1	4	3 - 5	S
S2	1	0.5 - 1.5	V
G		<0.1	

Structural formation: (including height)

Ecologically dominant layer:

Plant species

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

Str.	Rel. dom.	Scientific Name
T1		Casuarina cristata
	D	Melaleuca hypophylla
T2	D	Acacia hypophylla
		Casuarina cristata
		~~Eucalyptus tereticornis~~ (?)
		Brachychiton rupestris
S1	D	Grevillea parviflora
S2	D	Alectryon diversifolius
		Capparis lasiantha

T2 C Melaleuca

Geology, landform, soils

Geology map/scale/year:

Geology code and rock types: G D Cenozoic silicic

Land system: Chlor tunnelata

Landform: Anastomosing unconsolidated

Soils: Paspalidium distans

Field observation and notes: Enteropogon acicularis

Zygophyllum sp. **Landzone:** 9

RE code changes

Existing RE code: Not mapped

Proposed RE code: 11.9.5a

END

T2 opuntia tomentosa

G Aristida calycina sporobolus australis

A 3.3 Sheet D – Regional Ecosystem type assessment site

Location

Site No. 464 **Recorder:** DS MH **Day/Date:** 17/12/20

Purpose

Locality: (inc. distance/direction to nearest town) Angry jungle

GPS: WPT 1069 | 55 | 0731503 | 7065059 | D GDA 94

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	6 - 9	M
T2	3	3 - 4	S
T3		-	
S1	05	0.5 - 1	✓
S2		-	
G		<=.6	D

Structural formation: (including height)

Ecologically dominant layer: T1

N 6455
S 6456
E 6457
W 6458
G 6459

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	Acacia harpophylla
T2	D	Acacia harpophylla
		Citrus glauca
S1	D	Geijera parviflora
		Alectryon diversifolius
G	D	Cenchrus ciliaris

Geology, landform, soils

Geology map/scale/year:

Geology code and rock types:

Land system: Downs

Landform: flat

Soils:

Field observation and notes: DK Brown clay
Ground 100% buffel

Landzone: 9

RE code changes

Existing RE code: 11.9.5 / 11.9.10

Proposed RE code: 11.9.5a

END

Vegetation Structure Site Inspection Sheet - Proforma

Location

Site No. 472 **Recorder:** DS MH **Day/Date:** 17/12/20

Regional ecosystem:

Locality: (inc. distance/direction to nearest town) Angry Jungle

~~WPT~~ WPT 1077

Vegetation structure

Median height of the 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	5'	4 - 6	5
T2		-	
T3		-	
S1	2	1.5 - 2.5	V
S2	0.4	0.2 - 0.5	V
G		< 0.2 -	V

Structural formation: (including height)

T1

Ecologically dominant layer:

Notes: 100% buffel

very open

~~Acacia~~ Eucalypt no shrub layer

Mostly bare ground

N 6469
S 6470
E 6471
W 6472
G 6473

Plant species

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

Str.	Rel. dom.	Scientific Name
T1	D	Acacia hapophylla
S1	D	Citrus glauca
		Eucalyptus melanophloia
S2	D	Acacia hapophylla Geijera
G	D	Cenchrus ciliaris
		Melinis minutiflora

Notes

Disturbance: very open regrowth

Weeds: Grass 100% buffel

Landzone: 9

Vegetation Structure Site Inspection Sheet - Proforma

Location 478

Site No. [redacted] **Recorder:** DK MH **Day/Date:** 17/12/20

Regional ecosystem:

Locality: (inc. distance/direction to nearest town) Angry jungle

Vegetation structure

Median height of the 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	13	10 - 15	M
T2	4	2 - 5	M
T3		-	
S1		-	
S2		-	
G		<0.5	

N 6481
S 6482
E 6483
W 6484
G 6485

Structural formation: (including height)

Ecologically dominant layer: T1

Notes:

Plant species

WPT 1089

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

Str.	Rel. dom.	Scientific Name
T1	D	Casuarina cristata
		fg E. populnea
		Grevillea mitchellii ±10 llw
T2	D	Eremophila mitchellii
		Cassia porvifolia
		Atalaya glauca
G		Chloris truncata
		Aristida calycina

Notes

Disturbance: Not mapped
NVR 11-9-10?

Weeds:

Landzone: 9

A 3.3 Sheet D – Regional Ecosystem type assessment site

Location

Site No. 488 **Recorder:** DS MH **Day/Date:** 17/12/20

Purpose

Locality: (inc. distance/direction to nearest town) Angry Jungle

GPS: 1097 | 55 | 0 1 4 3 0 3 0 9 | 7 0 6 2 5 4 7 | DGDA 94

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	6 - 10	M
T2		-	
T3		-	
S1		1 - 15	V
S2		0 - 0.5	V
G		< 0.3	V

N 6500
S 6501
E 6502
W 6503
G 6504

Structural formation: (including height)

Ecologically dominant layer:

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	Acacia harpophylla
		Casuarina cristata
		Santalum lanceolatum
		Alectryon diversifolius
S1		Cenchrus glaucus
S2		Acacia harpophylla seedlings
G		Grading calcic

Geology, landform, soils

Geology map/scale/year:

Geology code and rock types:

Land system: Dams

Landform: bottom of slope

Soils: DK Brown clay

Field observation and notes:

Landzone: 9

RE code changes

Existing RE code: Not mapped

Proposed RE code: 11.9.5 NVR?

END

Vegetation Structure Site Inspection Sheet - Proforma

Location

Site No. 492 **Recorder:** DS MN **Day/Date:** 17/2/20

Regional ecosystem:

Locality: (inc. distance/direction to nearest town) Argos Jungle

Vegetation structure

Median height of the 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	5	5 - 6	M
T2		-	
T3		-	
S1		-	
S2		-	
G		< 0.6 -	D

N 6490
S 6491
E 6492
W 6493
G 6494

Structural formation: (including height)

Ecologically dominant layer: T1

Notes: Patchy
Brigalow regrowth

Plant species

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

Str.	Rel. dom.	Scientific Name
T	D	Acacia harpophylla
		Eremophila mitchellii,
		Jasminum didymum
G	D	Cenchrus ciliaris
		Aristida tonentosa

Notes

Disturbance:

Weeds: Ground 100% buffel

Landzone: 9

A 3.3 Sheet D – Regional Ecosystem type assessment site

Location

Site No. 495 **Recorder:** DS MN **Day/Date:** 17/12/20

Purpose

Locality: (inc. distance/direction to nearest town) Angry Jungle

GPS: 1104 55 0730748 7032244 D GDA 94

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	6	6_8	M
T2		-	
T3		-	
S1	3	2_4	S
S2		0.2_1	S
G		<0.1	S

Structural formation: (including height)

Ecologically dominant layer:

N 6511
S 6512
E 6513
W 6514
G 6515

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	Acacia harpophylla
	A	Casuarina cristata
S1		Acacia harpophylla
		Eremophila mitchellii
S2		Acacia harpophylla seedlings
		Cassia ovata
		~~Ate~~ Geijera parviflora
G	D	Cenchrus ciliaris
		Sporobolus australis
		Eragrostis browniii

Geology, landform, soils

Geology map/scale/year:

Geology code and rock types:

Land system: Downs

Landform: Flat

Soils: Brown gravelly clay

Field observation and notes: Ground dominated by Buffel

Landzone: 9

RE code changes

Existing RE code: 11.9.5 / 11.9.10

Proposed RE code: 11.9.5a

END

Vegetation Structure Site Inspection Sheet - Proforma

Location

Site No. 498 **Recorder:** DS MH **Day/Date:** 17/12/20

Regional ecosystem:

Locality: (inc. distance/direction to nearest town) Arong Jungle

Vegetation structure

Median height of the EDL is to be measured
Cover density is to be estimated

Stratum	Median height	Height interval	Est. cover density (D,M,S,V)
E	14	12 - 14	V
T1	8	8 - 10	V
T2	5	3 - 7	V
T3		-	
S1	1	1 - 2	V
S2		-	
G		<0.6 -	M

Structural formation: (including height)

Ecologically dominant layer: T1

Notes: Regrowth 11.9.5a

N 6518
S 6519
E 6520
W 6521
C 6522

Plant species

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

Str.	Rel. dom.	Scientific Name
E		Corymbia citriodora
T1		Corymbia citriodora
		Acacia harpophylla
T2		Acacia harpophylla
S1		Alectryon diversifolius
		Grevillea mitchellii
		Envisser ovata
		Broom
G	D	Corchorus olitorius

Notes

Disturbance:

Weeds: Ground my sparse but dominated by buffel

Landzone: 9

A 3.3 Sheet D – Regional Ecosystem type assessment site

Location

Site No. 499 Recorder: DS MH Day/Date: 17/2/20

Purpose

Locality: (inc. distance/direction to nearest town) Argyl Jungle

GPS: 169 55 0729982 7036410 D GDA 94

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	9	5 - 9	✓
T2		-	
T3		-	
S1	4	2 - 4	M
S2		-	
G		0 - 3	✓

Structural formation: (including height)

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	Acacia hapuphylla
		Casuarina cristata
S1	D	Geijera parviflora
6		Cenchrus ciliaris
		Gregrostis brownii
		Sclerolaena birchii
		Capparis lasiantha
		Enteropogon acicularis
		Panicum effusum
		Zygophyllum sp
		Euphorbia tannensis
		Carissa ovata

N 6523
S 6524
E 6525
W 6526
G 6527

Bidens pinnata
Xanthium spinosum

Geology, landform, soils

Geology map/scale/year:

Geology code and rock types:

Land system: Rolling downs

Landform: Slope

Soils:

Field observation and notes: Canopy dying -

Landzone: 9

RE code changes

Existing RE code: Not mapped

Proposed RE code: 11.9.5 regrowth ? remnant but mod

Good condition

END

See other sheet for core plot

499

Vegetation Structure Site Inspection Sheet - Proforma

Transect - crown cover measured *(transect intercept method)*

GPS coordinates: **Datum:** GDA 94 **Transect length:** 100

Start point	Zone 55	E 0729982	N 7063410	6109
End point	Zone 55	E 0730066	N 7063362	6110

All heights in the "Str./height" column are to be measured

Interval (metres)	Intercept	Str./height
7 - 12.5	5.5 m	T1 8
19 - 20	1 m	T1 6
26.5 - 29	2.5 m	S1 25
37 - 40	3 m	S1 3
48 - 50	2 m	T1 7
-	m	
75 - 77	2 m	S1 2
84 - 88	4 m	S1 2
87 - 88	1 m	T1 7
-	m	
-	m	
-	m	
-	m	
-	m	
-	m	
-	m	
-	m	
-	m	
-	m	
-	m	
-	m	

Summary:

Minimum height of plants included in the transect table:	6 m	
Intercept of EDL 0 - 50m:	2	m
Intercept of EDL 50 -100m:	7	m
Measured crown cover % of EDL 0 -100m:	28	%
Structural formation		

Conclusions/Notes:

A 3.3 Sheet D – Regional Ecosystem type assessment site

Location

Site No. 504 **Recorder:** DS MH **Day/Date:** 17/12/20

Purpose

Locality: (inc. distance/direction to nearest town) Argyle Forge

GPS: 115 | 55 | 0172930 | 7054671 | **D** 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	8	6 - 12	S
T2		-	
T3		-	
S1	3	2 - 5	S
S2	0.5	0 - 0.5	V
G	0.3	< 0.4	M

Structural formation: (including height)

Ecologically dominant layer: T1

N 6532
S 6533
E 6534
W 6535
G 6536

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	Acacia harpophylla
		Opuntia tomentosa
S1		Cymbopogon glaucus
		Eremophila mitchellii
		Aristida henryglauca
		Galactia parvifolia
S2		Acacia harpophylla seedlings
		Aristida henryglauca
G	D	Cenchrus ciliaris

Geology, landform, soils

Geology map/scale/year:

Geology code and rock types:

Land system: Downs

Landform: Flat

Soils: reddish brown clay

Field observation and notes:

Landzone: 9

RE code changes

Existing RE code: 11.9.5/11.9.10

Proposed RE code: 11.9.5a

END

A 3.3 Sheet D – Regional Ecosystem type assessment site

Location

Site No. 513 **Recorder:** DS MH **Day/Date:** 18/12/20

Purpose

Locality: (inc. distance/direction to nearest town) Ansons Jungle

GPS: 1124 | 55 | 0728224 | 7064054 | **D** GDA 94

N 6551
S 6552
E 6553
W 6554
G 6555

Vegetation structure

Median height of the EDL is to be measured

Stratum	Median height	Height interval	Est. cover density (D,M,S,V)
E	10	8 - 10	V
T1	5	4 - 5	MD/D
T2		-	
T3		-	
S1	1	1 - 1.5	V
S2		-	
G		<0.1	MD

Structural formation: (including height)

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	Ac. harpophylla
E	D	E Populnea (on edge)
S1	D	Geijera parviflora
G		Cenchrus ciliaris
		Sida acuta
		Eragrostis brownii
		Enchylaena tomentosa
		opuntia aurantiaca

Geology, landform, soils

Geology map/scale/year:

Geology code and rock types:

Land system: Rolling downs

Landform: slope

Soils: Brown clay

Field observation and notes: harpophylla seedlings common
Ground layer mainly low - mostly seedling grasses

Landzone: 9

RE code changes

Existing RE code: Not mapped

Proposed RE code: 11.9.5a regrowth

END

A 3.3 Sheet D – Regional Ecosystem type assessment site

Location

Site No. 518 **Recorder:** DS **Day/Date:** 18/12/20

Purpose

Locality: (inc. distance/direction to nearest town) Angry Snake

GPS: 1129 | 55 | 0727859 | 7663358 | **D** GDA 94

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 - 12	V
T2	8	8 - 9	V
T3		-	
S1	34	3 - 6	S
S2		-	
G		<0.3 -	V

Structural formation: (including height)

Ecologically dominant layer: T1

N 6569
S 6570
E 6571
W 6572
G 6573

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	E Populnea
T2	D	Ac harpophylla
S1	C	Geijera parviflora
	C	Eremophila mitchellii
G	D	Cenchrus ciliaris

Geology, landform, soils

Geology map/scale/year:

Geology code and rock types:

Land system: Downs

Landform: Towards bottom of slope

Soils: Red/brown clay

Field observation and notes:

Landzone: 9

RE code changes

Existing RE code: 11.9.5 / 11.9.10

Proposed RE code: 11.9.10

END

Appendix E

Field Survey Site Data: Quaternary Site Sheets

Job..... Date.....

SD22 23/11/2020 (1)

No.	Easting	Northing	Comments	Photo
1720			C. crebra 10-12 m VS RHC 5m wide	3153
1721			E. populnea 12-13m, Callitris glaucophylla 10m rem	3154
1723	(+/- 15m Southy)		Scattered Callitris 6m VVS over buffel	3155
1724	"	"	" " Acacia sp non-rem	3157
1725	(non-rem patch)		T, E. crebra, A leiocarpa 14m VS, C. glauca 8m	3158
1726			Rem 11.5 $	3159/60
1728			non rem 11.5 $ E pop 7m VS over C. glauca	3163
1729	non-rem size		T, A leiocarpa 16m (Bark) rem structure T, A leichhardtii 12m (Eucalyptus)	3164
			[illegible]	3165
1730			[illegible] (regrowth poplar on South)	3166 11.5.5 non-rem
1731	non-rem structure		T, A leiocarpa 14m, E crebra (a), T2 C. glauca	3167
1732	non-rem		T, E. camaldulensis 8m mallee	3168
1734			rem 11.5 $	3174
1735			rem 11.5.1 South (mapped non-rem)	3175
1736			C. glaucophylla regrowth 5-8m (non-rem)	3176
1737			E. (crebra?) E. populnea T, Acacia "lanceolata" non-rem LZ? surface rock	3178

Job SD22 (2) Date

23/11/2020

No.	Easting	Northing	Comments	Photo
1739			T1 14m E pop, A. pendula, VS >30m wide T2 10m C. [illegible] remnant	5947
1740			T1 14m E pop S T2 10m Cas [illegible] S (Buffer) >20m wide remnant (mega max)	5948 5949
1741			T1 E pop 10m S <15m wide T2 E pop 6m VS Buffer MD under S, Ekem Milch 5m S NO FWM	5950
1742	(Mapped HVR) (Thin Strip)		T1 E pop 10–13m (12) S S, 4–7 (6) S Eremophila mitchellii pale sandy clay REMNANT	5951 5951
1743	(Mapped HVR		11.5.5 (E pop 12m T Callitris glauca 8m S & E. melanoptera Remnant	5953
1745			Rem 11.5.5	5956
1746			rem 11 5.5 abundant logs, native grass	5957
1748	abundant native grass litter FWM		T1 C. glaucophylla, Grevillea sp. 11–14m S T2 E populnea 4–7m S C. glaucophylla evidence of logging	5960 5961
1749			11 5 5 good cond litter, FWM, litter	5962
1750			" "	5963
1751			Canopy gap 20m	5964
1754			Edge LZ9 → LZ5 East (small patch 11.5.5 isolated)	5968
1755			E. Eucalyptus over C. glaucophylla RE 11.5.1 new good cond	5969
1756	buffer <FWM No Hollows <litter		T1 10–13 12m E pop 11.5.5 T2 8–10 9m C. glauca Young rem	5973
1757			Dam surrounded by E. camaldulensis 14m 5974 earthworks, i.e. not natural but in natural drainage line 5975	

Job..... Date.....

5022 (3) 23/11/2020

No.	Easting	Northing	Comments	Photo
1758	abundant	Holcus FWM	T1 E.pop 15m (12–16m) S T2 E.pop/Call glauca (8–12) 10m S	5976 5977
1760	> FWM < grass < litter < Holcus		T1 9–12 (11) E.pop/C. glaucophylla VS T2 6–9 T C. glaucophylla VS 9 Conchurus echlan S MD	5980 5981
1761			" "	5982
1762 ?			Rem 11.5 S <20m wide	5983
1762			Rem 11.5 S poplar over Araucaceae 9	5984
1763			Rem 11.5 S Holcus layered down by Callitris	5985
* 1764			Mapped 11.32 north 100m Endangered 14m E.pauciflora VS T1 6–12 9 M. pandula S	5986
1766	~~bare ground~~ > FWM < grass Holcus > bank		T1 14–18 16 S E. gelorum T2 10–14 12 MD Callitris glaucophylla S1 1–3 2 VS Gegera LZ5 11.5.1	5989 5990
1767			T1 10–14 12 VS E. nubila T2 8–10 9 S C. glauca / A shirleyi 11.7.4? 11.7.2 poor condition	5991 5991
1769			11.9.10 <15m wide too narrow Fringing dam	5996/7
1770			C. crassicaulis 12m too small	5998
1771	Holcus grass FWM		Nubila / Callitris 11.7.4 LZ7	5999
1772			1km N Small patch top of Hill 11.7.4 E. nubila / C. glaucophylla	6000
1773			Patchy broken veg North non-functional	6001
1774			Boundary w/Beloah 8m non-functional	6002
1775			T1 12m E. moluccana LZ7	6003
1776		11.9.9 not mappable.	T1 12m E. moluccana T2 8m " " A. leucopo	6004

Job..... Date..... 23/11/2020

SD22 (9)

No.	Easting	Northing	Comments	Photo
1777	Remnant		Poplar box 16m RL 10m wide	6005
1778	Remnant RL		Poplar box 11m good condition 11.9.7	6006
1779	Mapped HVR		T1 E.pop 10m S track through T2 C.glauca 6m S Poor cond.	6007
	too narrow functional		non-rem 11.9.7	6008
~~1780~~	1780		11.9.7 non-functional insufficient cover (buffel under)	6009
1781	Roseside		11.9.7 Remnant good condition	6010
1782	80m South		line of brigalow back of (pump up non-rem non-functional	6011
1783	HVR North?		Rem 11.3.2 disturbed (dam)	6012/13
25/11 1783	>FWH >litter <Rock	Rem 11.3.25	T1 12–16m 14 E. camaldulensis, Angophora T2 8–12 10 M. bracteata VS	6014 6015/6
1785			E. melanophloia/Ang floats 23	6019
1786			T1 E. camal/Ang scab 18m, T2 M bracteata 11.3.25	6020
1787			Rem 11.3.25 good cond	6021
1788			" " " "	6024
1789	Soil cracks		11.3.27 E camaldulensis VS 16m G=nadoo	6025 6026
1790			Rem 11.3.25	6027
1792			non-rem non-functional	6030
1793	deep cracks		11.3.26 or 11.3.27 (wet Rd)	6031/32
1794			11.3.25 rem	6033
1795			non-rem non-functional	6034
1796			cultivars 8m non-functional	6035
1797			Paddock	6036
1798			non-functional 11.3.2	6037

Job..... Date..25/11/2020

SD22 25/11/2020 (5)

No.	Easting	Northing	Comments	Photo
1799	Soil cracks.		E camaldulensis 18-22m VS (RE 11.3.27)	6042/3
1800			no HVR — cleared (small patch)	6045
1802			Functional 11.9.7	6048
			Allo leuhmannii	
1803	FWM Native grass decorticating bark		T1 E pop Eglaucophylla 10-13m 11m S T2 Allocas leuhmannii 7-10 8m MD	6049 6050
1804	Remnant grass Small rocks		T1 E. nubila 18m S LZ7 11.7.17. (6058)	6051
1805			" " "	6052
1806			pulled N-fenceline Non-functional	6053
1808			11.9.10 functional	6056
1809			fenceline pulled N	6057
★ 1810	Mapped HVR		pulled — patchback.	6059
1811	Angry purple		Bryalow 8m buffel under non-functional	6060
1813	good condition		RE 11.9.10 Crotalaria 12m	6063/4
1820	Edge West		> Ecrebra over mallee (Hellitilei?)	6075
1821			T1 E pop 14m S Ecrebra T2 Callitris glaucophylla 8m S LZ9 11.9.7 not 11.9.10	6078
1822			regrowth poplar / callitris non-functional	6079
1823	non-rem 11.9.7		T1 E. melanophloia 14m VS (non-functional) T2 C. glaucophylla 7m S Buffel under	6080/81
1824	red sand LZ5		T1 10-14 12m MD Callitris glaucophylla	6082
1825			" "	6083
1826			" "	6084

11.5.5

Job.....

Date. 25/11/2020

SD22 (6)

No.	Easting	Northing	Comments		Photo
1827	redsand	11.5.5	T1 E. melanophloia 14-16m VS T2 C. glaucophylla 7-11 S Fenceline & heat concern		6085
1828	Photo North Benedmore 11.5.5 redsand		T1 Callitris glaucophylla 10m MD Remnant (not 11.9.10)		6086 6087
1829	white sand.		11.5.5 both sides fence		6088
1830	pale clay		T1 E. pop 12m V S T2 C. glaucophylla 8m	11.9.7	6089/90
1831			Remnant 11.3.25 T1 E. nubila 16m S		6091
1831	LZ7	jumpup	T2 C. glaucophylla 10m V S	11.7.7? Remnant	6093/4
1834			Rem 11.3.25 good cond		6097/8
1835			11.3.2 rem good cond		6099
1836	mapped HVR rem 11.9.7		T1 12-16m 14 E. melanophloia VS T2 8-12 10 C. glaucophylla S Pale sandy clay	LZ9	6100 6101
26/11 1837			Rem 11.3.25 Rem 11.3.2 (south) T1 E. pop 10m S Colosseum under		6102 6103
1838			" "		6104
1839	Remnant edge)		11.3.2 N (regrowth S.)		6105 N
1840			11.3.27 (Colosseum)		
1842			Remnant 11.3.2		6109
1843			C. glaucophylla 8-12m MD		6110
1845			non-rem 11.9.7		6113
1846	Mapped HVR		Rem 11.3.2		6114/15
1847			Non-rem Iron formation	11.3.2	6116
1848			Tiny patch (gas pipeline)	11.3.2 regrowth	6117
1849	Mapped HVR		Rem 11.3.2		6118

Job..... Date..26/11/2020

SD22 (7) UNDERMINE

No.	Easting	Northing	Comments	Photo
1850			Rem (1 3·25 15m wide	6119
1851			Photo NE across crk to 11·3·2	6120
1853	Sdocart bank <Hollows FWM <native grass		Regrowth 11.9.7 non-rem non-functional	6123
1854			Epop 18m S, Tpun 12m MD – small gully	6124
1855			E mitchellii 7m MD	6125
1856			Rem 11·3·2 fringing 11·3·25.	6126
1857			" "	6127
1858			Rem 11·3·2 gravel road (young < Wilson)	6128
1859			Non-rem 11·3·2 (non-functional)	6129
1860			" " "	6130
1860	too small		Isolated patch bungalow Rem	6131
1861			Regrowth non-rem non-functional	6132
(1862)	?		" " "	6133
1862			narrow patch 11·3·2 in paddock to East non-rem non-functional	6134
1863			" "	6135
1864	(non-funct)		poss 11·9·10 & check batch 14m buffel under	6136
1866			Well head paddock	6139
1867			T1 Acacia Salicina 8–11·9m S LZ9 T2 E. mitchellii 5–8 I S	6140/1
1868			Acacia harpophylla 2–5m non-functional	6142
1869			" " E-pop V S	6143
1870			Edge remnant 11·9·10	6144
1871	FWM native grass fine litter		T1 9–15 12 MD C. cris Tpun, Epop (a) T2 6–9 7 S " " 5,3–6 4 V S E. mitchellii	6145/6 6147
1872			edge 11·3·2 11·9·10	

Job..... Date..... 26/11/2020

SD22 (8)

No.	Easting	Northing	Comments	Photo
1873			paddock (WELL + HEAD)	6148 NE
1874			Regrowth 11.9.10 non-functional,	6149
1875			non-functional regrowth.	6150
1876			paddock	6151 E
(1877)				
1878			11.9.10/7 Non-functional restricted to gully <10m	6154
1879			Functional 11.9.10 (SIZE ?)	6155/6
			T_1 5-9 7 S E. pop, C. crassa	
			T_2 3-5 4 VS. Alectryon div, Geyerapani	6157
1880			11 9	
1881			non-functional Regrowth 11.9.10	6158

Job.....

Date.....6

No.	Easting	Northing	Comments		Photo	
1894			cleared paddock		6176	N
1895			" "		6177	N
1897		5-7m	Acacia Shirleyi, Enabila 8m Emergent		6180	
1898	Rem	11.7.7	~~E~~ Eucalyptus 14-18m (16) ~~Eucalyptus~~ VS TZ Acacia analophylla? Shirleyi		6181	11.7.7
1899			Rem 11.7.7 South, paddock North		6182	N
1900	Remnant		E pop/melanophloia over Callitris		6183	
1901			Recently cleared paddock		6184	E
1902			E pop 5m VS, A doora 3m MD		6185	W7
1903			line mature E pop (tree wide)		6186	N
1904			Well — paddock		6188	NE
1905			gutthaway - paddock		6189	SW
1906			regrowth 11.9.7		6190	
1907	non-remnant		E. camaldulensis 12-16m non-rem		6191	N
1908			patch 11.9.2 Remnant structure		6192	
1909			11.9.10 patch 4 poplar	non-remnant	6193	
1910			11.3.25 rem		6194	
1911			paddock		6195	
1912			non-rem 11.9.7 E pop 8m VS over baffled		6196	

Job.....

Date..... 27/11/20

5022

No.	Easting	Northing	Comments		Photo
1913			Patch young Remnant Stringybark (no bngalow or Belah) 11.9.7 East fence		6197
			non-NAM non fuy edge/trail west fence		
1914			Regrowth 11.9.7 West fence	(no bngalow belah)	6198
1915			" " "	(no bngalow belah)	6199
1917			Acacia decora 2m MD		6202W
			Start 11.9.7 regrowth South		6203E
1918			gully Veg 11.9.10 narrow <1.5m		6204
1919			Emergent poplar in cleared paddock		6205
1920			T1 9-13 11m E. populnea/crebra(a) S		6206
			T2 6-9 7m Callitris glauca (S-MD)		6207
	FWM		LZ 9 (11.9.7 regrowth)		
1921	Remnant 11.7.7.		T1 Eucalypt 15m VS		6208
			T2 Acacia shirleyi 4-9m MD		6209
1922			Small patch 11.9.7 new relict		6210
1923			A decora 2m		6211
1924			11.7.2 north		6212
1925			Veg fringing gully non-fence		6213/14
1926			Increased regrowth		6215
1927			Clear fenceline 11.7.7 East		6216
1928			"	"	6217
1929					6218
1930					6219
1931			Encroached regrowth South boun		6220
1932	melaleuca		Bngalow regrowth <2m new fence		6221
1933			paddock		6222W

1195 yellow

Job.....

Date... 27/11/2020

5122 Reuben Downs

No.	Easting	Northing	Comments	Photo
1934			Fenceline west	6223
1935	rem good cond		T1 E nubila 16-22m VS T2 Acacia Shirleyi 9-14 13m MD 11.7.~~7~~	6224
1936/7			11.7.7 no 11.5.1	6225
1938			Rem Nubila 20m over Shirleyi 11.7~~.7~~	6226
1939			" "	6227/8
1940	Mapped HVR		rem 11.7~~.7~~~~.7~~	6229
1941			cleared fenceline LZ 7 over jump up	6230
1942	Mapped HVR		non-rem 11.7~~.7~~ T1 E. nubila 4-11 (8m) T2 A Shirleyi 2-4 3m	6231
1943			Rem 11.7.2 Rem good cond	6232
1944	(Stems not black)		Philotheca possibly P. sporadica	6234/5
1945			Well — open paddock	6236
1946	non-functional		(West of fenceline) Relict line Bngalow 16m <15m wide	6237
1948			End cristata (1 per 10) start Rem 11.9.7	6240
1949			Rem 11.9.7	6241
1950			Infrastructure — paddock	6242 (S)
1951	-end cristata		(Start cristata over fence of the paddock 11.9.10 functional	
1951	(overfence)		11.9.7 Relict Remnant good cond 30m wide	6243
1953			patch Remnant 11.7.7 South 300m	6244
1954			Remnant 11.7.2 (poor condition)	6245
1955			non-rem non-functional regrowth	6246
1956			gate — non-rem non-functional regrowth paddock	6247/8
1957	Rem 11.5.1		T1 14-18 16 E. carbyn S 8-14 10 E. carbyn, grey stringy H. Shirleyi red sand pisolith pebbles	62~~49~~ 6250

native grass
many
litter
decort bank
<hollows

Job..... Date....27/11/2020

SD22

No.	Easting	Northing	Comments		Photo
1958			CDZ - A Shirleyi 1-3m S		6251
1959			CDZ Rem 11.7.2 good cond		6252
~~1960~~	1963		CDZ disturbed 11.7.2 relict E. cobra no growth shrubs, bottom of jumpup		6253
1960			non-rem patch		6254
1961			" "		6255
1962			11.7.2 poor condition		6256
1964			Destroyed gilgai country		6257
1965			Scattered relict canopy trees non-functional		6258
1966			CDZ — track through paddock		6259 SE
1967			" " "	"	6260
1969			Acacia Shirleyi 8-10m MD		6263
~~1970~~			" " 4-8m MD		6264
1970	LZ5		E melanophloia 15m VS,	Callitris glauca 4/4 ~~Astrepla~~ 4-7m	

Job. Boorabeloo Date. 23/11/20

No.	Easting	Northing	Comments	Photo
767	0723527	7059879	Not remnant totally bare Quarry mapped as NVR	5933 5934 5935 5936
768	0723442	7059910	Ac. decare not Remnat	5937
769	0723468	7059912	beginning of polygon A. radiata mapped as HVR. end of polygon	5938
770			beginning of polygon - waypoint 774 end of polygon -	
775			End of Polygon	
776			Extention of mapped NVR Polygon 11.95 hardpyllia	5843 5844
777			beginning of line end of line	
778	0723390	7059479	No NVR here Dominated by buffel	5845 5846
779	0723646	7059284	11.77 continues Creba regs codominant Lanceolata still present	5848 5849 5847
780	0723688	7058952	NVR brigalow as mapped Extensive erosion Large % of canopy Drought dead	5852 5851 5853 5850 5854
			Large knoll in middle of Polygon	
781	0723544	7059516	NR Grand Dominated	5855 5856

Project Sheet No. Wilga vale

Date 24/11/20

No.	Photo	Easting	Northing	Comments
787	5877 5878	0724267	7054900	Narrow strip mapped as 11.7.2/11.5.1 is 11.7.2
788	5879 5880 5881	0722375	7060104	Mapped as NVR 5m wide strip on road to 14m tall eristata, Poplar, eatyptus
				5-[illegible]m wid 10
790	0723775	7063528	Photo 5887	Cas cri monoculture To 7m < 0.5 ha
791	Photo	0723824	7063625	Cas cri monoculture to 7m Line drawn round polygon < 0.5 ha
792	5888	0723503	7063306	Occasional emergent Poplar to 18 min canopy 8-10 Eremophila mitchellii Mapped as NVR
793	5889	0723624	7063077	Cas. cri to 12m occasionally to 18m occasional low poplars NVR wilga + Eremophila in shrublayi
794	5890	0723855	7062894	Same NVR
795	5891	0724062	7062724	Same NVR
796	5892	724260	7062559	Poplar to 18m sparse understorey NVR

wilga vale 24/11/20

No.	Photo	Easting	Northing	Comments
798	5898	0724801	7062445	Dam
802	5915 5916	0725503	7063293	small patch - heavily disturbed Poplar, Eremophila mitchellii, Ac. salicina
	5917 5918			To 12m long open in middle
				Contains Ac. pendula
803	5919 5920 5921	0725250	7062844	Mapped 11.9.10 remnt Cas cristata 10-12m occasional emergent cristata to 18 Dead Poplars common
804	5922 5923	-		NVR Patchy Poplar occasional emergents to 15m Tr Poplar 9m
				Cas cri Erem mitchellii wilgai

Job... Boonderoo ..... Date 25/11/20

No.	Easting	Northing	Comments	Photo
805	0723545	7058505	Proposed works Not remnant cultivation	5924 5925
806	0724194	7058301	Proposed works Not remnant cultivated	5933 5934
807	0724523	7058302	Proposed works Not remnant cultivated	5935 5936
808	0724502	7058473	open regrowth eas.cri Poplar To 10m narow strips along watercourse NR	5937 5938
809	0724342	7059017	Top of ridge 11.7.7 E.fibrosa nubila 13m E.crebra	5939 5940 5941
810	0724356	7059136	Proposed works NR cleared Pasture	5942 5943
811	0724646	7059166	Proposed works NR clear Pasture	5944 5945
812	0724992	7059478	Proposed works NR clear pasture	5946 5947
813	0725120	7059560	~~Remnant~~ NR in Bikini Remnant 11.7.2 in Wilga vale	5948 5949 5950 5951
814	0724802	7059008	Proposed works NR clear Paddock	5952 5953
816	0724734	7058926	Proposed works NR clear paddock and cultivation	5954
819	0722899	7059159	over fence 11.9.5a Brigalow Remnant 12m Mid dense Cas casuarina forest	5965

Bikini N
Bikini S
Wilga NE
Wilga SE

Job..... W. Igaravale .....

Date..... 25/11/20

No.	Easting	Northing	Comments	Photo
823	0724981	7059794	Regrowth 11.7.2 Poplar crebra to 10m Cas cri. Callitris endlicheri	5971 5972
			Dense but mostly 3-5m Tall Mapped as NR	
824	0725455	7059745	Not NR Regrowth 11.72 seedling crebra open-cover <30 shrubs 4-5m Callitris present - 3-5m tall	5973
825	0726263	7059643	Not Reg 3-7m crebra Regrowth 11.72 poplar cas cri Cover <15% Callitris	5974 5975 E
~~826~~	~~0726432~~	~~7060132~~	Proposed lay-down →	
826	0725572	7060032	NR Poplar 8m Cas Cri present	5976
828	0725366	7060399	NR reg open regrowth 11.5.1 crebra to intermediate to 11m	5982 5983
			~~Callitris Leichhardii~~ T2 5-7 callitris leichhardii Acacia shirleyi	
829	0725397	7060756	Dam	5984
830	0725004	7060954	Proposed works Not remnant	5985 5986
831	0725933	7060356	Proposed works Not remnat - cleared pasture	5987 A
832	0727986	7060557	T1 Crebra citriodora (veg occasional) 8m ht T2 cas. cri, 3-5m NR	5988

Job... Wilgarvale ..... Date... 26/11/20

No.	Easting	Northing	Comments	Photo
834	0724288	7060942	NR callitris to 8m Sparse	5994
835	0724422	7060900	T1 shirtyl 5m callitris 6m NR	5995 5996
836	0724513	7060756	T1 shirtyl 7-9 11.7.2 No shirtyl logs! T2 Cas ccl - callitris 3-5m VS	5997 5998 5999
837	0723782	7060834	NR shirtyl 7-9m recently Logged VS callitris 6m VS Cas 6m VS	6000
838	0723896	7060782	NR T1 shirtyl 7-9 S T2 call. casuarina 5-6 S recently logged	6001
839	0724939	7060389	T1 Poplar Casuarina 12-14 Sparse T2 Casuarina callitris Eucalyptus 8-10 Dense Lots of Drought death	6002 6003
840	0725043	7060544	T1 Poplar, creboi 10-11 Sparse T2 cas, callitris 4-6m Mid	6004 6005
841	0725323	7061030	NR T1 Poplar, Corymbia intermedia 8-9 T2 Corymbia intermedia, casuarina 7-8 callitris not dominant	6006
843	0725177	7061243	T1 Creboi 15m Rem T2 callitris 12m 11.51 S1 wilga as mapped	6012 East
844	0725059	7061113	E creboi 20m V T creboi, callitris, cas 6-9 S NR NR	6013 West
845	0724660	7061545	Emergent ~~callitris~~ 18-20 Poplar creboi T1 Poplar 8-11 V S1 Eucalyptus callitris 2-5 G VS Aristida NR	6014
846	0724397	7061486	Emergents 18-20 creboi T1 7-10 Poplar Callitris mapped HVR shrub absent	6015 6016

Job Wilgarvale

Date 26/11/20

No.	Easting	Northing	Comments	Photo
848	0724779	7061814	Rem 11.7.2 T1 Crabs 16m T2 callitris, cristata 5-14 T3 callitris, bulloak	6022 west
849	0724522	7062182	E Poplar 1 E emergent 15m VS T1 Poplar 8-10 Mid T2 callitris E.eremophila 2-5 NR	6023 east
850	0724314	7062258	Proposed works Cleared paddock Low regrowth callitris eremophila poplar VS 4m tall	6024
851	0724224	7062095	Mapped HVR T1 Poplar 8-12 sparse T2 Eremophila, Geijera callitris Grevillea striata 3-6 m	6025
861	0723670	7061971	Rem 11.5.1 Emerg Crabs 15-18 V Eremophila callitris T1 crabs C. intermedia 8-10 Casuarina muelleriana Argophora leucopogon Acacia salicina Aristida caput-medusae	6056 6057
862	0723457	7062116	Ragged fringe 0-5m wide brigalow 7-9 + Poplar 12-15 - lots of small stands without connection	6058 6059
			No patches over 0.5ha	
863	0723036	7062879	thin polygon of 11.9.5a remnant Potentially contiguous with mapped Polygon on adjacent property	6060
			brigalow 7-9 m No shrub or ground	
864	0723031	7063132	NR scattered callitris Crabs C. intermedia Acacia decora	6061
865	0723714	7061618	11.5.1 emergent poplar + Crabs 23 up to 18m T1 bulloak + callitris 12m	6072 6073

Job W. Igaivale Date 27/1/20

No.	Easting	Northing	Comments	Photo
869	0723723	7061339	NR 5.8m Cas. cristata occasional Ac harpophylla 4-5m	6074 6075
870	0724190	7061361	Ram 11.7.2 T. shirleyi 13m crebra Dense Lots of fallen timber No shrub callistris 2-6m Vs	6076 6077
871	0731016	7058374	NR Mapped as 11.3.25/11.3.2	
			Cleared area with 11.3.25 on southern edge >15m wide on watercourse	6078 6079
			11.3.2 on Northern edge ~ 5m wide	
872	0730913	7058457	11.3.25 <15m along watercourse on North. edge 2m high	
			11.32 on southern edge ~ ~5 m wide 18m tall	6081 N
			ephem wetland on Southern edge <0.5ha Path centre of polygon cleared	6082 S
			petal of 6 myall 10m tall	6083 wetland
873	0730818	7055586	11.3.25 Remnant	6084
874	0730657	7058141	11.3.2 <0.5ha Poplar 17m Dominated by buffel	6085 6086

Job. Reuben downs

Date. 27/1/20

No.	Easting	Northing	Comments	Photo
875	0730609	7654256	11.3.25 to north <0.5h Dominated by buttel 16-17m	6087
876	0730687	7654612	very open 11.3.25 rem 15-18	6088
877	0730627	7654754	11.3.25 rem 15-16	6089

Job Kenbun Downs

Date 30/11/20

Week 2

No.	Easting	Northing	Comments		Photo
202	wpt 879 0726586	7057176	T1 crebra 14-19 sparse T2 shirleyi 5-4 sparse 11.7.2 G Mid Aristida cal Aristachne		6095
203	wpt 880 0726437	7057185	T1 sparse 14-19 crebra exserta Melaleuca T2 sparse shirleyi 6-10 G M Aci cagot - Medusae		6096
~~204~~			Aristida calycina Aristrachne uncinulata 11.7.2		
204	wpt 881 0726492	7056999	T1 from previous sites missing T2 Dense crebra shirleyi 11.7.2	7-10m	6094
205	wpt 882 0726442	7057016	NR crebra 16-18 ~~x~~ very occasional		6098
206	0726535	7056838	Rem 11.7.2 T1 crebra 14-18 sparse T2 shirleyi 4-8 mid callitris inj T2 ~~T3 exserta~~ Philotheca myrt - common		6099
			Very rocky remnant		
~~205~~ 207	wpt 885 0726363	7056581	Same as 206 Poplar to 18m occasional bright ~~bright~~ mK		6106
209	wpt 886 0726780	7056420	Remnant 11.7.2 T1 crebra 17m sparse occ poplar T2 shirleyi callitris crebra poplar 5-8		6104
			Ac kelocarpa. Present Philotheca myrt 11.7.2 on slope		
210	wpt 887 0726841	7056999	shirleyi + crebra on Ridge line remnant 11.7.2	4-5m	6108

Job..... Date.....

No.	Easting	Northing	Comments		Photo
211	wpt 888 0723231	7056328	Shrubby 1 wit ~~exotics~~ exotics Rem 11.7.2 ridgetop	5-6m Dense	610 ~~610~~ 9
212	wpt 889 0727656	7056266	shrubby wit exotics 7-9 Rem 11.7.2 ridgetop		611 D
213	wpt 890 0727583	7056738	E Cabbage Tree 15m shrubby wit exotics 7-9 edge/top remnant 11.7.2		611
213	wpt 891 0727866	7056842	NR Poplar 6m ~~Gorse~~ Crisfield to 6m VS VS		612
215	wpt 893 0725299	7061618	11.3.25 remnant		618
216	0728185	7061219	11.3.25 Remnat E. microtheca present		619
217	wpt 895 0728124	7061099	11.3.25 canadolensis remnant		620
218	wpt 896 0729666	7060987	oxbow lake - wetland - watercourse remnat - NR		621
219	wpt 897 0729864	7060870	11.3.25 Remnat		622
220	wpt 898 0729808	7060961	11.3.25 Remnat		623

Job.....

Date.....

No.	Easting	Northing	Comments		Photo
M2	wpt@2	(M) r1 E complex/dense, E	populnea = 14-18m		matt
@2	0728866	7060370	(S) r2 E complex/dense, E populnea, G- bulbine grass, soil light brown clay 5-7cm	11.3.25	6273 6274
M3	wpt @3	(M) T1 E complex/dense, E populnea	= 16-22mm		matt
@3	0728838	7060164	(N) T2- E complex/dense, E populnea, E cassinia, G- bulbine grass, soil light brown clay 2-4cm	Cassinia 8-10m 11.3.25	6275
221	0728717 wpt 899	7060132	(N) T1 - Casuarina cristata, E mitchelli = 6-12m long linear feature, gutting in long 15m wide at its widest. Nearly all C.cristata in	low mitchelli	
			G - bulbine grass Soil light brown, dirty/clay		6124
222	0725946 wpt 900	7059986	C.cristata with a bit of bolgobrow and myall 7-11m (M) no real understory, some bulbine grass at edges linear feature, no more than 10m wide, grassy along and inside wall consistently		6125
224	0725798 wpt 902	7059956	~~C.cristata~~ as above with occ and bolgobrow and occasional myall and populnea.		6131
225	0725743 wpt	7060190 903	NR cnr of property		6132
226	0725718 wpt	7060343 904	NR 11.5.1 T1 Crebra 14-20 T2 callitris + hillock	NS 11.5.1 crebra 3-6m	
			Large crebras full of hollows. Left tube charred?		6133 6134
227	0725866 wpt	7060699 905	T1 E crebra 14-20m (VS) T2 callitris 3-6m (M) 11.5.1 crebra full of hollows		6135
228	0726280	7060996	E E Crebra 12-15m (VS) T1 A Shirleyi (8-12m (M) S1 - callitrus with A shirleyi (2-4m) (S)		
	wpt 906		11.7.2 to east of waypoint 11.5.1 to west of waypoint	~~east photo~~ 6136 east photo 6137 west photo 6136	

WGS 84

Brea

0487061531

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Job..... Date.....

No.	Easting	Northing	Comments		Photo
229	0726357 wpt907	7060824	E E Crebra 14-20 (vs) T1 Callitris, E.cristata, ~~E~~ (3-6m) (M) ~~E crista~~ vilga, Petalo stigma, E.crebra		
			T1 dominated by callitris and cristata. HVC 11.5.1		6138
230	0726469 wpt908	7061136	E C Crebra: 14-20 (S) T1 - E crebra(d), cristo(sd) ~10m (M) S1 - E crebra(ed) cristo (callus) ~3m	11.5.1	6139
232	0726462 wpt909	7061174	Boundary between 11.9.5a and	11.9.10	
233	0726351 wpt 910	7061042	Boundary between 11.9.5a and	11.5.1	
254	0727024 wpt 911	7061509	11.9.10 as mapped in Burnside Poplar 10-14 S Brigalow 8 S cristata 6-8 Mid canopy		6144
~~255~~					
255	0727650 wpt 912	7061948	T ~~Left~~ Make poplar	11.9.10 as before	6145
			non remnant works to SE.	on Proposed	6146
256	0727894 wpt	7062120 913	Proposed works Not remnant		6147

Job..... Dunsborough

Date... 3/12/20

No.	Easting	Northing	Comments		Photo
263	wpt 926 0725949	7961072	11.7.2 N 11.5.1 S		6178 N 6179 S
264	wpt 927 0725949	7960922	Creek ~ 16-18m Cristata & Rostrata Poplar present	Dense	6181 6182 6183
265	wpt 926 6026	539	11.9.10 Poplar with some cribro and brigalow ~12m S/M dune Cristata & vulgaris underneath		6184 6185
266	wpt 0725999	929 7961592	11.9 Sm brigalow Cristata & vulgaris underneath	0m M	6186
267	wpt 0725926	930 7961676	11.9.5 North 11.7.2 west 11.5.1 South		6187 N 6188 W 6189 S
268	wpt 0725517	~~940~~ 931 7961719	11.9.5 brigalow 11.9.5 Cas. cristata	East 18m monotypic west 16m	6190 6191
269	wpt 0725537	932 7961760	11.9.5 monotypic 17m M.C dune	Cas. cri	6192
~~240~~	wpt 0725	932	vulgaris ~~cristata~~	+ cas cri under	
270		933	Brigalow S E Cas cri N	12m 15-16m	6193 SE 6194 N
271	wpt 934 0725806	7962190	Brigalow S Cas cri N		6195 S 6196 N
272	wpt 935 0725686	7961653	Brigalow S Cas cri N	9-12 6-8	

Scaled by

Job.... Burnside ..... Date.....

No.	Easting	Northing	Comments		Photo
273	wpt 0726099	936 7061550	Bagalow S Reg <1 N		6199
			Occasional poplars starting to appear		6200
274	wpt 0726026	937 7061462	rubra 11.5.1 Some poplars		6201
275	wpt 0725973	938 7061376	11.5.1 rubra		6202
276	wpt 0725932	939 7061224	7.2.1 Shrubby	10m	6203
278	wpt 0726549	9401 7061387	Bungalow 11.9.5 Mel	NW 10m	6214
279	wpt 9[illegible] 0727119	7061599	11.9.10 to NW Poplar 12-15 s/m Wilga under 3m Sparse		6215
280	wpt 946 0727451	7062507	poplar 8-12 (m) wilga under 3m (s) 11.9.10		6216
281	wpt 0727158	947 7062778	poplar 10-15 (m) wilga under 4m (s) C casuarina 10 [illegible] sparse 11.9.10		6217
282	wpt 0727310	948 7062586	poplar 10-15m (m) A saligna 6-8 (s) wilga under 3m (s)	11.9.10	6218
283	wpt 0727564	949 7062611	poplar 8-12 (m) calytrix 7-10 (m) wilga under (3m) 11.9.10		6219
284	wpt 0727445	950 7062413	as above 11.9.10		6220

Job..... Burnside ..... Date.....

No.	Easting	Northing	Comments		Photo
285	wpt 951 0727005	7062890	E. poplar = 10-14m (m) C. crystata = 9-12m (s) a. decora = 2-3m (s) wilga = 2-4m (s) e. mitchelli 2-4m (s)	11.9.10	6221 6222
~~282~~ 286	wpt 0726783	952 7062891	as above	11.9.10	6223 6224
287	wpt 0726402	953 7062858	E poplar = 8-12m (m) C. crystata 8-10 (s) myall - 6-8 (s) E mitchelli 2-5m (s)	11.9.10	6225 6226
			wilga = 2-4m (vs)		
288	wpt 9541 0726232	7062833	E. poplars = 8-10m (m/s) C. crystata = 8-10m (m/s) A. harpophylla 8-10m (m/s) E mitchelli 2-5m (m/s)		6227
			wilga - 2-4m (m)	11.9.10	
289	wpt 955 0726091	7062965	E poplars 8-14m (m) C. crystata - 6-8m (m/s) wilga = 2-4m (s) ~~E mitchelli 4-6m (s)~~		6228
			A. salicena = 5-7m (s)		
290	wpt 0725875	956 7062921	E poplars 8-14m (s) C. crystata 8-12m (s) E mitchelli 4-6m (s) wilga - 2-4m (vs)	A. harpophylla 8-12m (s)	6226
291	wpt 0725717	957 7063004	non remnant.		6227
292	wpt 0725618	958 7063006	A harpophylla 8-12m (m) A harpophylla - 0.5-2m (s) wilga up to 3m (s) polygon starts at 958 ends at 959	11.9.10a	6231
			A harpophylla saplings in a ring around edge of polygon. signs of regrowth/expansion		

Job..... Date.....

No.	Easting	Northing	Comments		Photo
293 ~~308~~	wpt 0725301	960 7062950	E poplar 8-10(s) C cristata 8-10 ~~(s)~~ (m/s) E mitchelli - 3-6m(s) wilga - under 3m (vs)	11.9.10	6232
294	wpt 0725846	961 7063401	~~(wpt 9 ~~(s)~~)~~ E melanophloia (9-14m)(s) C cristata 6-8(s) wilga - 3-6m(vs) E mitchelli	11.3.2 ??	6233
295	wpt 0725945	962 7063474	E melanophloia 10-14m(s) A harpophyla 8-12m ~~(s)~~ E populnea 10-14m(s) calytrus 6-8m(vs)		6234 to 6236
~~296~~			C cristata 6-8m(vs) wilga 4-8m(vs) E mitchelli 4-6m(s)		
			brigalow appearing to see wpt. E melanophloia appearing from wpt 294 may be indicative of 11.3.2 ~~(s)~~ (but harpophylla is not fitting)		
296	wpt 9163 0726150	7053616	E poplar - 8-10m(s) brigalow - 7-12m(s) calytrus 6-8m(s) wilga 3-6m (vs)		6235 6236
			E mitchelli 2-5m(s) C cristata 4-6m(s) indicative of 11.9.10		
297	wpt 0726432	964 7063905	E poplar 8-12m(m/s) C cristata 6-10(s) wilga 4-7m(s) E mitchelli 3-6m(s)	11.3.2	6237
298	wpt 0726490	965 7063849	E melanophloia 24m(emergent) E melanophloia 8-16(s) E populnea 8-12(s) wilga 5-9(s)		6238
			E mitchelli 2-4(~~vs~~s) 11.3.2		
potential early regrowth 300	wpt 9169 0726665	7064032	E. populnea 2-5m saplings regrowth		6244 to 6245 south
			remnant poplar 8-10m tall to the east of wpt		6246

Job..... Date.....

No.	Easting	Northing	Comments		Photo
301	Lpt 0726674	970 7063862	poplars 10-14m with mitga up to 3m E mitchelli 3-6m	remnant / not HVR on fringe	6247
302	Lpt 0726734	971 7063699	as above	remnant / not HVR on fringe	6248
303	Lpt 0726978	972 7063455	low sparse regrowth of E populnea 1-3m tall		6249
304	Lpt 0727015	973 7063379	advance regrowth of poplar and E melanophloia up to 6m tall 11.3.2 fringing [illegible] HVR		6250
305	Lpt 0727143	974 7063281	poplar 10-12m tall with mitga 2-5m [illegible] RE 11.3.2		6251
306	Lpt 0727219	975 7063224	low sparse regrowth of E populnea 1-3m tall and mitga		6252
307	Lpt 0727261	976 7063178	E poplar and [illegible] small patch of HVR with sparse poplar closing [illegible] upper [illegible]		6253
308	Lpt 0727427	977 7063043	low sparse regrowth of poplar and river red gums 0.5 to 2.5m tall [illegible] to 11.3.2		6254
310	Lpt 0727434	979 7061104	11.3.25 rem		6260
311	Lpt 0727403	980 7061165	11.3.25 rem Corymbia watsoniana 33m	Angophora floribunda	6261
312	Lpt 0727206	981 7061165	11.3.25 rem NW wetland 11.3.25 NE - [illegible] crown		6262 NW 6263 SE
315	0726933	6974265	11.3.25 Rem		6269
316	0727031	7066289	NR Pipeline through mapped 11.3.2		6270

4/12/20

Job Burnside

Date 4/12/20

No.	Easting	Northing	Comments		Photo
317	0727730	7062629	11.3.2 remnant Patchy	0-12m	6271
318	wpt 0728770	991 E 7060999 T T T	E camaldulensis - Emergent 25 (S) T1 - 12-24 (S) E melanophloia - 12-14 (VS) A floribunda - 12-14 (VS) poljga starting at 991	at t1 co dominant	6277
			E paplar - 12 (S) ~~buffer~~: G - dichanthium sericeum - (~~VS~~) C G - eragrostis ~~falax~~ gold grass - (~~VS~~) C		
			Gr - gosthriochloa bladiaii - C G - lentochloa digitata - C	all grasses co dominant	
			long dense logs of grasses around depression of ephemeral wetland trees fringing		

WK3

Job Wyalla

Date 14/12/20

No.	Easting	Northing	Comments		Photo
401	wpt 0729953	992 7059855	11.3.25 Canal/dilarsis 12m 1 tree wide	Mod bracteata 5m	6284
402	wpt 0729986	993 7059966	11		~~6285~~ C1
403	wpt 0729945	994 7060046	11		C2
404	wpt 0729937	995 7059984	11		C3
406	wpt 0730579	997 7059900	E.cebra 6-8m, Cal glaucophylla 6-8m-T(m) C glaucophylla 3-6, E mitchell. 3m (T2 m) C.glaucophylla 0.5-1.5, macrozamia sp 1m (S1 11.3.7		6289 6290
407	wpt 0730615	998 7059975	Acacia shirleyi 5m, Cal. glaucophylla 5m (T1 us) la. glaucous, large pinkish [illegible] fruits, mostly E.mitchelli and brigalow. top of ridge, mitchell).		6291
410	wpt 0730770	1002 7060055	Callitris sparse 7-9 - Poplar Ac. leiocalyx, Poplar - 5-6 mid dense Ac. Melvillei? Eebra 12m emergent		6307 6304
411	wpt 0730852	1006 7060206	E cebra emergent to 16m (s) E cebra and A shirleyi 7-15 return 10-11m (m) 11.7.2		6320
415	wpt 0732530	1009 7060309	E cebra emergent to 15m (S) Emerg E populnea, E cebra to 10m (T1) AcCas lunata, Callitris upto 6m (T2) Wilga upto 3m (S1) likely. 11.5.1		6326
416	wpt 0732581	1010 7060322	as above plus E. chloroclada 12m (assoc) likely 11.5.1		6327
417	wpt 0732521	1011 T1 7060290 T2 S1	E cebra to 12m, E melaphloia (12m assoc) E cebra, callitris, bullock up to 7 Wilga upto 3m still likely	1.5.1	6328
418	wpt 0733020	1012 7060366	E cebra upto 8-10m (T1) callitris and bullock 6-8m (T2)		6329

Job..... Date.....

No.	Easting	Northing	Comments		Photo
419	wpt 0733016	1013 7058956	A shirleyi up to 11m (T1) E crebra, Ashbyi up to 8m (T2) also A contorta callitris up to >7m (T2)		6330
			Acacia burrowii/spp silvestris?, wilga up to 4m 11.7.2.		
422	wpt 0732742 7059386	1016	11.7.2 Remnant to west in gully Shirleyi 6-10m	Mid dense	6342
424	wpt 1017 0732749	18 7058946	Callitris Low regrowth 4-5m Possibly 11.3.2 - canaldulensis just down slope		6349
425	wpt 1019 0732665	7058458	11.3.2 advanced regrowth Poplar - melanophloia 6-9m Mid dense occasional canaldulensis to 9m		6350
426	wpt 1020 0732539	7058442	Call glaucophylla s/md 4m as above		
427	wpt 1021 0732232	7058789	as above		
428	wpt 1022 0731991	7057825	NR not regrowth		6351 6352
429	wpt 1023 0731744	7059036	regrowth callitris 4-6 Mid dense occ crebra 8-9m mixture of sand areas & rocky areas		6353
430	wpt 0731428	1025 7060662	Remnant 11.7.2 to N Shirleyi 12m Dense 11.5.5 regrowth		6360
431	wpt 0731411	1026 7060623	11.5.5 advanced regrowth dawsonii 11-13m Bull oak	Mid dense	6361

Job..... Date.....

No.	Easting	Northing	Comments		Photo
432	wpt 0731577	1027 7060310	E. chloroclada - 8-10m (T1, S) E, popolnea 12m (T1, S) E. chloroclada, bulloak, 5-8m (T2, M) wilga T3m (S1, S)	11.9.S advanced regrowth	6362
433	wpt 1033 0729321	S 7060486	ephemeral wetland No fringing veg.		6368 N 6369 S
434	wpt 1036 0728791	7061051	Regrowth along watercourse NR Poplar to 8m & Acacia sp		6370
436	wpt 1038 0728173	7064931	proposed works not remnant 100% buffel		6376
437	wpt 1039 0728435	7065248	bargalow up to 12m (E) vs, also Cas cristata up to 6m bargalow up to 6m dominant (M) wilga and atalaya hemiglauca up to 4m (S)		6377
			both sides of road the same * buffel understory dominated	11.9.S	
438	wpt 0728694	1040 7065392	proposed works within paddock not remnant cleared field.		6378 6379
439	wpt 0728853	1041 7065513	proposed works within paddock on Strathdon property dirt road with fringing buffel		6380 photo to south.
440	wpt as above	1041	proposed works across road. both sides of road contain bargalow and C. cristata up to 12m (sparse) bargalow and E. microtheca up to 6m (sparse)		6381
			Atalaya hemiglauca and wilga up to 4m x buffel understory dominated	11.9.S	photo to south
441	wpt 0728957	1042 7065604	proposed works in paddock not remnant 100% buffel		6382
442	wpt 0729272	1043 7065832	bargalow and C. cristata up to 12m (sparse) sub canopy of bargalow E. microtheca, C. cristata wilga, A. hemiglauca up to 8m both sides of road	11.9.S	6383 to south 6384 to north

Job..... Date.....

No.	Easting	Northing	Comments		Photo
443	wpt 1044 0730445	7066371	proposed works in paddock not remnant, all buffel and a little native citrus		6385
444	wpt 1045 0730448	7066618	as per site number 442 brigalow dominated on both sides of road 11.9.5		6386 north 6387 south
445	wpt 1046 0730936	7066911	proposed works. in paddock not remnant buffel and road		6388
446	wpt 1047 0731184	7066923	proposed works in paddock already works taking place		6389
447	wpt 1048 073199	7066922	proposed work in paddock farm tracks with buffel all around		6390
449	wpt 1051 0732033	7065205	proposed work in field in paddock with buffel not remnant		6396 west over work
450	wpt 1052 0732213	7065443	as ~~above~~ above not remnant our works		6397
451	wpt 1053 0732300	7064743	as above not remnant on proposed works		6398
452	wpt 1055 0733055	7064224	brigalow and C. cristata up to 11m with lots of smaller brigalow 3-6m understorey. A. leiocalix and wilga up to 3m, not abundant. dominant buffel grass present		6404
~~453~~			plot approx 20m wide, however fence runs through middle, with plot clearing approx 1m either side of fence. 11.9.5		
453	wpt 0733279	1056 7063906	proposed works cultivated paddock not remnant		6405
454	wpt 0733523	1057 7063556	C. cristata up to 12m, sparse some brigalow and wilga + [illegible] up to 4m buffel grass dominant 11.9.5		6406

end of potential polygon connecting site 452.
proposed work to south of site 454 — photo 6407

Job..... Angry Jungle.....

Date..16/12/20

No.	Easting	Northing	Comments		Photo
458	wpt 1062 0727657	7063260	11.3.2 remnat	Poplar to 16 Occasional brigalow Melaleuca Rest	6423 6424 6425 6426 6427
459	wpt 1063 0727654	7063207	11.3.25 remnat	Canopy less than 20m 1 tree wide	6428
463 ~~464~~	wpt 1068 0730756	7064648	~~not~~ Paddock Proposed works		6453 N 6454 W
465	wpt 1070 0731438	7065127	Proposed infrastructure NR Paddock		6460 N
466	wpt 1071 0731553	7064992	Proposed works NR Paddock		6461
467	wpt 1072 0732118	7065060	Proposed works NW Track NE	NR Paddock	6462 NW 6463 S
468	wpt 1073 0731107	7064706	Proposed works NR Paddock	Strip of brigalow 6m high along fence 15m wide	6464
469	wpt 1074 0730630	7064012	Proposed works cultivation		6465
470	wpt 1075 0730973	7063936	Proposed works Cleared Cultivated existing	tracks	6466 6467 S
471	wpt 1076 0732296	7063531	Brigalow 5-6 patch narrow NR		6468
473	wpt 1077 0732387	7062981	NVR Casuarina 10m sparse Poplar present eucalyptus and mulga 3-6 under		~~6474~~
			Ground Mid canopy Buffel with clumps Mapped NVR		

Brigalow edge 6m

Job.....

Date.....

No.	Easting	Northing	Comments		Photo
474	wpt 1080 0732363	7062622	NVR 6-12m brigalow Poplar [illegible] log open	Very Sparse	6475
475	0732277	7062855	Chinese duck Farm		6476 6477 6478
476	wpt 1082 0732160	7062997	Same as adjacent mapped	NVR	6479
477	wpt1083 0732970	7063013	NVR as mapped Poplar [illegible] casuarina on 5-9m Mid-storey Ground [illegible] space		6480
478	wpt 1086 0732725	7063261	NVR at this point gap between bits	no retained	6486
479	wpt 1091 0732444	7063481	NVR 15-20m wide Narrow strip brigalow casuarina	7-8m	6487
			no shrub layer Ground 100% buffel		
480	wpt 1089 0732574	7063469	Brigalow casuarina ground 100% buffel log open	Sparse 5-7m not mapped	6488
			Patchy		
481	wpt 1090 0732171	7064044	Proposed works NVR		6489
483	1092 0733570	7063476	Proposed works Paddock		6495
484	1093 0730857	7063350	Proposed works Paddock		6496

Job..... Angry Frog.....

Date..... 17/12/20

No.	Easting	Northing	Comments		Photo
485	1094 0730464	7062965	NR Patches too small to map brigalow to 7m		6497
			Ground rough baked		
486	1095 0730445	7062544	Proposed works cultivation		6498
487	1096 0730396	7062546	Brigalow 7m mid storey ground layer 100% buffel ~50m wide NVR?		6499
489	1098 0730349	7062556	Dam to S		6505
490	1099 0730167	7062239	NR		6506 S
491	1100 0730121	7062163	NR		6507 S
492	1101 0730532	7061647	Brigalow to 10m very open NR Poplar to 14m	Not remnant not mappable	6508 S
493	1102 0730532	7061693	very open occ brigalow & Poplar m Eremophila		6509
494	1103 0731161	7060818	Proposed works Paddock		6510
496	1105 0730551	7062162	11.9.5 remnant		6516
497	1106 0730438	7062135	Proposed works Paddock occ poplar occ brigalow		6517

Company meeting with Jacqui

Job..... Angry Jungle .....

Date..... 17/12/20

No.	Easting	Northing	Comments		Photo
500	1111 0729773	7063655	NR TOW Not mapped		6528
501	1112 0729558	7064149	NR TOE Not mapped		6529
502	1113 0729463	7064338	Proposed works Paddock		6530
503	1114 0729478	7064616	HVR Bungalow 6-8 Mulga under	Middense	6531
504	1116 0729478	7064712	Proposed works Cultivation		6537
506	1117 0729430	7064790	11.9.5 Remnant Bungalow 5-9 Mid-dense Cas. cri 5-9 Ground ~~absent~~ - Sparse buffel		6538
507	1118 0729113	7064285	HVR Cassia	Bungalow 7-12m Sparse	6539
506	1119 0729059	7064390	11.9.5a remnant 6-9 m Mid dense Mulga shrub layer 2m Cas. cri in tl		6540
			Ground sparse	Buffel	
509	1120 0727528	7063965	11.3.2 remnant Popla on spore		6541
			Canadidensis, Tree mid on watercourse	20m high	6542
510	1121 0727611	7063920	mapped 11.9.5 / 11.9.6 Canopy mostly dead		6543

occ. Poplar
occ. bungalow
occ. Myall
Canopy mostly mulga + Eremophila 2-5m middense

Not remnant

14/12

Job..... Angry Jungle.....

Date..... 18/12/20

No.	Easting	Northing	Comments		Photo
S11	1122 0727885	7463794	11.9.10 Poplar 8-10 sparse Middenie vulgare & eremophila 2-5 Brigadow 7-9 sparse		6544 6545 6546
S12	1123 0727920	7463889	Mapped 11.9.5/11.9.10 NR Poplar 15m V sparse Brigadow 5-9 V sparse		6547 N 6548 S 6549 E
			No shrub layer		6550 W
S15	1126 0727979	7463181	11.9.10 Poplar 12-14m SP Brigadow 8-10 VS Eremophila vulgare Sally SP		
			Gourd buffel Polygor nealled Cas cri 10-12 present		6561 6562
S16	1127 0728025	7463122	Very sparse 11.9.10 Poplar 2-5	Eremophila vulgare	6563
			Mapped as remnant edint		6564 N 6565 S 6566 E 6567 W
S17	1128 0727971	7463128	11.3.12 Poplar 17m s/m vulgare VS 2m		6568
S18	~~1124 0727755~~	~~7463~~	~~11.9.10~~		

Job.....

Date..... 12/12/20 and 18/12/20

WK3(3)

No.	Easting	Northing	Comments		Photo
M1 @5	0729970	7059820	(V) E. camaldulensis - 18-20m (S)T1 - E. camaldulensis, Callitris glaucophylla 6-8m sandalwood - 6m	11.3.25	20200[illegible] 144900
M2 @6	0729913	7059742	(S)T1 - E. camaldulensis (diam 14-18m) Casuarina (ass 10 m) (S)T2 - sandalwood - 5-5.5m (S)S1 - Wilga - (1-4m diam) native orange (2m ass)	11.3.25	20201204- 144900
M3 @7	0729956	7059603	(S)T1 - E camaldulensis (diam 14-18) (S)T2 - E populnea (diam 8-10m) casuarina (5m ass) (V)S1 - Wilga (1m ass)	Wilga (8m ass) 11.3.25	11 145749
M11 @8	0730139	7059479	(S)T1 - E. camaldulensis (diam 14-18) (S)T2 - E. populnea (diam 6-12m) casuarina (sub 4-6m) callitris (ass 6m)	11.3.25	11 150737
			Sandalwood (sub 4-6m) (V) S1 - casuarina (1-2m) E. populnea (1m)		
M5 @9	0730214	7059318	(S)T1 - E. camaldulensis (diam 14-20m) (S)T2 C. viminalis (4-7m diam) wilga (4-6m sub diam) (V) S1 C. viminalis, wilga (50cm-1m)	11.3.25	11 151537
M6 @10	0730192	7059152	(S)T1 - E. camaldulensis as above	11.2.25	11 151955
M7 @11	0728304	7061693	E camaldulensis up to 10-27m E melanophloia up to 5-20m Casuarina cristata C. viminalis upto 1.5m, E camaldulensis small 0.5-1.5m		20201218- 071318
			start of creek from road. field/paddock to east side all start of creek trail 11.3.25		
M8 @12	0728733	7061908	as above. narrow band along creek/paddock to sides 11.3.25		11 072500
M9 @13	0728181	7062161	as above 11.3.25 paddock to sides		11 073147 073150
M10 @14	0729217	7062302	as above paddock to [illegible] sides	11.3.25	073607 073610

14.12.2020

18/12/20

Job Angry Jungle

Date 18/12/20

No.	Easting	Northing	Comments		Photo
M20 @24	0727786	7063345	creek same as M19 to west - poplar, E.m.tchelli, casuarina up to 10m - 11.3.2 to east is 11.9.5 mosaic polygon to edge of creek		N 085 304 S 085 307 E 085 314 W 085 317
M21 @25	0727673	7063418	creek as above 11.3.25 to west and east adjacent to creek - 11.3.2 poplar dominated up to 14m		N 085 912 S 085 921 E 085 929 W 085 931
			melaleuca up to 14m m.tchelli up to 6m wilga up to 3m		
M22 @26	0727567	7063727	as above creek 11.3.25 adjacent to creek as above 11.3.2		N 090 816 S 090 819 E 090 822 W 090 825
M23 @27	0727500	7063829	as above for creek 11.3.25 and adjacent to creek 11.3.2 creek track ends at wp @27		N 091 143 S 091 149 E 091 151 W 091 154

Job Angry Jungle

Date 18/12/20

No.	Easting	Northing	Comments		Photo
M11 @15	0728200	7062472	same as M10 along creek 11.3.25 both mis adjacent to creek as follows E populnea and E melanophloia 12-20m		N 074417 S 074421 E 074426
			Casuarina up to 10m wilga up to 6m 11.3.2 either side of creek		W 074428
M12 @16	0728173	7062636	same as above along creek 11.3.25 paddock to west of creek with E populnea and melanophloia casuarina		N 075120 S 075124
			but not remnant can be seen easily enough on google maps		E 075132 W 075135
M13 @17	0727322	7062569	potential area (green) E populnea and melanophloia wilga up to 4m	up to 16m	N 075847 S 075850
			E. microtheca up to 6m small clusters of trees in large clear areas throughout but not remnant		E 075853 W 075858
M14 @18	0728419	7062669	potential area (green) C. cristata 10-16m (dom) E populnea 8-12m (sub) E microtheca 4-5m wilga up to 3m sparse woodland, open in centre with only fringing trees, not remnant.		N 080543 S 080545 E 080549 W 080552
M15 @19	0728156	7062805	same as M12 along creek paddock to west of creek not remnant same as M14		N 081434 S 081437 E 081441 W 081444
M16 @20	0728822	7062842	potential grass area - sparse, small area E populnea up to 12m, bolgabow up to 10m C cristata up to 10m, wilga up to 4m not remnant	E mitchelli up to 4m	N 081720 S 081724
M17 @21	0728001	7062921	Creek E camaldulensis 12-27m tall casuarina up to 12m, C cristata up to 10m, wilga up to 3m 11.3.25 paddock to west to east - bolgabow, poplar, wilga, mitchelli		N 082943 S 082950 E 082953 W 082958
M18 @22	0727824	7063043	creek as above but also E. melanophloia up to 18m paddock to west to east is poplars up to 15m, casuarina up to 8m wilga to 6m 11.3.2		N 083850 S 083853 E 083856 W 083900
M19 @23	0727623	7063066	as above except road to west creek 11.3.25 to east 11.3.2		N 084407 S 084412 E 084415 W 084419

WK4

Job.....

Date.....8-2-21

No.	Easting	Northing	Comments		Photo
1130	0731139	7058361	11·3·25 7–12 canaldelensis	bridgelow Present	6574
1131	0731053	7058495	11·3·25 8–14 canaldelensis myall present	tree wick	6575
1132	0731222	7058544	11·3·25 8–13 canaldelensis Poplar Present Cristata present		6576
1133	0731434	7058672	11·3·25 12–15 canaldelensis Poplar present red blush present		6577
1134	0731710	7058692	11·3·25 8–15 canaldelensis Cristata 6–8 present		6578
1135	0731953	7058893	11·3·25 10–14 canaldelensis Poplar – Present		6579
1136	0732228	7058903	11·3·25 10–13 canaldelensis Poplar present	10–2	6580
1137	0732216	7059274	11·3·25 12–15 canaldelensis Poplar present 8–10 cristata 5–6		6581
1138	0732191	7059095	11·3·25 12–20 canaldelensis cristata 4–5 Present VS		6582
1139	0732442	7059098	11·3·25 14–16 canaldelensis poplar 8–10 VS		6583
1140	0732549	7059170	Dam? oxbow? 12–23 canaldelensis Polygon dam		6583 4 5
1141	0732746	7059209	Oxbow – dieback no water no aquatic plants Phragmites around		6586

No canopy

Job..... 2 Date..... 22-21

No.	Easting	Northing	Comments		Photo
1142	0733115	7058135	11.3.25 candidensis MD 10-17 Populus crister proud		6587
1143	0733190	7058134	11.3.25 candidensis MD 16-18 Popla Proud		6588
1144	0733618	7058095	11.3.2? cristata candidensis 5	15-17m D Proud	6589
			callitris glaucophylla 9-11 m Popla 12-14		6590
1145	0733654	7057955	NR		6591 N 6592 S
1146	0733944	7057957	11.3.2 Popla m cristata 5	8-14 11 S	6593
1147	0733936	7057854	11.3.25 candidensis cristata	14-18 M 6-10 m	6594
1146	0734194	7057629	11.3.25 candidensis	15-20 m	6595
1149	0734351	7057517	11.3.25 cancal	10-13	6596
1150	0734422	7057468	Dam fringe cand	10-13	6597

Job Humpty Hill Date 9-2-21

No.	Easting	Northing	Comments		Photo
11.5.1	0732785	7059129	11.3.2 regrowth Casuarina 2-5 m	M 4-6 m	6598
11.5.2	0732781	7059196	NR 11.5.1 crebra	VS 2-4 m	6599
11.5.3	0732907	7059081	Rem 11.5.1 crebra S-MD	10-16	6600
11.5.4	0732860	7059502	11.5.1 crebra callitris	10-14 M 2-6	6601 N
11.5.5	0732941	7059598	11.5.1 crebra Callitris	10-14 M 4-7	6602 N
11.5.6	0733523	7060640	11.5.1 Crebra Bulcke underst	10-17	6608
11.5.7	0733646	7060724	11.5.1 crebra occ. lancewood sl mulga	14-16 8-5	6609
11.5.8	0733753	7060774	11.7.2 Shrubby	D	6610 N
11.5.9	0733824	7060788	11.5.1 crebra	12-16	6611 N
11.6.0	0734030	7060849	Shrubby 10m-12 A Crebra Poplar	11.9 16?	6612
			Cas cristata 5-12 mulga 2-4		
11.6.1	0733535	7061119	crebra 11.5.1 5 Cristata Callitris	12-15	6613

Job Numpy

9-2-21

Date

No.	Easting	Northing	Comments		Photo	
1162	0734201	7061790	10-12 Crataegus 11.5.1 Callitris Betula 4-6		6614	E
1163	0734493	7061916	10-12 Poplar Mod callitris 5-10	To nor R	6615	E
1164	0734495	7062199	11.5.1 Crataegus 12-12 Poplar sub dominate Thazeliana ? Pasture		6616	N
			Cratae 6-8 Mapped as 11.9.6			
1165	0735359	7062116	NR Poplar 8m V callitris D 4-5 Ac. decora Bursaria viscosa		6617	S
1166	0735239	7061975	Melaleuca with Poplar 6-10 11.9.7?		6618	
1167	0735163	7061023	Crataegus advanced regrowth 5-7m Biocondition done			
1193	0735111	7060950	NR No cover		6629	S
1194	0735061	7060545	NR No cover		6630	S
"	"	"	Poplar low regrowth callitris 5-	5-8	6631	W
1195	0735496	7060381	NR No cover		6632	E
1196	~~0735496~~ 0735762	7060741	Tessellaris intermedia 14m Callitris 8-12		6633	

Job Hunky

Date 9-2-21

No.	Easting	Northing	Comments		Photo
1177	0736148	7061142	end of corymbia patch T Lozetum in it	from 1176	6634 W
1179	0735910	7060359	11.5.1 Advanced regrowth Corymbia emergents Poplar 6-7m	6m	6640
			callitris glaucophylla 4-6m		
1180	0734607	7060484	NR No cover		6641
1181	0734496	7061065	11.5.1 Corymbia 16-18m VS callitris 5-6m		6642
1182	0734414	7062134	11.5.1 Corymbia 12-14m callitris 6-9 Corymbia present		6643
1183	0734354	7060438	Dar N.R No cover		6644 W
1184	0733880	7060121	NR		6645 S
			11.5.1 corymbia on both sides 10-14m callitris under		
1185	0733643	7059743	NR No cover Not functional Semma		6646
1186	0733567	7059375	NR not functional		6647
1187	0733404	7059337	Lancewood 8-10m Poplar present		6648 S

N.R NR No cover

Job: Kemps gully

Date: 9/2/21

No.	Easting	Northing	Comments		Photo
1179	0733076	7057344	Larcewood 10m M Melcophlois 10-14 11.5.5?		6649 N
			N.R		6650 E
1180	0733568	7059018	Crebra 8-10 Callitris 4-6 Larcewood Pocket		6651 W
1181	0733650	7058983	NR crebra 5-6 S Ac decora 2.5-3 M		6652
1082	0734261	7058804	NR Casuarina - recently pulled		6653
1083	0734292	7059294	Mapped 11.9.5 recently pulled No cover NR	N E S W	6654 5 6
1084	0734016	7059035	Not mapped Records pulled Mapped correct	E W S 6659	7 8
1085	0734836	7059183	Mapped as correct Not correct no cover not mapped to west	6660 6661	E
1086	0734965	7059917	Crebra 14-16 m S 11.5.1 Callitris 4-6		6662 W 3
			East NR mapped as 11.5.1 No canopy		6662
1087	0736508	7059456	Poplar 10-16m Rem Buffled under		6663 S
1088	0736284	7058693	11.5.5 mel Thozelaa 7-10m open woodland Callitris mid 6-8m		6665

Job.....

Date..... 9-2/21

No.	Easting	Northing	Comments		Photo
~~1201~~ 1202	0735787	7058783	11.3.2 poplar 12-13 m canaliculatus forest gallicus under 5-7		6696 S
1203	0735452	7058980	NR low regrowth buffel und		6697 W
~~1204~~					
1205	0735274	7058918	NR		6693
1206	0735100	7058946	11.3.25 canaliculatus 8-10m 11.3.2 poplar 10-14m	VS 14m to end	6695 6695
1207	0734988	7059010	11.3.25 canaliculatus Narrow	16-18m	6696
~~1208~~ 1208	0738114	7058823	11.3.2 Poplar 14-18 mulga under		6687 W
1209	0738940	7058655	11.5.5 Poplar Melaleuca		6688 W
1210	0739018	7059240	11.3.25 25m Natural Reset mel VLM in bed 6m		6689
1211	0739220	7058400	11.3.25 canaliculatus mel VLM in bed	22m 6-7m	6690
1212	0738897	7058620	11.3.25 canaliculatus mel VLM in bed	25m 6-7	6691
1213	0738911	7058993	11.3.25 canaliculatus melvlm in bed	24 6-7	6692

10-2-21

.285 .041

bit of a bias to bit

Job.....

Date...10-2-21

No.	Easting	Northing	Comments		Photo
1215	0735571	7058965	Cas cristata 6-7m Dense 12m wide ~5cm long linear dune cover and		6694
1216	0738424	7058934	11.3.25 Semi dense wet viminalis Ang-Flor. Pasture	22-24	6700
1218	0735496	7059040	Cas cristata mixed with Pebbles 5-10	5-7 Medium occ	6701
1219	0735404	7059170	11.3.25 Semi dense Medium in bed Pasture	22-26	6702
1			Roseland Pasture Concrete man hole Fenced		6703
1220	0738404	7059554	11.3.25 Rem		6704
1221	0738415	7059974	11.3.25 Rem Ang-Flor. borda	common	6705
1222	0738481	7060166	11.3.25 Rem	11-17m	6706
1223	0737900	7060442	11.3.25 Rem	12-15m	6707
1224	0737863	7060213	11.3.25 Rem	20-22	6708
1228	0728019	7061556	11.9.25 Brigadoon unmapped Poor condition Brigadoon VS 8m		6719 E
			Brodgeton 5m Ennaphila vulgaris		

Ground loose buttercup

Job.....

Date.....10-2-21

No.	Easting	Northing	Comments		Photo
1234	0734912	7655237	11.3.25 Remnant Candidiasis to 16m		6736
1235	0735127	7655341	11.3.25 remnt candidiasis to 20m		6737
1237	0734817	7655484	11.3.25 remnt 20m candidiasis fringe of cc/ crustose	10m mod	6738
1239	0734588	7655332	11.3.25 remnt 20		6739
1238	0734354	7655520	11.3.25 remnt	18m	6740
1240	0734300	7655940	11.3.25 remnt 20m		6741
1245	0734127	7655957	11.3.25 remnt	14	6747
1246	0734291	7656049	Same as site 1242 but thinner Mycall	S/VS	6748
1251	[illegible]	7656118	Low species Poplar regrowth Poplar 6-10 5 cm dia stems close vs under 3.5m no sig h		6759
			Sound varied native grasses buffel common		6760
1252	0735010	7656094	Callitris 6-8 m Occ Eucalyptus to 10m		6761
1259	0735245	7656548	11.5.5 low melaleuca 10m Poplar present		6764

11-2-21

NR No Kcar

6768 N

Job.....

Date..... 11-2-21

No.	Easting	Northing	Comments		Photo
1266	0435162	7057040	N L small patch maybe 6 trees	Poplar 8m	6774
1267	0435385	7057149	Dam - mon-made fringing canal/ditch 2-3m Myall present		6775 S
1268	0434559	7057057	Poplar Grove Depression and flood Poplar dam wall		6776W
1270	0434529	7056925	VS Poplar 10-12 Myall 5-10 Scrub		6777 S
			ground disrupted by track + vehicles		6783 S
1271	0434537	7056849	11.3.25 Remnant Canal/ditch 2m		6784 S
1272	0434500	7056523	11.3.25 Canal 15m Myall - 1 tree wide on edge		6785 S
1273	0436166	7057651	Small patch of Casuarina maybe 20 stems		6786 S
1274	0436247	7057634	Casuarina 10m Bagged/burnt ground		6789 S
1276	0436297	7057640	11.3.25 canal 25m 8m		6793 E
1277	0436376	7057904	11.3.25 Kanal 8m 20m		6794 E
1324	0435956	7058027	11.3.2 Poplar 14-15m Casuarinas with bloke		6800 W
1326	...	7058927	11.3.21 Poplar 18m		6801 S

Job.....

Date.....11-2-21

No.	Easting	Northing	Comments		Photo
1339	0833 38	405865	11 3 2 Raptor 10-16m sp<se undisturbed		6807

WK5

Job Myalla

Date 20-3-21

No.	Easting	Northing	Comments		Photo
1346	0730166	7659657	11.3.25 remnant Canal debris to 20m occasional Poplar	SPOT HL N	6949
1347	0730303	7659431	11		6950
1352			11.7.1 patch fibrous 12m		
1355	0731644	7658549	Mapped 11.5.1 - yr old Bisected others by large rocky Pavement present		6948 G 6949
1378	0733057	7660788	Low regrowth callitris Cadora 10m Alloc leichhardii		6900 6946
1379	0732820	7660992	11.5.1 low regrowth Cadora 10-12 cristata Callitris		6947 W 6948 N
1380	0732643	7661141	11.5.5 Melaleuca VS 8m Low regrowth NR very young regrowth to N		6949 W 6950
1391	0732294	7661202	11.9.10 Poplar 8-10 S cristata vulgare		6951
1393	0732042	7661141	low regrowth 11.9.10 11.5.1 Cadora populnea 5m cristata		6957 W 6958 E
1394	0731853	7661061	11.5.1 Cadora 10-12 S/mid callitris 4-5 Middense Low regrowth East D Strat done 11.9.5		6959 W
1396	0731766	7660935	11.9.5 hemiphylla 9m bulolke & occ Cadora surrounded by shirleyi Small patch < 0.5ha		6968
1384	0731866	7660925	Shirley 11 10m D occ Emergent cadora		6969

Job... Myall 9 ..... Date..... 4-3-21

No.	Easting	Northing	Comments		Photo
1388	0731937	7060858	Cheloni 12-21 Shirleyi 4-9	15.1	6975 E 6976 S
1390	0731698	7060838	Shirleyi 9m M/D Vulgaris 3m S Bulloke 5-6m	17.2	6982 S
1391	0732021	7061010	Shirleyi 9m Callitris 3-5 Bulloke	11:17.2	6983 E
1392	0731541	7060943	Cookeii 10-14 Shirleyi occ Callitris 2-5		6984 W 6985 E
1393	0731329	7060832	Papler 4NS 8-10 Cristata 6-9 unigu undu		6986 W 6987

A 3.3 Sheet D – Regional Ecosystem type assessment site

Location

Site No. 13967 Recorder: DS NA Day/Date: 6-3-21

Purpose

Locality: (inc. distance/direction to nearest town) Mgalla

GPS: 55 0732589 TD 1165 D GDA94

N 6952
S 6953
E 6954
W 6955
C 6956

Vegetation structure

Median height of the EDL is to be measured

Stratum	Median height	Height interval	Est. cover density (D,M,S,V)
E	10	8 - 10	5
T1	6	5 - 6	M
T2		-	
T3		-	
S1	2	2 - 3	
S2		-	
G	05	0 - 05	

Structural formation: (including height)

Ecologically dominant layer:

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	E populnea
		Casuarina cristata
T2	D	Casuarina cristata
S1	D	Grevillea parallela
		Dodonaea viscosa
G		Aristida caput-medusae
		Aristida ramosa
		Sporobolus australasicus
		A. latifolia calycina
		Paspalidium distans
		Urochloa gilesii
		Enteropogon acicularis
		Setaria sp. (rotato bush)
		Bothriochloa ewartiana

Geology, landform, soils

Geology map/scale/year:

Geology code and rock types:

Land system: Hills

Landform: top of hill

Soils: Brown clay - ironstone

Field observation and notes:

Landzone: 9

RE code changes

Existing RE code: 11.9.5/11.9.10

Proposed RE code: 11.9.10

END

Habitat Characters - Abundance

Site No. BSR **Recorder:** **Day/Date:** 4-3-21

Purpose

Locality: (inc. distance/direction to nearest town) Myall

GPS coordinates: Zone 55 E 0732299 N 7561165 **Datum:** GDA94

	Abundance (0 – 7)	Notes	
Hollows in trees & stags	3		
Fallen logs (>10cm diam.)	5		
Decorticating bark	2		
Course litter (>2cm diam.)	4		
Fine litter (<2cm diameter)	5		
Bare ground	6		
Grass	5		
Soil cracks	0		
Stones (20-60cm)	0		
Boulders (61cm-2m)	0		
Large boulders (>2m)	0		
Rock crevices	0		
Exfoliating rock	0		

Abundance key

0 = Nil 4 = Occasional to common 1 = Rare 5 = Commo 2 = Rare to Occasional 6 = Comm n to Abundant 3 = Occasional 7 = Abundant

A 3.3 Sheet D – Regional Ecosystem type assessment site

Location

Site No. 1385 **Recorder:** DS NA **Day/Date:** 4-5-21

Purpose

Locality: (inc. distance/direction to nearest town) Myatta

GPS: 1385 55 0731862 7061039 D GDA 94

N 6963
S 6964
E 6965
L 6966
C 6967

Vegetation structure
Median height of the EDL is to be measured

Stratum	Median height	Height interval	Est. cover density (D,M,S,V)
E	~~11~~	~~11 - 9~~	~~8~~
T1	8	7 - 9	5
T2	11	4 - 5	√5
T3		-	
S1	1	0.8 - 1	√
S2		-	
G	0.3	0 - 0.4	5

Structural formation: (including height)

Ecologically dominant layer:

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	Eucalyptus haplophylla
	c	Allocasuarina leuhmannii
T2	D	~~Callitris~~ Callitris glaucophylla
		Allocasuarina leuhmannii
S1		~~Acacia (sp.)~~ Eragrostis sp.
G		Aristida calycina
		Cymbopogon refractus
		Heteropogon contortus
		Aristida caput medusae
		Bothriochloa decipiens
		Eriachne sp.
		Capillipedium spicigerum

Geology, landform, soils

Geology map/scale/year:

Geology code and rock types:

Land system: hills

Landform: hill top

Soils: Light brown clay

Field observation and notes:

Landzone: 9

RE code changes

Existing RE code: unmapped

Proposed RE code: 11.9.5

END

Habitat Characters - Abundance

Site No. 1385 Recorder: HA DS Day/Date: 4/3

Purpose

Locality: (inc. distance/direction to nearest town) Myalla

GPS coordinates: Zone 55 E 0731862 N 7061039 Datum: GDA94

	Abundance (0 – 7)	Notes
Hollows in trees & stags	0	
Fallen logs (>10cm diam.)	5	
Decorticating bark	5	
Course litter (>2cm diam.)	5	
Fine litter (<2cm diameter)	3	
Bare ground	4	
Grass	3	
Soil cracks	0	
Stones (20-60cm)	0	
Boulders (61cm-2m)	0	
Large boulders (>2m)	0	
Rock crevices	0	
Exfoliating rock	0	

Abundance key
0 = Nil 4 = Occasional to common 1 = Rare 5 = Commo 2 = Rare to Occasional 6 = Comm n to Abundant 3 = Occasional 7 = Abundant

A 3.3 Sheet D – Regional Ecosystem type assessment site

Location

Site No. 1389 Recorder: DS HH Day/Date: 4-3-21

Purpose

Locality: (Inc. distance/direction to nearest town) Myalla

GPS: 1389 55 0737 L 9377 7a 50806 D 6974

N 6977

S 6976

E 6974

W 6980

G 6981

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	14-21	S
T2	10	8-10	M
T3		-	
S1	1.5	1-2	S
S2		-	
G	0.3	0-0.5	

Structural formation: (including height)

Ecologically dominant layer:

Plant species

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

Str.	Rel. dom.	Scientific Name
T_1	D	E. crebra
T_2	D	Ac. shirleyi
G		Eremophila sp.
		Alectonia constricta
G		Paspalidium distans
		Thyridolepis mitchelli
		Aristida calycina
		Bothriochloa decipiens
		Aristida ephemeroides
		Enneapogon sp.
		Cenchrus ~~sp.~~ setiger ?
		Aristida queenslandica

Geology, landform, soils

Geology map/scale/year:

Geology code and rock types:

Land system: Hills

Landform: slope

Soils: Brown clay

Field observation and notes:

Landzone: 5

RE code changes

Existing RE code: 11.5.5

Proposed RE code: 11.5.1

END

Habitat Characters - Abundance

Site No. 1349 **Recorder:** DS NA **Day/Date:** 4-3-21

Purpose

Locality: (inc. distance/direction to nearest town) Nyatta

GPS coordinates: Zone 55 E 0731937 N 7060806 **Datum:** GDA94

	Abundance (0 – 7)	Notes	
Hollows in trees & stags	0		
Fallen logs (>10cm diam.)	7		
Decorticating bark	5		
Course litter (>2cm diam.)	5		
Fine litter (<2cm diameter)	4		
Bare ground	3		
Grass	4		
Soil cracks	0		
Stones (20-60cm)	1		
Boulders (61cm-2m)	0		
Large boulders (>2m)	0		
Rock crevices	0		
Exfoliating rock	0		

Abundance key
0 = Nil 4 = Occasional to common 1 = Rare 5 = Commo 2 = Rare to Occasional 6 = Commo to Abundant 3 = Occasional 7 = Abundant

Appendix F

Field Survey Site Data: Fauna Habitat Site Sheets

Habitat Characters - Abundance

Site No. ..... **Recorder:** ..... **Day/Date:** .....

Purpose .....

Locality: (inc. distance/direction to nearest town) .....

GPS coordinates: Zone 5 E 0 N **Datum:** .....

1740

	Abundance (0 – 7)	Notes	
Hollows in trees & stags	2		
Fallen logs (>10cm diam.)	5		
Decorticating bark	3		
Course litter (>2cm diam.)	4		
Fine litter (<2cm diameter)	5		
Bare ground	4		
Grass	4		
Soil cracks	0		
Stones (20-60cm)	0		
Boulders (61cm-2m)	0		
Large boulders (>2m)	0		
Rock crevices	0		
Exfoliating rock	0		

Abundance key

0 = Nil 4 = Occasional to common 1 = Rare 5 = Commo 2 = Rare to Occasional 6 = Comm n to Abundant 3 = Occasional 7 = Abundant

Habitat Characters - Abundance

Site No. ..... **Recorder:** ..... **Day/Date:** .....

Purpose .....

Locality: (inc. distance/direction to nearest town) .....

GPS coordinates: Zone 5 E 0 N **Datum:** .....

1141

	Abundance (0 – 7)	Notes
Hollows in trees & stags	0	
Fallen logs (>10cm diam.)	3	
Decorticating bark	3	
Course litter (>2cm diam.)	3	
Fine litter (<2cm diameter)	4	
Bare ground	4	
Grass	3	
Soil cracks	0	
Stones (20-60cm)	0	
Boulders (61cm-2m)	0	
Large boulders (>2m)	0	
Rock crevices	0	
Exfoliating rock	0	

Abundance key

0 = Nil 4 = Occasional to common 1 = Rare 5 = Commo 2 = Rare to Occasional 6 = Comm n to Abundant 3 = Occasional 7 = Abundant

Habitat Characters - Abundance

Site No. 9 **Recorder:** A DANIEL **Day/Date:** 23/11/2020

Purpose SD22

Locality: (inc. distance/direction to nearest town) WYENA

GPS coordinates: Zone 55 E 0~~6~~~~7~~~~5~~~~8~~ 739245 N 7061634 **Datum:** ~~GDA~~ 94

1744
5954/5

	Abundance (0 – 7)	Notes
Hollows in trees & stags	2	Some
Fallen logs (>10cm diam.)	5	Previous logging ~~abundant~~ fallen timber & logs
Decorticating bark	3	Callitris mainly young Large Melaleuca bark
Course litter (>2cm diam.)	3	
Fine litter (<2cm diameter)	5	
Bare ground	5	
Grass	2	Sandy grass cover is native but sparse
Soil cracks	0	
Stones (20-60cm)	0	
Boulders (61cm-2m)	0	
Large boulders (>2m)	0	
Rock crevices	0	
Exfoliating rock		

Abundance key
0 = Nil 4 = Occasional to common 1 = Rare 5 = Commo 2 = Rare to Occasional 6 = Common to Abundant 3 = Occasional 7 = Abundant

Habitat Characters - Abundance

Site No. 10 **Recorder:** A BANNIC **Day/Date:** 23/11/2020

Purpose 522

Locality: (inc. distance/direction to nearest town) WYNDHAM

GPS coordinates: Zone 55 E 0739543 N 7061583 **Datum:** GDA 94

1747

	Abundance (0 – 7)	Notes	
Hollows in trees & stags	2		
Fallen logs (>10cm diam.)	6		
Decorticating bark	2		
Course litter (>2cm diam.)	3		
Fine litter (<2cm diameter)	3		
Bare ground	6		
Grass	6		
Soil cracks	0		
Stones (20-60cm)	0		
Boulders (61cm-2m)	0		
Large boulders (>2m)	0		
Rock crevices	0		
Exfoliating rock			

Abundance key

0 = Nil 4 = Occasional to common 1 = Rare 5 = Commo 2 = Rare to Occasional 6 = Common to Abundant 3 = Occasional 7 = Abundant

Habitat Characters - Abundance

Site No. ..... **Recorder:** ..... **Day/Date:** .....

Purpose .....

Locality: (inc. distance/direction to nearest town) .....

GPS coordinates: Zone 5 E 0 N **Datum:** .....

1748

	Abundance (0 – 7)	Notes
Hollows in trees & stags	0	
Fallen logs (>10cm diam.)	7	
Decorticating bark	4	
Course litter (>2cm diam.)	4	
Fine litter (<2cm diameter)	4	
Bare ground	4	
Grass	4	
Soil cracks	0	
Stones (20-60cm)	0	
Boulders (61cm-2m)	0	
Large boulders (>2m)	0	
Rock crevices	0	
Exfoliating rock	0	

Abundance key

0 = Nil 4 = Occasional to common 1 = Rare 5 = Commo 2 = Rare to Occasional 6 = Common to Abundant 3 = Occasional 7 = Abundant

Habitat Characters - Abundance

Site No. ..... **Recorder:** ..... **Day/Date:** .....

Purpose .....

Locality: (inc. distance/direction to nearest town) .....

GPS coordinates: Zone 5 E 0 N **Datum:** .....

1758

	Abundance (0 – 7)	Notes	
Hollows in trees & stags	1		
Fallen logs (>10cm diam.)	4		
Decorticating bark	4		
Course litter (>2cm diam.)	4		
Fine litter (<2cm diameter)	4		
Bare ground	4		
Grass	4		
Soil cracks	0		
Stones (20-60cm)	0		
Boulders (61cm-2m)	0		
Large boulders (>2m)	0		
Rock crevices	0		
Exfoliating rock	0		

Abundance key

0 = Nil 4 = Occasional to common 1 = Rare 5 = Commo 2 = Rare to Occasional 6 = Common to Abundant 3 = Occasional 7 = Abundant

Habitat Characters - Abundance

Site No. 19 **Recorder:** A Daniel **Day/Date:** 23/11/2020

Purpose SDZ2

Locality: (inc. distance/direction to nearest town) Wilsons

GPS coordinates: Zone 55 E 0740863 N 7263794 **Datum:**

1765

	Abundance (0 – 7)	Notes
Hollows in trees & stags	0	
Fallen logs (>10cm diam.)	7	
Decorticating bark	5	
Course litter (>2cm diam.)	5	
Fine litter (<2cm diameter)	4	
Bare ground	7	
Grass	2	
Soil cracks	0	
Stones (20-60cm)	3	
Boulders (61cm-2m)	0	
Large boulders (>2m)	0	
Rock crevices	0	
Exfoliating rock		

Abundance key

0 = Nil 4 = Occasional to common 1 = Rare 5 = Commo 2 = Rare to Occasional 6 = Common to Abundant 3 = Occasional 7 = Abundant

Habitat Characters - Abundance

Site No. ..... **Recorder:** ..... **Day/Date:** .....

Purpose .....

Locality: (inc. distance/direction to nearest town) .....

GPS coordinates: Zone 5 E 0 N ..... **Datum:** .....

1766

	Abundance (0 – 7)	Notes
Hollows in trees & stags	1	
Fallen logs (>10cm diam.)	4	
Decorticating bark	4	
Course litter (>2cm diam.)	4	
Fine litter (<2cm diameter)	6	
Bare ground	4	
Grass	5	
Soil cracks	0	
Stones (20-60cm)	0	
Boulders (61cm-2m)	0	
Large boulders (>2m)	0	
Rock crevices	0	
Exfoliating rock	0	

Abundance key

0 = Nil 4 = Occasional to common 1 = Rare 5 = Commo 2 = Rare to Occasional 6 = Common to Abundant 3 = Occasional 7 = Abundant

Habitat Characters - Abundance

Site No. 15 **Recorder:** A Daniel **Day/Date:** 23/11/2020

Purpose SD22

Locality: (inc. distance/direction to nearest town) 46 NA

GPS coordinates: Zone 55 E 0740294 N 7063061 **Datum:**

1766
5913

	Abundance (0 – 7)	Notes	
Hollows in trees & stags	1		
Fallen logs (>10cm diam.)	6		
Decorticating bark	5		
Course litter (>2cm diam.)	5		
Fine litter (<2cm diameter)	7		
Bare ground	4		
Grass	2		
Soil cracks	0		
Stones (20-60cm)	3		
Boulders (61cm-2m)	0		
Large boulders (>2m)	0		
Rock crevices	0		
Exfoliating rock			

Abundance key
0 = Nil 4 = Occasional to common 1 = Rare 5 = Commo 2 = Rare to Occasional 6 = Common to Abundant 3 = Occasional 7 = Abundant

Habitat Characters - Abundance

Site No. ..... **Recorder:** ..... **Day/Date:** .....

Purpose .....

Locality: (inc. distance/direction to nearest town) .....

GPS coordinates: Zone 5 E 0 N **Datum:** .....

1767

	Abundance (0 – 7)	Notes
Hollows in trees & stags	2	
Fallen logs (>10cm diam.)	5	
Decorticating bark	5	
Course litter (>2cm diam.)	5	
Fine litter (<2cm diameter)	5	
Bare ground	4	
Grass	3	
Soil cracks	0	
Stones (20-60cm)	3	
Boulders (61cm-2m)	4	
Large boulders (>2m)	0	
Rock crevices	3	
Exfoliating rock	0	

Abundance key

0 = Nil 4 = Occasional to common 1 = Rare 5 = Commo 2 = Rare to Occasional 6 = Comm n to Abundant 3 = Occasional 7 = Abundant

Habitat Characters - Abundance

Site No. ..... **Recorder:** ..... **Day/Date:** .....

Purpose .....

Locality: (inc. distance/direction to nearest town) .....

GPS coordinates: Zone 5 E 0 N **Datum:** .....

1783

	Abundance (0 – 7)	Notes
Hollows in trees & stags	3	
Fallen logs (>10cm diam.)	4	
Decorticating bark	4	
Course litter (>2cm diam.)	4	
Fine litter (<2cm diameter)	4	
Bare ground	2	
Grass	5	
Soil cracks	0	
Stones (20-60cm)	0	
Boulders (61cm-2m)	0	
Large boulders (>2m)	0	
Rock crevices	0	
Exfoliating rock	0	

Abundance key

0 = Nil 4 = Occasional to common 1 = Rare 5 = Commo 2 = Rare to Occasional 6 = Comm n to Abundant 3 = Occasional 7 = Abundant

Habitat Characters - Abundance

Site No. ..... **Recorder:** ..... **Day/Date:** .....

Purpose .....

Locality: (inc. distance/direction to nearest town) .....

GPS coordinates: Zone 5 E 0 N **Datum:** .....

1830

	Abundance (0 – 7)	Notes
Hollows in trees & stags	0	
Fallen logs (>10cm diam.)	2	
Decorticating bark	3	
Course litter (>2cm diam.)	4	
Fine litter (<2cm diameter)	3	
Bare ground	4	
Grass	2	
Soil cracks	1	
Stones (20-60cm)	0	
Boulders (61cm-2m)	0	
Large boulders (>2m)	0	
Rock crevices	0	
Exfoliating rock	0	

Abundance key

0 = Nil 4 = Occasional to common 1 = Rare 5 = Commo 2 = Rare to Occasional 6 = Common to Abundant 3 = Occasional 7 = Abundant

Habitat Characters - Abundance

Site No. ..... **Recorder:** ..... **Day/Date:** .....

Purpose .....

Locality: (inc. distance/direction to nearest town) .....

GPS coordinates: Zone 5 E 0 N ..... **Datum:** .....

1831

	Abundance (0 – 7)	Notes
Hollows in trees & stags	2	
Fallen logs (>10cm diam.)	5	
Decorticating bark	2	
Course litter (>2cm diam.)	4	
Fine litter (<2cm diameter)	5	
Bare ground	2	
Grass	3	
Soil cracks	0	
Stones (20-60cm)	4	
Boulders (61cm-2m)	4	
Large boulders (>2m)	4	
Rock crevices	32	
Exfoliating rock	0	

Abundance key

0 = Nil 4 = Occasional to common 1 = Rare 5 = Commo 2 = Rare to Occasional 6 = Comm n to Abundant 3 = Occasional 7 = Abundant

Habitat Characters - Abundance

Site No. ..... **Recorder:** ..... **Day/Date:** .....

Purpose .....

Locality: (inc. distance/direction to nearest town) .....

GPS coordinates: Zone 5 E 0 N **Datum:** .....

1871

	Abundance (0 – 7)	Notes
Hollows in trees & stags	2	
Fallen logs (>10cm diam.)	5	
Decorticating bark	4	
Course litter (>2cm diam.)	5	
Fine litter (<2cm diameter)	5	
Bare ground	4	
Grass	4	
Soil cracks	2	
Stones (20-60cm)	0	
Boulders (61cm-2m)	0	
Large boulders (>2m)	0	
Rock crevices	0	
Exfoliating rock	0	

Abundance key

0 = Nil 4 = Occasional to common 1 = Rare 5 = Commo 2 = Rare to Occasional 6 = Comm n to Abundant 3 = Occasional 7 = Abundant

WK7

Habitat Characters - Abundance

Site No. 1 **Recorder:** DS MH **Day/Date:** 23/11/20

Purpose

Locality: (inc. distance/direction to nearest town) Wallumbilla

GPS coordinates: Zone 55 E 072 ~~32~~ 3426 N 7059757 **Datum:** ~~766~~ wgt

766

	Abundance (0 – 7)	Notes
Hollows in trees & stags	4	Large hollows in ironbarks
Fallen logs (>10cm diam.)	7	Acacia shrubs present
Decorticating bark	1	
Course litter (>2cm diam.)	4	
Fine litter (<2cm diameter)	4	
Bare ground	6	
Grass	5	
Soil cracks	1	
Stones (20-60cm)	5	
Boulders (61cm-2m)	5	
Large boulders (>2m)	5	
Rock crevices	5	
Exfoliating rock	3	

Abundance key
0 = Nil 4 = Occasional to common 1 = Rare 5 = Commo 2 = Rare to Occasional 6 = Common to Abundant 3 = Occasional 7 = Abundant

Habitat Characters - Abundance

Site No. 3 **Recorder:** DS MN **Day/Date:** 24/11/20

Purpose

Locality: (inc. distance/direction to nearest town) Wallumbilla

GPS coordinates: Zone 55 E 0723298 N 7059689 **Datum:** 772

	Abundance (0 – 7)	Notes
Hollows in trees & stags	1	
Fallen logs (>10cm diam.)	1	
Decorticating bark	1	
Course litter (>2cm diam.)	1	
Fine litter (<2cm diameter)	2	
Bare ground	3	
Grass	6	Dominated by buffel
Soil cracks	1	
Stones (20-60cm)	3	Lots of rock < 20cm
Boulders (61cm-2m)	0	
Large boulders (>2m)	0	
Rock crevices	0	
Exfoliating rock	0	

Abundance key

0 = Nil 4 = Occasional to common 1 = Rare 5 = Commo 2 = Rare to Occasional 6 = Comm n to Abundant 3 = Occasional 7 = Abundant

Habitat Characters - Abundance

Site No. 4 **Recorder:** DS MH **Day/Date:** 24/11/20

Purpose

Locality: (inc. distance/direction to nearest town) Wallumbilla

GPS coordinates: Zone 55 E 0723327 N 7059622 **Datum:** wgs 73

	Abundance (0 – 7)	Notes
Hollows in trees & stags	1	
Fallen logs (>10cm diam.)	1	
Decorticating bark	2	
Course litter (>2cm diam.)	3	
Fine litter (<2cm diameter)	7	
Bare ground	4	
Grass	5	
Soil cracks	0	
Stones (20-60cm)	4	Lots of stones <20
Boulders (61cm-2m)	0	
Large boulders (>2m)	0	
Rock crevices	0	
Exfoliating rock	0	

Abundance key

0 = Nil 4 = Occasional to common 1 = Rare 5 = Commo 2 = Rare to Occasional 6 = Comm n to Abundant 3 = Occasional 7 = Abundant

Habitat Characters - Abundance

Site No. 5 **Recorder:** DS MH **Day/Date:** 24/11/20

Purpose

Locality: (inc. distance/direction to nearest town) wallumbilla

GPS coordinates: Zone 55 E 0724019 N 7059900 **Datum:** AGD 94

wpt 783

783

	Abundance (0 – 7)	Notes	
Hollows in trees & stags	1		
Fallen logs (>10cm diam.)	6		
Decorticating bark	3		
Course litter (>2cm diam.)	5		
Fine litter (<2cm diameter)	7		
Bare ground	5		
Grass	3		
Soil cracks	0		
Stones (20-60cm)	1		
Boulders (61cm-2m)	0		
Large boulders (>2m)	0		
Rock crevices	0		
Exfoliating rock	0		

Abundance key

0 = Nil 4 = Occasional to common 1 = Rare 5 = Commo 2 = Rare to Occasional 6 = Comm n to Abundant 3 = Occasional 7 = Abundant

Habitat Characters - Abundance

Site No. 6 **Recorder:** DS + MH **Day/Date:** 24/11/20

Purpose

Locality: (inc. distance/direction to nearest town) Wollumbulah

GPS coordinates: Zone 55 E 0724301 N 7059755 **Datum:**

784

784

	Abundance (0 – 7)	Notes
Hollows in trees & stags	1	
Fallen logs (>10cm diam.)	4	
Decorticating bark	3	
Course litter (>2cm diam.)	6	
Fine litter (<2cm diameter)	5	
Bare ground	5	
Grass	5	
Soil cracks	0	
Stones (20-60cm)	2	
Boulders (61cm-2m)	0	
Large boulders (>2m)	0	
Rock crevices	0	
Exfoliating rock	0	

Abundance key

0 = Nil 4 = Occasional to common 1 = Rare 5 = Commo 2 = Rare to Occasional 6 = Comm n to Abundant 3 = Occasional 7 = Abundant

Habitat Characters - Abundance

Site No. 7 **Recorder:** DS + MH **Day/Date:** 24/11/2020

Purpose

Locality: (inc. distance/direction to nearest town) Wallumbeta

GPS coordinates: Zone 55 E 0724461 N 7059780 **Datum:**

WP 785

photo no. = 785

	Abundance (0 – 7)	Notes
Hollows in trees & stags	4	
Fallen logs (>10cm diam.)	4	
Decorticating bark	3	
Course litter (>2cm diam.)	6	
Fine litter (<2cm diameter)	6	
Bare ground	3	
Grass	4	
Soil cracks	0	
Stones (20-60cm)	6	
Boulders (61cm-2m)	0	
Large boulders (>2m)	0	
Rock crevices	0	
Exfoliating rock	0	

Abundance key

0 = Nil 4 = Occasional to common 1 = Rare 5 = Commo 2 = Rare to Occasional 6 = Common to Abundant 3 = Occasional 7 = Abundant

Habitat Characters - Abundance

Site No. 8 **Recorder:** DS MH **Day/Date:** 24/11/20

Purpose

Locality: (inc. distance/direction to nearest town) Wallumbilla

GPS coordinates: Zone 55 E 0724607 N 7059860 **Datum:** AGD 94

786

786

	Abundance (0 – 7)	Notes	
Hollows in trees & stags	2		
Fallen logs (>10cm diam.)	6		
Decorticating bark	3		
Course litter (>2cm diam.)	7		
Fine litter (<2cm diameter)	7		
Bare ground	3		
Grass	2		
Soil cracks	0		
Stones (20-60cm)	5		
Boulders (61cm-2m)	2		
Large boulders (>2m)	0		
Rock crevices	0		
Exfoliating rock	0		

Abundance key

0 = Nil 4 = Occasional to common 1 = Rare 5 = Commo 2 = Rare to Occasional 6 = Comm n to Abundant 3 = Occasional 7 = Abundant

Habitat Characters - Abundance

Site No. 9 **Recorder:** MH, OS **Day/Date:**

Purpose

Locality: (inc. distance/direction to nearest town) Walcha bulla

GPS coordinates: Zone 55 E 0723723 N 6436144 **Datum:**

789

789

	Abundance (0 – 7)	Notes
Hollows in trees & stags	4	
Fallen logs (>10cm diam.)	4	
Decorticating bark	1	
Course litter (>2cm diam.)	6	
Fine litter (<2cm diameter)	6	
Bare ground	6	
Grass	5	
Soil cracks	0	
Stones (20-60cm)	0	
Boulders (61cm-2m)	0	
Large boulders (>2m)	0	
Rock crevices	0	
Exfoliating rock	6	

Abundance key

0 = Nil 4 = Occasional to common 1 = Rare 5 = Commo 2 = Rare to Occasional 6 = Commo to Abundant 3 = Occasional 7 = Abundant

Habitat Characters - Abundance

Site No. 10 **Recorder:** DS MH **Day/Date:** 24/11/20

Purpose

Locality: (inc. distance/direction to nearest town) Wilgavale

GPS coordinates: Zone 55 E 0724649 N 7082521 **Datum:** AGD 94

WPT 797

	Abundance (0 – 7)	Notes
Hollows in trees & stags	1	
Fallen logs (>10cm diam.)	3	occasional large fallen poplar
Decorticating bark	1	
Course litter (>2cm diam.)	3	
Fine litter (<2cm diameter)	5	
Bare ground	4	
Grass	1	No ground cover
Soil cracks	0	
Stones (20-60cm)	0	
Boulders (61cm-2m)	0	
Large boulders (>2m)	0	
Rock crevices	0	
Exfoliating rock	0	

Abundance key

0 = Nil 4 = Occasional to common 1 = Rare 5 = Commo 2 = Rare to Occasional 6 = Comm n to Abundant 3 = Occasional 7 = Abundant

Habitat Characters - Abundance

Site No. 12 **Recorder:** DS MH **Day/Date:** 24/11/20

Purpose

Locality: (inc. distance/direction to nearest town)

GPS coordinates: Zone 55 E 0~~4~~246646 N 7062891 **Datum:** AGD 94

wpt ~~499~~ 499

	Abundance (0 – 7)	Notes
Hollows in trees & stags	3	Some big dead Poplars
Fallen logs (>10cm diam.)	5	
Decorticating bark	1	
Course litter (>2cm diam.)	3	
Fine litter (<2cm diameter)	3	
Bare ground	4	
Grass	4	
Soil cracks	0	
Stones (20-60cm)	0	
Boulders (61cm-2m)	0	
Large boulders (>2m)	0	
Rock crevices	0	
Exfoliating rock	0	

Abundance key

0 = Nil 4 = Occasional to common 1 = Rare 5 = Commo 2 = Rare to Occasional 6 = Commo to Abundant 3 = Occasional 7 = Abundant

Habitat Characters - Abundance

Site No. 13 **Recorder:** DS MH **Day/Date:** 24/11/20

Purpose

Locality: (inc. distance/direction to nearest town)

GPS coordinates: Zone 55 E 0724725 N 7063085 **Datum:** AGD94

800

	Abundance (0 – 7)	Notes	
Hollows in trees & stags	3		
Fallen logs (>10cm diam.)	5		
Decorticating bark	2		
Course litter (>2cm diam.)	5		
Fine litter (<2cm diameter)	5		
Bare ground	6		
Grass	3		
Soil cracks	0		
Stones (20-60cm)	0		
Boulders (61cm-2m)	0		
Large boulders (>2m)	0		
Rock crevices	0		
Exfoliating rock	6		

Abundance key

0 = Nil 4 = Occasional to common 1 = Rare 5 = Commo 2 = Rare to Occasional 6 = Commo to Abundant 3 = Occasional 7 = Abundant

Habitat Characters - Abundance

Site No. 14 **Recorder:** JS MH **Day/Date:** 25/11/20

Purpose

Locality: (inc. distance/direction to nearest town) Boorabbin

GPS coordinates: Zone 55 E 0724038 N 6585866 **Datum:**

805

	Abundance (0 – 7)	Notes
Hollows in trees & stags	1	
Fallen logs (>10cm diam.)	2	
Decorticating bark	1	
Course litter (>2cm diam.)	5	
Fine litter (<2cm diameter)	6	
Bare ground	6	
Grass	1	
Soil cracks	0	
Stones (20-60cm)	0	
Boulders (61cm-2m)	0	
Large boulders (>2m)	0	
Rock crevices	0	
Exfoliating rock	0	

Abundance key

0 = Nil 4 = Occasional to common 1 = Rare 5 = Commo 2 = Rare to Occasional 6 = Commo to Abundant 3 = Occasional 7 = Abundant

Habitat Characters - Abundance

Site No. 15 **Recorder:** MH. DS **Day/Date:** 25/11/20

Purpose

Locality: (inc. distance/direction to nearest town) Bikini

GPS coordinates: Zone 55 E 0724750 N 7086146 **Datum:**

418

	Abundance (0 – 7)	Notes
Hollows in trees & stags	1	
Fallen logs (>10cm diam.)	3	
Decorticating bark	1	
Course litter (>2cm diam.)	6	
Fine litter (<2cm diameter)	5	
Bare ground	5	
Grass	5	
Soil cracks	0	
Stones (20-60cm)	0	
Boulders (61cm-2m)	0	
Large boulders (>2m)	0	
Rock crevices	0	
Exfoliating rock	0	

Abundance key

0 = Nil 4 = Occasional to common 1 = Rare 5 = Commo 2 = Rare to Occasional 6 = Commo to Abundant 3 = Occasional 7 = Abundant

Habitat Characters - Abundance

Site No. 15A **Recorder:** DS MH **Day/Date:** 25/11/20

Purpose

Locality: (inc. distance/direction to nearest town) 13, Kini

GPS coordinates: Zone 55 E 0726772 N 7058915 **Datum:** AGD 94

wpt 815

	Abundance (0 – 7)	Notes	
Hollows in trees & stags	4		
Fallen logs (>10cm diam.)	5		
Decorticating bark	4		
Course litter (>2cm diam.)	6		
Fine litter (<2cm diameter)	4		
Bare ground	6		
Grass	2		
Soil cracks	0		
Stones (20-60cm)	6		
Boulders (61cm-2m)	6		
Large boulders (>2m)	6		
Rock crevices	3		
Exfoliating rock	1		

Abundance key

0 = Nil 4 = Occasional to common 1 = Rare 5 = Commo 2 = Rare to Occasional 6 = Comm n to Abundant 3 = Occasional 7 = Abundant

Habitat Characters - Abundance

Site No. 16 **Recorder:** DS MH **Day/Date:**

Purpose

Locality: (inc. distance/direction to nearest town) Wilgoyne

GPS coordinates: Zone 55 E 0724698 N 7060286 **Datum:** AGD 94

wpt 400

	Abundance (0 – 7)	Notes	
Hollows in trees & stags	~~2~~ 1		
Fallen logs (>10cm diam.)	6		
Decorticating bark	6	Highly ringbarked timber	lots of old dead, standing timber
Course litter (>2cm diam.)	6		
Fine litter (<2cm diameter)	4		
Bare ground	5		
Grass	2		
Soil cracks	0		
Stones (20-60cm)	0		
Boulders (61cm-2m)	0		
Large boulders (>2m)	0		
Rock crevices	0		
Exfoliating rock	0		

Abundance key

0 = Nil 4 = Occasional to common 1 = Rare 5 = Commo 2 = Rare to Occasional 6 = Comm to Abundant 3 = Occasional 7 = Abundant

Habitat Characters - Abundance

Site No. 17 **Recorder:** US MH **Day/Date:** 25/11/20

Purpose

Locality: (inc. distance/direction to nearest town) Wilgavale

GPS coordinates: Zone 55 E 0725791 N 7[illegible]0334 **Datum:**

827

	Abundance (0 – 7)	Notes
Hollows in trees & stags	0	
Fallen logs (>10cm diam.)	6	
Decorticating bark	1	
Course litter (>2cm diam.)	4	
Fine litter (<2cm diameter)	5	
Bare ground	6	
Grass	3	
Soil cracks	0	
Stones (20-60cm)	0	
Boulders (61cm-2m)	0	
Large boulders (>2m)	0	
Rock crevices	0	
Exfoliating rock	0	

Abundance key

0 = Nil 4 = Occasional to common 1 = Rare 5 = Commo 2 = Rare to Occasional 6 = Commo to Abundant 3 = Occasional 7 = Abundant

Habitat Characters - Abundance

Site No. 18 **Recorder:** MH OS **Day/Date:** 26/11/20

Purpose

Locality: (inc. distance/direction to nearest town) Wilgoyne

GPS coordinates: Zone 55 E 0724225 N 7[illegible]0979 **Datum:**

833

	Abundance (0 – 7)	Notes
Hollows in trees & stags	1	
Fallen logs (>10cm diam.)	2	
Decorticating bark	3	
Course litter (>2cm diam.)	6	
Fine litter (<2cm diameter)	6	
Bare ground	5	
Grass	4	
Soil cracks	0	
Stones (20-60cm)	0	
Boulders (61cm-2m)	0	
Large boulders (>2m)	0	
Rock crevices	0	
Exfoliating rock	0	

Abundance key

0 = Nil 4 = Occasional to common 1 = Rare 5 = Commo 2 = Rare to Occasional 6 = Comm[illegible] to Abundant 3 = Occasional 7 = Abundant

Habitat Characters - Abundance

Site No. 19 **Recorder:** DS MD **Day/Date:** 26/11/20

Purpose

Locality: (inc. distance/direction to nearest town) wilga vale

GPS coordinates: Zone 55 E 0725159 N 7061232 **Datum:** GDA94

wpt 842

	Abundance (0 – 7)	Notes	
Hollows in trees & stags			
Fallen logs (>10cm diam.)			
Decorticating bark			
Course litter (>2cm diam.)			
Fine litter (<2cm diameter)			
Bare ground			
Grass			
Soil cracks			
Stones (20-60cm)			
Boulders (61cm-2m)			
Large boulders (>2m)			
Rock crevices			
Exfoliating rock			

Abundance key

0 = Nil 4 = Occasional to common 1 = Rare 5 = Commo 2 = Rare to Occasional 6 = Comm n to Abundant 3 = Occasional 7 = Abundant

Habitat Characters - Abundance

Site No. 20 **Recorder:** DS MH **Day/Date:** 26/11/20

Purpose

Locality: (inc. distance/direction to nearest town) Wilga vale

GPS coordinates: Zone 55 E 0724359 N 6401664 **Datum:** AGD 94

wpt 847

	Abundance (0 – 7)	Notes
Hollows in trees & stags	5	
Fallen logs (>10cm diam.)	3	
Decorticating bark	3	
Course litter (>2cm diam.)	4	
Fine litter (<2cm diameter)	5	
Bare ground	5	
Grass	3	
Soil cracks	0	
Stones (20-60cm)	0	
Boulders (61cm-2m)	0	
Large boulders (>2m)	0	
Rock crevices	0	
Exfoliating rock	0	

Abundance key

0 = Nil 4 = Occasional to common 1 = Rare 5 = Commo 2 = Rare to Occasional 6 = Commo to Abundant 3 = Occasional 7 = Abundant

Habitat Characters - Abundance

Site No. 21 **Recorder:** DS MH **Day/Date:** 26/11/20

Purpose

Locality: (inc. distance/direction to nearest town) W. Igavale

GPS coordinates: Zone 55 E 0724051 N 7062038 **Datum:** WGS 84

	Abundance (0 – 7)	Notes
Hollows in trees & stags	3	
Fallen logs (>10cm diam.)	3	
Decorticating bark	2	
Course litter (>2cm diam.)	2	
Fine litter (<2cm diameter)	4	
Bare ground	5	
Grass	3	
Soil cracks	0	
Stones (20-60cm)	0	
Boulders (61cm-2m)	0	
Large boulders (>2m)	0	
Rock crevices	0	
Exfoliating rock	0	

Abundance key

0 = Nil 4 = Occasional to common 1 = Rare 5 = Commo 2 = Rare to Occasional 6 = Comm n to Abundant 3 = Occasional 7 = Abundant

Habitat Characters - Abundance

Site No. 22 **Recorder:** DS MH **Day/Date:** 26/11/20

Purpose

Locality: (inc. distance/direction to nearest town) Wilga vale

GPS coordinates: Zone 56 E 0723958 N 7061785 **Datum:** AGD94

053

	Abundance (0 – 7)	Notes
Hollows in trees & stags	3	
Fallen logs (>10cm diam.)	4	
Decorticating bark	5	
Course litter (>2cm diam.)	5	
Fine litter (<2cm diameter)	5	
Bare ground	5	
Grass	5	
Soil cracks	0	
Stones (20-60cm)	0	
Boulders (61cm-2m)	0	
Large boulders (>2m)	0	
Rock crevices	0	
Exfoliating rock	0	

Abundance key

0 = Nil 4 = Occasional to common 1 = Rare 5 = Commo 2 = Rare to Occasional 6 = Commo to Abundant 3 = Occasional 7 = Abundant

Habitat Characters - Abundance

Site No. 23 **Recorder:** DS MN **Day/Date:** 26/11/20

Purpose

Locality: (inc. distance/direction to nearest town) Wilgarup

GPS coordinates: Zone 55 E 0 4 2 3 3 1 9 N 7 0 [illegible] 2 6 3 4 **Datum:** WGS 84

wpt 034

	Abundance (0 – 7)	Notes
Hollows in trees & stags	3	
Fallen logs (>10cm diam.)	3	
Decorticating bark	2	
Course litter (>2cm diam.)	6	
Fine litter (<2cm diameter)	6	
Bare ground	5	
Grass	4	
Soil cracks	0	
Stones (20-60cm)	6	
Boulders (61cm-2m)	3	
Large boulders (>2m)	0	
Rock crevices	0	
Exfoliating rock	0	

Abundance key

0 = Nil 4 = Occasional to common 1 = Rare 5 = Commo 2 = Rare to Occasional 6 = Commo to Abundant 3 = Occasional 7 = Abundant

Habitat Characters - Abundance

Site No. 24 **Recorder:** DS MH **Day/Date:** 26/11/20

Purpose

Locality: (inc. distance/direction to nearest town) W. Igaruda

GPS coordinates: Zone 55 E 0723428 N 7062565 **Datum:** AGD94

856

	Abundance (0 – 7)	Notes
Hollows in trees & stags	1	
Fallen logs (>10cm diam.)	2	
Decorticating bark	1	
Course litter (>2cm diam.)	3	
Fine litter (<2cm diameter)	4	
Bare ground	6	
Grass	5	
Soil cracks	0	
Stones (20-60cm)	0	
Boulders (61cm-2m)	0	
Large boulders (>2m)	0	
Rock crevices	1	
Exfoliating rock	0	

Abundance key

0 = Nil 4 = Occasional to common 1 = Rare 5 = Commo 2 = Rare to Occasional 6 = Commo to Abundant 3 = Occasional 7 = Abundant

Habitat Characters - Abundance

Site No. 25 **Recorder:** MH + DS **Day/Date:**

Purpose

Locality: (inc. distance/direction to nearest town) W. Igaveke

GPS coordinates: 895 Zone 55 E 0723109 N 7052268 **Datum:**

	Abundance (0 – 7)	Notes
Hollows in trees & stags	1	
Fallen logs (>10cm diam.)	4	
Decorticating bark	2	
Course litter (>2cm diam.)	5	
Fine litter (<2cm diameter)	5	
Bare ground	5	
Grass	5	
Soil cracks	0	
Stones (20-60cm)	0	
Boulders (61cm-2m)	0	
Large boulders (>2m)	0	
Rock crevices	0	
Exfoliating rock	0	

Abundance key

0 = Nil 4 = Occasional to common 1 = Rare 5 = Commo 2 = Rare to Occasional 6 = Comm n to Abundant 3 = Occasional 7 = Abundant

Habitat Characters - Abundance

Site No. 26 **Recorder:** MH - DS **Day/Date:** 23/11/20

Purpose

Locality: (inc. distance/direction to nearest town) Ulgarie

GPS coordinates: Zone 55 E 0723613 N 7062110 **Datum:**

860

	Abundance (0 – 7)	Notes
Hollows in trees & stags	2	
Fallen logs (>10cm diam.)	4	
Decorticating bark	3	
Course litter (>2cm diam.)	5	
Fine litter (<2cm diameter)	5	
Bare ground	5	
Grass	2	
Soil cracks	0	
Stones (20-60cm)	7	
Boulders (61cm-2m)	3	
Large boulders (>2m)	0	
Rock crevices	0	
Exfoliating rock	0	

N 6051
S 6052
E 6053
W 6054
G 6055

Abundance key
0 = Nil 4 = Occasional to common 1 = Rare 5 = Commo 2 = Rare to Occasional 6 = Commo to Abundant 3 = Occasional 7 = Abundant

Habitat Characters - Abundance

Site No. 27 **Recorder:** DS MH **Day/Date:** 27/11/20

Purpose

Locality: (inc. distance/direction to nearest town) Wilgarvale

GPS coordinates: Zone 55 E 0723018 N 7065951 **Datum:** AGD 94

Lpl 865

	Abundance (0 – 7)	Notes
Hollows in trees & stags	3	
Fallen logs (>10cm diam.)	2	
Decorticating bark	3	
Course litter (>2cm diam.)	4	
Fine litter (<2cm diameter)	6	
Bare ground	5	
Grass	6	
Soil cracks	0	
Stones (20-60cm)	4	
Boulders (61cm-2m)	0	
Large boulders (>2m)	0	
Rock crevices	0	
Exfoliating rock	0	

Abundance key

0 = Nil 4 = Occasional to common 1 = Rare 5 = Commo 2 = Rare to Occasional 6 = Commo to Abundant 3 = Occasional 7 = Abundant

Habitat Characters - Abundance

Site No. 28 **Recorder:** MH DS **Day/Date:** 27/11/20

Purpose

Locality: (inc. distance/direction to nearest town) W. Ingard

GPS coordinates: Zone 55 E 0724074 N 7061432 **Datum:**

867

	Abundance (0 – 7)	Notes
Hollows in trees & stags	2	
Fallen logs (>10cm diam.)	3	
Decorticating bark	4	
Course litter (>2cm diam.)	6	
Fine litter (<2cm diameter)	6	
Bare ground	3	
Grass	5	
Soil cracks	0	
Stones (20-60cm)	0	
Boulders (61cm-2m)	0	
Large boulders (>2m)	0	
Rock crevices	0	
Exfoliating rock	0	

Abundance key

0 = Nil 4 = Occasional to common 1 = Rare 5 = Commo 2 = Rare to Occasional 6 = Comm to Abundant 3 = Occasional 7 = Abundant

WK2

Habitat Characters - Abundance

Site No. ..... **Recorder:** ..... **Day/Date:** .....

Purpose .....

Locality: (inc. distance/direction to nearest town) .....

GPS coordinates: Zone 5 E 0 N **Datum:** .....

WPT878

	Abundance (0 – 7)	Notes
Hollows in trees & stags	1	
Fallen logs (>10cm diam.)	6	
Decorticating bark	4	
Course litter (>2cm diam.)	6	
Fine litter (<2cm diameter)	6	
Bare ground	5	
Grass	5	
Soil cracks	0	
Stones (20-60cm)	4	
Boulders (61cm-2m)	1	
Large boulders (>2m)	0	
Rock crevices	0	
Exfoliating rock	0	

Abundance key

0 = Nil 4 = Occasional to common 1 = Rare 5 = Commo 2 = Rare to Occasional 6 = Common to Abundant 3 = Occasional 7 = Abundant

Habitat Characters - Abundance

Site No. ..... **Recorder:** ..... **Day/Date:** .....

Purpose .....

Locality: (inc. distance/direction to nearest town) .....

GPS coordinates: Zone 5 E 0 N **Datum:** .....

WPT 884

	Abundance (0 – 7)	Notes	
Hollows in trees & stags	5		
Fallen logs (>10cm diam.)	4		
Decorticating bark	2		
Course litter (>2cm diam.)	6		
Fine litter (<2cm diameter)	5		
Bare ground	5		
Grass	6		
Soil cracks	0		
Stones (20-60cm)	0		
Boulders (61cm-2m)	0		
Large boulders (>2m)	0		
Rock crevices	0		
Exfoliating rock	0		

Abundance key

0 = Nil 4 = Occasional to common 1 = Rare 5 = Commo 2 = Rare to Occasional 6 = Common to Abundant 3 = Occasional 7 = Abundant

Habitat Characters - Abundanc

Site No. ..... **Recorder:** ..... **Day/Date:** .....

Purpose .....

Locality: (inc. distance/direction to nearest town) .....

GPS coordinates: Zone 5 E 0 N **Datum:** .....

WRT892

	Abundance (0 – 7)	Notes	
Hollows in trees & stags	4		
Fallen logs (>10cm diam.)	5		
Decorticating bark	5		
Course litter (>2cm diam.)	5		
Fine litter (<2cm diameter)	4		
Bare ground	6		
Grass	7		
Soil cracks	0		
Stones (20-60cm)	1		
Boulders (61cm-2m)	0		
Large boulders (>2m)	0		
Rock crevices	0		
Exfoliating rock	0		

Abundance key

0 = Nil 4 = Occasional to common 1 = Rare 5 = Commo 2 = Rare to Occasional 6 = Com on to Abundant 3 = Occasional 7 = Abundant

Habitat Characters - Abundanc

Site No. ..... **Recorder:** ..... **Day/Date:** .....

Purpose .....

Locality: (inc. distance/direction to nearest town) .....

GPS coordinates: Zone 5 E 0 N **Datum:** .....

WPT 901

	Abundance (0 – 7)	Notes	
Hollows in trees & stags	1		
Fallen logs (>10cm diam.)	1		
Decorticating bark	1		
Course litter (>2cm diam.)	3		
Fine litter (<2cm diameter)	6		
Bare ground	6		
Grass	6		
Soil cracks	0		
Stones (20-60cm)	0		
Boulders (61cm-2m)	0		
Large boulders (>2m)	0		
Rock crevices	0		
Exfoliating rock	0		

Abundance key

0 = Nil 4 = Occasional to common 1 = Rare 5 = Commo 2 = Rare to Occasional 6 = Com on to Abundant 3 = Occasional 7 = Abundant

Habitat Characters - Abundance

Site No. ..... **Recorder:** ..... **Day/Date:** .....

Purpose .....

Locality: (inc. distance/direction to nearest town) .....

GPS coordinates: Zone 5 E 0 N **Datum:** .....

WPT 909

	Abundance (0 – 7)	Notes
Hollows in trees & stags	1	
Fallen logs (>10cm diam.)	5	
Decorticating bark	2	
Course litter (>2cm diam.)	5	
Fine litter (<2cm diameter)	4	
Bare ground	7	
Grass	1	
Soil cracks	0	
Stones (20-60cm)	0	
Boulders (61cm-2m)	0	
Large boulders (>2m)	0	
Rock crevices	0	
Exfoliating rock	0	

Abundance key

0 = Nil 4 = Occasional to common 1 = Rare 5 = Commo 2 = Rare to Occasional 6 = Common to Abundant 3 = Occasional 7 = Abundant

Habitat Characters - Abundance

Site No. ..... **Recorder:** ..... **Day/Date:** .....

Purpose .....

Locality: (inc. distance/direction to nearest town) .....

GPS coordinates: Zone 55 E 0726323 N 7061124 **Datum:** .....

WPT 943

	Abundance (0 – 7)	Notes	
Hollows in trees & stags	1		
Fallen logs (>10cm diam.)	6		
Decorticating bark	2		
Course litter (>2cm diam.)	6		
Fine litter (<2cm diameter)	5		
Bare ground	6		
Grass	1		
Soil cracks	0		
Stones (20-60cm)	0		
Boulders (61cm-2m)	0		
Large boulders (>2m)	0		
Rock crevices	0		
Exfoliating rock	0		

Abundance key

0 = Nil 4 = Occasional to common 1 = Rare 5 = Commo 2 = Rare to Occasional 6 = Comm on to Abundant 3 = Occasional 7 = Abundant

Habitat Characters - Abundanc

Site No. ..... **Recorder:** ..... **Day/Date:** .....

Purpose .....

Locality: (inc. distance/direction to nearest town) .....

GPS coordinates: Zone 5 E 0 N **Datum:** .....

WRT 983

	Abundance (0 – 7)	Notes
Hollows in trees & stags	6	
Fallen logs (>10cm diam.)	5	
Decorticating bark	5	
Course litter (>2cm diam.)	4	
Fine litter (<2cm diameter)	4	
Bare ground	6	
Grass	2	
Soil cracks	0	
Stones (20-60cm)	0	
Boulders (61cm-2m)	0	
Large boulders (>2m)	0	
Rock crevices	0	
Exfoliating rock	0	

Abundance key

0 = Nil 4 = Occasional to common 1 = Rare 5 = Commo 2 = Rare to Occasional 6 = Comm on to Abundant 3 = Occasional 7 = Abundant

Habitat Characters - Abundanc

Site No. ..... **Recorder:** ..... **Day/Date:** .....

Purpose .....

Locality: (inc. distance/direction to nearest town) .....

GPS coordinates: Zone 5 E 0 N **Datum:** .....

WPT 9778

	Abundance (0 – 7)	Notes	
Hollows in trees & stags	1		
Fallen logs (>10cm diam.)	3		
Decorticating bark	1		
Course litter (>2cm diam.)	6		
Fine litter (<2cm diameter)	5		
Bare ground	5		
Grass	5		
Soil cracks	0		
Stones (20-60cm)	0		
Boulders (61cm-2m)	0		
Large boulders (>2m)	0		
Rock crevices	0		
Exfoliating rock	0		

Abundance key

0 = Nil 4 = Occasional to common 1 = Rare 5 = Commo 2 = Rare to Occasional 6 = Com on to Abundant 3 = Occasional 7 = Abundant

Habitat Characters - Abundance

Site No. ..... **Recorder:** ..... **Day/Date:** .....

Purpose .....

Locality: (inc. distance/direction to nearest town) .....

GPS coordinates: Zone 5 E 0 N **Datum:** .....

WPT 968

	Abundance (0 – 7)	Notes
Hollows in trees & stags	5	
Fallen logs (>10cm diam.)	4	
Decorticating bark	4	
Course litter (>2cm diam.)	5	
Fine litter (<2cm diameter)	6	
Bare ground	3	
Grass	7	
Soil cracks	6	
Stones (20-60cm)	0	
Boulders (61cm-2m)	0	
Large boulders (>2m)	0	
Rock crevices	0	
Exfoliating rock	0	

Abundance key

0 = Nil 4 = Occasional to common 1 = Rare 5 = Commo 2 = Rare to Occasional 6 = Com on to Abundant 3 = Occasional 7 = Abundant

Habitat Characters - Abundance

Site No. ..... **Recorder:** ..... **Day/Date:** .....

Purpose .....

Locality: (inc. distance/direction to nearest town) .....

GPS coordinates: Zone 5 E 0 N ..... **Datum:** .....

WPT 18

	Abundance (0 – 7)	Notes
Hollows in trees & stags	6	
Fallen logs (>10cm diam.)	5	
Decorticating bark	6	
Course litter (>2cm diam.)	5	
Fine litter (<2cm diameter)	6	
Bare ground	2	
Grass	7	
Soil cracks	0	
Stones (20-60cm)	0	
Boulders (61cm-2m)	0	
Large boulders (>2m)	0	
Rock crevices	0	
Exfoliating rock	0	

N 6266
E 6267
S 6268
W 6269

G 6270

Abundance key

0 = Nil 4 = Occasional to common 1 = Rare 5 = Commo 2 = Rare to Occasional 6 = Comm on to Abundant 3 = Occasional 7 = Abundant

WK3

Habitat Characters - Abundance

Site No. 419 **Recorder:** DK MH **Day/Date:** 15/12/20

Purpose

Locality: (inc. distance/direction to nearest town) Myalla

GPS coordinates: Zone 55 E 0732993 N 7060302 **Datum:** GDA 94

at 1014

	Abundance (0 – 7)	Notes
Hollows in trees & stags	6	Emergent Creekline largely senescing
Fallen logs (>10cm diam.)	1	
Decorticating bark	1	
Course litter (>2cm diam.)	5	
Fine litter (<2cm diameter)	5	
Bare ground	5	
Grass	5	
Soil cracks	0	
Stones (20-60cm)	0	
Boulders (61cm-2m)	0	
Large boulders (>2m)	0	
Rock crevices	0	
Exfoliating rock	0	

Abundance key

0 = Nil 4 = Occasional to common 1 = Rare 5 = Commo 2 = Rare to Occasional 6 = Common to Abundant 3 = Occasional 7 = Abundant

Habitat Characters - Abundance

Site No. 420 **Recorder:** DS MH **Day/Date:** 15/12/20

Purpose

Locality: (inc. distance/direction to nearest town) Myalla

GPS coordinates: Zone 55 E 0732889 N 7059879 **Datum:**

mgt 1015

	Abundance (0 – 7)	Notes
Hollows in trees & stags	1	
Fallen logs (>10cm diam.)	5	
Decorticating bark	2	
Course litter (>2cm diam.)	6	
Fine litter (<2cm diameter)	5	
Bare ground	5	
Grass	6	
Soil cracks	0	
Stones (20-60cm)	0	
Boulders (61cm-2m)	0	
Large boulders (>2m)	0	
Rock crevices	0	
Exfoliating rock	0	

Abundance key

0 = Nil 4 = Occasional to common 1 = Rare 5 = Commo 2 = Rare to Occasional 6 = Commo to Abundant 3 = Occasional 7 = Abundant

Habitat Characters - Abundance

Site No. 423 **Recorder:** DS MH **Day/Date:** 15/12/20

Purpose

Locality: (inc. distance/direction to nearest town) Myalla

GPS coordinates: Zone 55 E 0732786 N 7059380 **Datum:** GDA 94

1017

	Abundance (0 – 7)	Notes	
Hollows in trees & stags	2		
Fallen logs (>10cm diam.)	5		
Decorticating bark	1		
Course litter (>2cm diam.)	5		
Fine litter (<2cm diameter)	5		
Bare ground	5		
Grass	5		
Soil cracks	0		
Stones (20-60cm)	0		
Boulders (61cm-2m)	0		
Large boulders (>2m)	0		
Rock crevices	0		
Exfoliating rock	0		

Abundance key

0 = Nil 4 = Occasional to common 1 = Rare 5 = Commo 2 = Rare to Occasional 6 = Comm n to Abundant 3 = Occasional 7 = Abundant

Habitat Characters - Abundance

Site No. 495 **Recorder:** DS MH **Day/Date:** 17/12/20

Purpose

Locality: (inc. distance/direction to nearest town) Arsa Jugh

GPS coordinates: Zone 55 E 0 3 3 6 7 4 8 N 7 6 2 2 4 4 **Datum:** GDA 94

1104

	Abundance (0 – 7)	Notes
Hollows in trees & stags	0	
Fallen logs (>10cm diam.)	2	
Decorticating bark	1	
Course litter (>2cm diam.)	6	
Fine litter (<2cm diameter)	7	
Bare ground	5	
Grass	4	
Soil cracks	0	
Stones (20-60cm)	0	
Boulders (61cm-2m)	0	
Large boulders (>2m)	0	
Rock crevices	0	
Exfoliating rock	0	

Abundance key

0 = Nil 4 = Occasional to common 1 = Rare 5 = Commo 2 = Rare to Occasional 6 = Comm n to Abundant 3 = Occasional 7 = Abundant

Habitat Characters - Abundance

Site No. 504 **Recorder:** DS MH **Day/Date:** 17/12/20

Purpose

Locality: (inc. distance/direction to nearest town) Angry Jungle

GPS coordinates: Zone 55 E 0729309 N 6466471 **Datum:** GDA94

	Abundance (0 – 7)	Notes
Hollows in trees & stags	2	
Fallen logs (>10cm diam.)	4	
Decorticating bark	1	
Course litter (>2cm diam.)	6	
Fine litter (<2cm diameter)	6	
Bare ground	6	
Grass	6	
Soil cracks	0	
Stones (20-60cm)	0	
Boulders (61cm-2m)	0	
Large boulders (>2m)	0	
Rock crevices	0	
Exfoliating rock	0	

Abundance key

0 = Nil 4 = Occasional to common 1 = Rare 5 = Commo 2 = Rare to Occasional 6 = Comm n to Abundant 3 = Occasional 7 = Abundant

A 3.3 Sheet D – Regional Ecosystem type assessment site

Location

Site No. 514 **Recorder:** DS **Day/Date:** 18/12/20

Purpose

Locality: (inc. distance/direction to nearest town) Araby Jungle

GPS: 1125 | 55 | 0728342 | 7963391 | D GDA 94

N 6556
S 6557
E 6558
W 6559
G 6560

Vegetation structure

Median height of the EDL is to be measured

Stratum	Median height	Height interval	Est. cover density (D,M,S,V)
E	6	6-7	V
T1	4	4-5	M
T2		-	
T3		-	
S1		-	
S2		-	
G		< 0.4	D

Structural formation: (including height)

Ecologically dominant layer:

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	Ac harpophylla
E	D	E. populnea
G	D	Cenchrus ciliaris

Geology, landform, soils

Geology map/scale/year:

Geology code and rock types:

Land system: Downs

Landform: Bottom of Slope

Soils:

Field observation and notes: No Scrub logs
Ground 100% buffel

Landzone: 9

RE code changes

Existing RE code: Not Mapped

Proposed RE code: 11.9.5a regrowth

END

Habitat Characters - Abundance

Site No. 514 **Recorder:** DJ **Day/Date:** 18/12/20

Purpose

Locality: (inc. distance/direction to nearest town) Angy Jungle

GPS coordinates: Zone 55 E 0712853472 N 7126339811 **Datum:** GDA 94

1125

	Abundance (0 – 7)	Notes	
Hollows in trees & stags	0		
Fallen logs (>10cm diam.)	1		
Decorticating bark	1		
Course litter (>2cm diam.)	6		
Fine litter (<2cm diameter)	6		
Bare ground	5		
Grass	6		
Soil cracks	0		
Stones (20-60cm)	0		
Boulders (61cm-2m)	2		
Large boulders (>2m)	0		
Rock crevices	0		
Exfoliating rock	0		

Abundance key

0 = Nil 4 = Occasional to common 1 = Rare 5 = Commo 2 = Rare to Occasional 6 = Common to Abundant 3 = Occasional 7 = Abundant

Habitat Characters - Abundanc

Site No. ..... **Recorder:** ..... **Day/Date:** .....

Purpose .....

Locality: (inc. distance/direction to nearest town) .....

GPS coordinates: Zone 5 E 0 N **Datum:** .....

WPT 996

	Abundance (0 – 7)	Notes	
Hollows in trees & stags	1		
Fallen logs (>10cm diam.)	2		
Decorticating bark	1		
Course litter (>2cm diam.)	2		
Fine litter (<2cm diameter)	7		
Bare ground	5		
Grass	4		
Soil cracks	0		
Stones (20-60cm)	5		
Boulders (61cm-2m)	5		
Large boulders (>2m)	5		
Rock crevices	2		
Exfoliating rock	0		

Abundance key

0 = Nil 4 = Occasional to common 1 = Rare 5 = Commo 2 = Rare to Occasional 6 = Common to Abundant 3 = Occasional 7 = Abundant

Habitat Characters - Abundanc

Site No. ..... **Recorder:** ..... **Day/Date:** .....

Purpose .....

Locality: (inc. distance/direction to nearest town) .....

GPS coordinates: Zone 5 E 0 N **Datum:** .....

WPT1000

	Abundance (0 – 7)	Notes
Hollows in trees & stags	1	
Fallen logs (>10cm diam.)	1	
Decorticating bark	1	
Course litter (>2cm diam.)	3	
Fine litter (<2cm diameter)	2	
Bare ground	1	
Grass	3	
Soil cracks	0	
Stones (20-60cm)	6	
Boulders (61cm-2m)	3	
Large boulders (>2m)	0	
Rock crevices	0	
Exfoliating rock	0	

Abundance key

0 = Nil 4 = Occasional to common 1 = Rare 5 = Commo 2 = Rare to Occasional 6 = Com on to Abundant 3 = Occasional 7 = Abundant

Habitat Characters - Abundanc

Site No. ..... **Recorder:** ..... **Day/Date:** .....

Purpose .....

Locality: (inc. distance/direction to nearest town) .....

GPS coordinates: Zone 5 E 0 N **Datum:** .....

WPT 1001

	Abundance (0 – 7)	Notes	
Hollows in trees & stags	1		
Fallen logs (>10cm diam.)	1		
Decorticating bark	1		
Course litter (>2cm diam.)	6		
Fine litter (<2cm diameter)	6		
Bare ground	5		
Grass	5		
Soil cracks	0		
Stones (20-60cm)	0		
Boulders (61cm-2m)	0		
Large boulders (>2m)	0		
Rock crevices	0		
Exfoliating rock	0		

Abundance key

0 = Nil 4 = Occasional to common 1 = Rare 5 = Commo 2 = Rare to Occasional 6 = Com on to Abundant 3 = Occasional 7 = Abundant

Habitat Characters - Abundanc

Site No. ..... **Recorder:** ..... **Day/Date:** .....

Purpose .....

Locality: (inc. distance/direction to nearest town) .....

GPS coordinates: Zone 5 E 0 N ..... **Datum:** .....

WPT 1003

	Abundance (0 – 7)	Notes	
Hollows in trees & stags	2		
Fallen logs (>10cm diam.)	5		
Decorticating bark	3		
Course litter (>2cm diam.)	4		
Fine litter (<2cm diameter)	5		
Bare ground	5		
Grass	3		
Soil cracks	0		
Stones (20-60cm)	0		
Boulders (61cm-2m)	0		
Large boulders (>2m)	0		
Rock crevices	0		
Exfoliating rock	0		

Abundance key

0 = Nil 4 = Occasional to common 1 = Rare 5 = Commo 2 = Rare to Occasional 6 = Com on to Abundant 3 = Occasional 7 = Abundant

Habitat Characters - Abundance

Site No. ..... **Recorder:** ..... **Day/Date:** .....

Purpose .....

Locality: (inc. distance/direction to nearest town) .....

GPS coordinates: Zone 5 E 0 N **Datum:** .....

WPT 1004

	Abundance (0 – 7)	Notes	
Hollows in trees & stags	2		
Fallen logs (>10cm diam.)	5		
Decorticating bark	2		
Course litter (>2cm diam.)	6		
Fine litter (<2cm diameter)	6		
Bare ground	5		
Grass	5		
Soil cracks	0		
Stones (20-60cm)	0		
Boulders (61cm-2m)	0		
Large boulders (>2m)	0		
Rock crevices	0		
Exfoliating rock	0		

Abundance key

0 = Nil 4 = Occasional to common 1 = Rare 5 = Commo 2 = Rare to Occasional 6 = Common to Abundant 3 = Occasional 7 = Abundant

Habitat Characters - Abundance

Site No. ..... **Recorder:** ..... **Day/Date:** .....

Purpose .....

Locality: (inc. distance/direction to nearest town) .....

GPS coordinates: Zone 5 E 0 N **Datum:** .....

UPT 1005

	Abundance (0 – 7)	Notes	
Hollows in trees & stags	1		
Fallen logs (>10cm diam.)	7		
Decorticating bark	2		
Course litter (>2cm diam.)	6		
Fine litter (<2cm diameter)	5		
Bare ground	5		
Grass	5		
Soil cracks	0		
Stones (20-60cm)	0		
Boulders (61cm-2m)	0		
Large boulders (>2m)	0		
Rock crevices	0		
Exfoliating rock	6		

Abundance key

0 = Nil 4 = Occasional to common 1 = Rare 5 = Commo 2 = Rare to Occasional 6 = Com on to Abundant 3 = Occasional 7 = Abundant

Habitat Characters - Abundanc

Site No. ..... **Recorder:** ..... **Day/Date:** .....

Purpose .....

Locality: (inc. distance/direction to nearest town) .....

GPS coordinates: Zone 5 E 0 N **Datum:** .....

WPT 1025

	Abundance (0 – 7)	Notes
Hollows in trees & stags	3	
Fallen logs (>10cm diam.)	5	
Decorticating bark	3	
Course litter (>2cm diam.)	5	
Fine litter (<2cm diameter)	5	
Bare ground	5	
Grass	4	
Soil cracks	2	
Stones (20-60cm)	0	
Boulders (61cm-2m)	0	
Large boulders (>2m)	0	
Rock crevices	0	
Exfoliating rock	0	

Abundance key

0 = Nil 4 = Occasional to common 1 = Rare 5 = Commo 2 = Rare to Occasional 6 = Com on to Abundant 3 = Occasional 7 = Abundant

Habitat Characters - Abundance

Site No. ..... **Recorder:** ..... **Day/Date:** .....

Purpose .....

Locality: (inc. distance/direction to nearest town) .....

GPS coordinates: Zone 5 E 0 N **Datum:** .....

WRT1057

	Abundance (0 – 7)	Notes
Hollows in trees & stags	2	
Fallen logs (>10cm diam.)	6	
Decorticating bark	2	
Course litter (>2cm diam.)	6	
Fine litter (<2cm diameter)	6	
Bare ground	3	
Grass	5	
Soil cracks	0	
Stones (20-60cm)	0	
Boulders (61cm-2m)	0	
Large boulders (>2m)	0	
Rock crevices	0	
Exfoliating rock	0	

Abundance key

0 = Nil 4 = Occasional to common 1 = Rare 5 = Commo 2 = Rare to Occasional 6 = Common to Abundant 3 = Occasional 7 = Abundant

Habitat Characters - Abundanc

Site No. ..... **Recorder:** ..... **Day/Date:** .....

Purpose .....

Locality: (inc. distance/direction to nearest town) .....

GPS coordinates: Zone 5 E 0 N **Datum:** .....

WPT 1055

	Abundance (0 – 7)	Notes	
Hollows in trees & stags	2		
Fallen logs (>10cm diam.)	4		
Decorticating bark	3		
Course litter (>2cm diam.)	4		
Fine litter (<2cm diameter)	5		
Bare ground	1		
Grass	7		
Soil cracks	0		
Stones (20-60cm)	0		
Boulders (61cm-2m)	0		
Large boulders (>2m)	0		
Rock crevices	0		
Exfoliating rock	0		

Abundance key

0 = Nil 4 = Occasional to common 1 = Rare 5 = Commo 2 = Rare to Occasional 6 = Com on to Abundant 3 = Occasional 7 = Abundant

Habitat Characters - Abundance

Site No. ..... **Recorder:** ..... **Day/Date:** .....

Purpose .....

Locality: (inc. distance/direction to nearest town) .....

GPS coordinates: Zone 5 E 0 N **Datum:** .....

WPT 1058

	Abundance (0 – 7)	Notes	
Hollows in trees & stags	2		
Fallen logs (>10cm diam.)	4		
Decorticating bark	3		
Course litter (>2cm diam.)	6		
Fine litter (<2cm diameter)	5		
Bare ground	4		
Grass	4		
Soil cracks	0		
Stones (20-60cm)	0		
Boulders (61cm-2m)	0		
Large boulders (>2m)	0		
Rock crevices	0		
Exfoliating rock	0		

Abundance key

0 = Nil 4 = Occasional to common 1 = Rare 5 = Commo 2 = Rare to Occasional 6 = Common to Abundant 3 = Occasional 7 = Abundant

Habitat Characters - Abundance

Site No. ..... **Recorder:** ..... **Day/Date:** .....

Purpose .....

Locality: (inc. distance/direction to nearest town) .....

GPS coordinates: Zone 5 E 0 N **Datum:** .....

WP1059

	Abundance (0 – 7)	Notes
Hollows in trees & stags	6	
Fallen logs (>10cm diam.)	5	
Decorticating bark	2	
Course litter (>2cm diam.)	6	
Fine litter (<2cm diameter)	5	
Bare ground	5	
Grass	5	
Soil cracks	3	
Stones (20-60cm)	0	
Boulders (61cm-2m)	0	
Large boulders (>2m)	0	
Rock crevices	0	
Exfoliating rock	0	

Abundance key

0 = Nil 4 = Occasional to common 1 = Rare 5 = Commo 2 = Rare to Occasional 6 = Com on to Abundant 3 = Occasional 7 = Abundant

Habitat Characters - Abundance

Site No. ..... **Recorder:** ..... **Day/Date:** .....

Purpose .....

Locality: (inc. distance/direction to nearest town) .....

GPS coordinates: Zone 5 E 0 N ..... **Datum:** .....

WP11064

	Abundance (0 – 7)	Notes
Hollows in trees & stags	1	
Fallen logs (>10cm diam.)	5	
Decorticating bark	1	
Course litter (>2cm diam.)	6	
Fine litter (<2cm diameter)	6	
Bare ground	3	
Grass	7	
Soil cracks	0	
Stones (20-60cm)	0	
Boulders (61cm-2m)	0	
Large boulders (>2m)	0	
Rock crevices	0	
Exfoliating rock	0	

Abundance key

0 = Nil 4 = Occasional to common 1 = Rare 5 = Commo 2 = Rare to Occasional 6 = Common to Abundant 3 = Occasional 7 = Abundant

Habitat Characters - Abundance

Site No. ..... **Recorder:** ..... **Day/Date:** .....

Purpose .....

Locality: (inc. distance/direction to nearest town) .....

GPS coordinates: Zone 5 E 0 N **Datum:** .....

WPT 1067

	Abundance (0 – 7)	Notes
Hollows in trees & stags	1	
Fallen logs (>10cm diam.)	6	
Decorticating bark	5	
Course litter (>2cm diam.)	6	
Fine litter (<2cm diameter)	6	
Bare ground	4	
Grass	5	
Soil cracks	0	
Stones (20-60cm)	0	
Boulders (61cm-2m)	0	
Large boulders (>2m)	0	
Rock crevices	0	
Exfoliating rock	0	

Abundance key

0 = Nil 4 = Occasional to common 1 = Rare 5 = Commo 2 = Rare to Occasional 6 = Com on to Abundant 3 = Occasional 7 = Abundant

Habitat Characters - Abundance

Site No. ..... **Recorder:** ..... **Day/Date:** .....

Purpose .....

Locality: (inc. distance/direction to nearest town) .....

GPS coordinates: Zone 5 E 0 N **Datum:** .....

WPT 1069

	Abundance (0 – 7)	Notes
Hollows in trees & stags	1	
Fallen logs (>10cm diam.)	5	
Decorticating bark	1	
Course litter (>2cm diam.)	6	
Fine litter (<2cm diameter)	6	
Bare ground	5	
Grass	6	
Soil cracks	0	
Stones (20-60cm)	0	
Boulders (61cm-2m)	0	
Large boulders (>2m)	0	
Rock crevices	0	
Exfoliating rock	0	

Abundance key

0 = Nil 4 = Occasional to common 1 = Rare 5 = Commo 2 = Rare to Occasional 6 = Common to Abundant 3 = Occasional 7 = Abundant

Habitat Characters - Abundance

Site No. ..... **Recorder:** ..... **Day/Date:** .....

Purpose .....

Locality: (inc. distance/direction to nearest town) .....

GPS coordinates: Zone 5 E 0 N **Datum:** .....

WOT 1124

	Abundance (0 – 7)	Notes
Hollows in trees & stags	1	
Fallen logs (>10cm diam.)	1	
Decorticating bark	1	
Course litter (>2cm diam.)	6	
Fine litter (<2cm diameter)	4	
Bare ground	4	
Grass	6	
Soil cracks	0	
Stones (20-60cm)	0	
Boulders (61cm-2m)	0	
Large boulders (>2m)	0	
Rock crevices	0	
Exfoliating rock	0	

Abundance key

0 = Nil 4 = Occasional to common 1 = Rare 5 = Commo 2 = Rare to Occasional 6 = Common to Abundant 3 = Occasional 7 = Abundant

Habitat Characters - Abundance

Site No. ..... **Recorder:** ..... **Day/Date:** .....

Purpose .....

Locality: (inc. distance/direction to nearest town) .....

GPS coordinates: Zone 5 E 0 N ..... **Datum:** .....

WPT1129

	Abundance (0 – 7)	Notes
Hollows in trees & stags	1	
Fallen logs (>10cm diam.)	3	
Decorticating bark	1	
Course litter (>2cm diam.)	5	
Fine litter (<2cm diameter)	4	
Bare ground	6	
Grass	4	
Soil cracks	0	
Stones (20-60cm)	0	
Boulders (61cm-2m)	0	
Large boulders (>2m)	0	
Rock crevices	0	
Exfoliating rock	0	

Abundance key

0 = Nil 4 = Occasional to common 1 = Rare 5 = Commo 2 = Rare to Occasional 6 = Com on to Abundant 3 = Occasional 7 = Abundant

Appendix G

Field Survey Site Data: BioCondition Site Sheets

Biocondition Datasheet

Site ID	914				Date	1/12/2020	
Observers	Donovan Sharp,Matt H						
Site Information:							
100x50m Area:							
Location (GPS reference)					Bioregion	Brigalow Belt South	
Datum	GDA94						
Zone	55 J	Easting		Northing			
Plot origin			741939		7063804		914
Plot centre			741987		7063820		915
Plot Bearing		Plot Alignment Description					
Locality	Roma SD 22						
Regional Ecosystem and Tree height							
Habitat Description	Yuleba State Forest						
Regional Ecosystem		11.5.1		Median Tree canopy Height (m)		17	
	Emergent height (m)			Subcanopy ht (m)		5	
Site Photos	Plot centre	North	6148	South	6149	S	
Photo Numbers		East	6150	West	6151		
	Plot Origin			other			
Site Photos	See below						

Disturbance					**100 x 50m Area: Tree SPP. Richness**		
Type	mean fire scar height	severity	last event	obs type	Tree Species	Eucalyptus populnea	
Wildfire	na					Callitris glaucophylla	Tree Spp. Count
Prescribed burn	na					Angophora leiocarpa	7
Logging	na					Corymbia tessellaris	
Treatment	na					Acacia leiocalyx	
						Grevillea striata	
						Allocasuarina luehmannii	
Grazing	yes	moderate			50 x 20m Area: Coarse woody Debris		
Non-native plant cove	<5%				Specimen length (mm)		
Erosion	na						site total m
Regeneration	100%						38.5
Storm	na						per ha (m)
Other (specify)	na						385

50 x 10m Area	**Native Plant Species Richness**	Total
Shrub sp.		
	Hovea longipes	
	Geijera parviflora	
Grass sp.		
	Aristida caput-medusae	
	Echinopogon caespitosus	
	Aristida calycina	
	*Cenchrus ciliaris	
	Chrysopogon fallax	
	Aristida ramosa	
Forbs/other sp.	Solanum ellipticum	
	Maireana microphylla	

Biocondition datasheet (cont.)

10 x 10m Plots: Ground Cover

Ground cover type	1	2	3	4	5	Mean
Native perennial (preferred and intermediate) grass	30	40	50	25	30	35
Native non-preferred grass	0	0	0	0	0	0
Native forbs and other species	1	2	2	3	0	1.6
Native shrubs (< 1m height)	0	0	0	0	0	0
Non-native grass	0	0	0	0	0	0
Non-native forbs and shrubs	0	0	0	0	0	0
litter	20	40	30	60	70	44
rock	0	0	0	0	0	0
bare ground	49	18	18	12	0	19.4
Cryptograms	0	0	0	0	0	0
Total	100	100	100	100	100	100

100 x 50m Area: Large Trees	Plot size	100x 50		100x 20		100 x 10	
Species	Euc (E) Non-Euc (N)	Diam (cm)	DBH				

Eucalypts	Avg DBH threshold		RE	44	Euc Benchm	Euc Benchmark
	No. Trees	1	No. Trees > =		Benchmark/ha	2
Non-Eucalypts	Avg DBH threshold		RE	24	Euc Benchm	Euc Benchmark
	No. Trees	17	No. Trees > =		Benchmark/ha	34

100m Transect: Tree and Shrub Canopy Cover Canopy (C), Subcanopy (SC), Emergent (E), Shrub (S)

Distance (m)		Type	Distance (m)		Type	Distance (m)		Type
5-8.5	3.5	C	0-1.5	1.5	SC	3-4	1	S
9.5-13.5	4	C	11-12.5	1.5	SC	7-8.5	1.5	S
26.5-30.5	4	C	15-16.5	1.5	SC	33-36	3	S
38.5-43	4.5	C	18-19.5	1.5	SC			
44.5-52	7.5	C	32-36	4	SC			
52.5-55.5	3	C	41-44.5	3.5	SC			
57-61	4	C	46-47	1	SC			
64.5-68	3.5	C	58-59	1	SC			
69-73	4	C	67-68	1	SC			
			72-73.5	1.5	SC	canopy total		38.5
			75-77	2	SC	subcanopy total		21.5
			78-79.5	1.5	SC	emergent total		
						shrub total		5.5

North

South

East

West

Biocondition Datasheet

Site ID	916				Date	1/12/2020	
Observers	Donovan Sharp, Matt H						
Site Information:							
100x50m Area:							
Location (GPS reference)					Bioregion	Brigalow Belt South	
Datum	GDA94						
Zone	55 J	Easting		Northing			
Plot origin			739017		7061866		916
Plot centre			739065		7061873		917
Plot Bearing	E	Plot Alignment Description					
Locality	Roma SD 22						
	Wyena State Forest						
Regional Ecosystem and Tree height							
Habitat Description							
Regional Ecosystem		11.5.5	Median Tree canopy Height (m)		12		
	Emergent height (m)		14	Subcanopy ht (m)	5		

Site Photos	Plot centre	North	6152	South	6153
Photo Numbers		East	6154	West	6155
	Plot Origin			other	6156

Disturbance					**100 x 50m Area: Tree SPP. Richness**		
Type	mean fire scar height	severity	last event	obs type	Tree Species	Eucalyptus populnea	
Wildfire	na					Callitris glaucophylla	Tree Spp. Count
Prescribed burn	na					Eremophila deserti	5
Logging	na					Eucalyptus melanophloia	
Treatment	na					Grevillea striata	
Grazing	yes	moderate			50 x 20m Area: Coarse woody Debris		
Non-native plant cove	5.00%				Specimen length (mm)		
Erosion	na						site total m
Regeneration	75%						52
Storm	na						per ha (m)
Other (specify)	na						520

50 x 10m Area	**Native Plant Species Richness**	Total
Shrub sp.		
	Grevillea striata	
	Maireana microphylla	
	Acacia leiocalyx	
	Acacia decora	
Grass sp.		
	*Cenchrus ciliaris	
	Aristida caput-medusae	
	Aristida jerichoensis	
	Eragrostis brownii	
	Aristida ramosa	
	Aristida calycina	
	Dichanthium sericeum	
Forbs/other sp.		
	Abutilon oxycarpum	
	Calotis cuneifolia	
	*Achyranthes aspera	
	*Glandularia aristigera	
	Dysphania carinata	

Biocondition datasheet (cont.)

10 x 10m Plots: Ground Cover

Ground cover type	1	2	3	4	5	Mean
Native perennial (preferred and intermediate) grass	10	30	35	25	40	28
Native non-preferred grass	0	0	0	0	0	0
Native forbs and other species	5	5	2	2	3	3.4
Native shrubs (< 1m height)	0	0	0	0	0	0
Non-native grass	10	0	0	0	0	2
Non-native forbs and shrubs	0	0	0	0	0	0
litter	50	45	25	45	50	43
rock	0	0	0	0	0	0
bare ground	25	20	38	28	7	23.6
Cryptograms	0	0	0	0	0	0
Total	100	100	100	100	100	100

100 x 50m Area: Large Trees	Plot size	100x 50		100x 20		100 x 10	
Species	Euc (E) Non-Euc (N)	Diam (cm)	DBH				

Eucalypts	Avg DBH threshold		RE		Euc Benchm	Euc Benchmark	
	No. Trees	3	No. Trees > =	Benchmark/ha		6	No Benchmark
Non-Eucalypts	Avg DBH threshold		RE		Euc Benchm	Euc Benchmark	
	No. Trees	0	No. Trees > =	Benchmark/ha	euc >40cm		No Benchmark

100m Transect: Tree and Shrub Canopy Cover Canopy (C), Subcanopy (SC), Emergent (E), Shrub (S)

Distance (m)		Type	Distance (m)		Type	Distance (m)		Type
0-11	11	C	21.5-22.5	1	SC	25-26	1	S
22.5-29	6.5	C	28.5-32	3.5	SC	70.5-71.5	1.5	
58-52	4	C	44-46	2	SC			
48-52	4	C	58-60	2	SC			
55.5-59	3.5	C	60-63.5	3.5	SC			
67-70.5	3.5	C	74.5-76.5	2	SC			
90.5-96	5.5	C	77-79.5	2.5	SC			
97-99	2	C	82.5-86	3.5	SC			
			88-94	6	SC			
6.5-9	3	SC	96-96.5	0.5	SC	canopy total		40
10-11	1	SC	97-100	3	SC	subcanopy total		36
15.5-17.5	2	SC				emergent total		
19-19.5	0.5	SC				shrub total		2.5

North

South

East

West

Ground

Biocondition Datasheet

Site ID	918				Date	2/12/2021	
Observers	Donovan Sharp,Matt H						
Site Information:							
100x50m Area:							
Location (GPS reference)					Bioregion	Brigalow Belt South	
Datum	GDA94						
Zone	55 J	Easting		Northing			
Plot origin			724570		7060177		918
Plot centre			724611		7060156		919
Plot Bearing	E	Plot Alignment Description					
Locality	Roma SD 22						
	Wilgavale						

Regional Ecosystem and Tree height

Habitat Description	Lancewood on rocky rises. Very dry.					
Regional Ecosystem		11.7.2	Median Tree canopy Height (m)		10	
	Emergent height (m)			Subcanopy ht (m)		

Site Photos	Plot centre	North	6157	South	6158	
Photo Numbers		East	6159	West	6160	
	Plot Origin			other	6161	

Disturbance					**100 x 50m Area: Tree SPP. Richness**		
Type	mean fire scar height	severity	last event	obs type	Tree Species	Acacia shirleyi	
Wildfire	na					Eucalyptus crebra	Tree Spp. Count
Prescribed burn	na						2
Logging	na						
Treatment	na						
Grazing	yes	moderate			50 x 20m Area: Coarse woody Debris		
Non-native plant cove	<1%				Specimen length (mm)		
Erosion	na						site total m
Regeneration	100%						110
Storm	na						per ha (m)
Other (specify)	na						1100

50 x 10m Area	**Native Plant Species Richness**	Total
Shrub sp.		
	Callitris glaucophylla	
Grass sp.		
	Aristida caput-medusae	
	Paspalidium distans	
	Ancistrachne uncinulata	
	Aristida calycina	
Forbs/other sp.		
	Lomandra multiflora	
	*Sida corrugata	
	Dysphania carinata	
	Solanum ellipticum	
	Seringia collina	

Biocondition datasheet (cont.)

10 x 10m Plots: Ground Cover

Ground cover type	1	2	3	4	5	Mean
Native perennial (preferred and intermediate) grass	3	0	0	0	2	1
Native non-preferred grass	0	0	0	0	0	0
Native forbs and other species	4	0	0	0	1	1
Native shrubs (< 1m height)	0	0	0	0	0	0
Non-native grass	0	0	0	0	0	0
Non-native forbs and shrubs	0	0	0	0	0	0
litter	50	80	90	89	87	79.2
rock	25	5	5	1	2	7.6
bare ground	18	15	5	10	8	11.2
Cryptograms	0	0	0	0	0	0
Total	100	100	100	100	100	100

100 x 50m Area: Large Trees	Plot size	100x 50		100x 20		100 x 10	
Species	Euc (E) Non-Euc (N)	Diam (cm)	DBH				

Eucalypts	Avg DBH threshold		RE	41	Euc Benchm	Euc Benchmark
	No. Trees		No. Trees > =	Benchmark/ha		0
Non-Eucalypts	Avg DBH threshold		RE	26	Euc Benchm	Euc Benchmark
	No. Trees		No. Trees > =	Benchmark/ha		0

100m Transect: Tree and Shrub Canopy Cover Canopy (C), Subcanopy (SC), Emergent (E), Shrub (S)

Distance (m)		Type	Distance (m)		Type	Distance (m)		Type
0-8.5	8.5	C						
10.5-14.5	4	C						
15-21.5	6.5	C						
30-39	9	C						
42-48	6	C						
55-63	8	C						
64-71	7	C						
72-74.5	2.5	C						
76-81	5	C						
89.5-92	2.5	C				canopy total		59
						subcanopy total		
						emergent total		
						shrub total		

North

South

East

West

Ground

Biocondition Datasheet

Site ID	920				Date	2/12/2020	
Observers	Donovan Sharp, Matt H						
Site Information:							
100x50m Area:							
Location (GPS reference)					Bioregion	Brigalow Belt South	
Datum	GDA94						
Zone	55 J	Easting		Northing			
Plot origin			723510		7064327		920
Plot centre			723558		7064319		921
Plot Bearing	E	Plot Alignment Description					
Locality	Roma SD 22 Wilgavale						

Regional Ecosystem and Tree height

Habitat Description	Advanced regrowth 11.9.10. Canopy variable 6-14m					
Regional Ecosystem	11.9.10	Median Tree canopy Height (m)		9		
Emergent height (m)	18	Subcanopy ht (m)		4		

Site Photos	Plot centre	North	6163	South	6164	
Photo Numbers		East	6165	West	6166	
	Plot Origin			other	6167	

Disturbance					**100 x 50m Area: Tree SPP. Richness**		
Type	mean fire scar height	severity	last event	obs type	Tree Species	Eucalyptus populnea	
Wildfire	na					Acacia harpophylla	Tree Spp. Count
Prescribed burn	na					Callitris glaucophylla	9
Logging	na					Acacia decora	
						Casuarina cristata	
						Owenia acidula	
Treatment	na					Eremophila deserti	
						Notelaea microcarpa	
						Corymbia intermedia	
Grazing	yes	moderate			50 x 20m Area: Coarse woody Debris		
Non-native plant cove	<5%				Specimen length (mm)		
Erosion	na						site total m
Regeneration	60%						44
Storm	na						per ha (m)
Other (specify)	na						440

50 x 10m Area	**Native Plant Species Richness**	Total
Shrub sp.		
	Atalaya hemiglauca	
	Eremophila deserti	
	Geijera parviflora	
	Citrus glauca	
Grass sp.		
	Chloris truncata	
	*Cenchrus ciliaris	
	Aristida calycina	
	Panicum effusum	
Forbs/other sp.		
	*Sida corrugata	
	Abutilon oxycarpum	
	Einadia hastata	
	Enchylaena tomentosa	
	Capparis lasiantha	
	Sclerolaena birchii	
	Carissa ovata	

Biocondition datasheet (cont.)

10 x 10m Plots: Ground Cover

Ground cover type	1	2	3	4	5	Mean
Native perennial (preferred and intermediate) grass	3	0	5	0	5	2.6
Native non-preferred grass	0	0	0	0	0	0
Native forbs and other species	4	0	0	1	0	1
Native shrubs (< 1m height)	0	0	0	0	0	0
Non-native grass	0	0	0	0	0	0
Non-native forbs and shrubs	0	0	0	0	0	0
litter	50	25	25	99	60	51.8
rock	0	0	0	0	0	0
bare ground	43	75	70	0	35	44.6
Cryptograms	0	0	0	0	0	0
Total	100	100	100	100	100	100

100 x 50m Area: Large Trees	Plot size	100x 50		100x 20		100 x 10	
Species	Euc (E) Non-Euc (N)	Diam (cm)	DBH				

Eucalypts	Avg DBH threshold		RE	47	Euc Benchm	Euc Benchmark
	No. Trees	3	No. Trees > =	Benchmark/ha		6
Non-Eucalypts	Avg DBH threshold		RE	32	Euc Benchm	Euc Benchmark
	No. Trees		No. Trees > =	Benchmark/ha		0

100m Transect: Tree and Shrub Canopy Cover Canopy (C), Subcanopy (SC), Emergent (E), Shrub (S)

Distance (m)		Type	Distance (m)		Type	Distance (m)		Type
3-9.5	6.5	E	3-3.5	0.5	S			
25-39	14	E	13-13.5	0.5	S			
			16.5-18.5	2	S			
0-2	2	C	41-41.5	0.5	S			
21.5-23	1.5	C	45-45.5	0.5	S			
25.5-29	3.5	C						
30-31.5	1.5	C						
53-64.5	11.5	C						
65-71	6	C						
72-78.5	5.5	C				canopy total		38
87-92	5	C				subcanopy total		
96-97.5	1.5	C				emergent total		20.5
						shrub total		4

North

South

East

West

Ground

Biocondition Datasheet

Site ID	922				Date	2/12/2020	
Observers	Donovan Sharp,Matt H						
Site Information:							
100x50m Area:							
Location (GPS reference)					Bioregion	Brigalow Belt South	
Datum	GDA94						
Zone	55 J	Easting		Northing			
Plot origin			723169		7063542		922
Plot centre			723132		7063575		923
Plot Bearing	NW	Plot Alignment Description					
Locality	Roma SD 22						
	Wilgavale						
Regional Ecosystem and Tree height							
Habitat Description	11.9.10 young regrowth. Very dry.						
Regional Ecosystem		11.9.10	Median Tree canopy Height (m)		8		
	Emergent height (m)		18	Subcanopy ht (m)	5		
Site Photos	Plot centre	North	6168	South	6169		
Photo Numbers		East	6170	West	6171		
	Plot Origin			other	6172		

Disturbance					**100 x 50m Area: Tree SPP. Richness**		
Type	mean fire scar height	severity	last event	obs type	Tree Species	Eucalyptus populnea	
Wildfire	na					Eucalyptus crebra	Tree Spp. Count
Prescribed burn	na					Callitris glaucophylla	5
Logging	na					Grevillea striata	
Treatment	na					Brachychiton populneus	
Grazing	yes	moderate			50 x 20m Area: Coarse woody Debris		
Non-native plant cove	<2%				Specimen length (mm)		
Erosion	na						site total m
Regeneration	100%						5
Storm	na						per ha (m)
Other (specify)	na						50

50 x 10m Area	**Native Plant Species Richness**	Total
Shrub sp.		
	Petalostigma pubescens	
	Carissa ovata	
Grass sp.		
	*Cenchrus ciliaris	
	Panicum effusum	
	Eragrostis brownii	
	Aristida caput-medusae	
	Chrysopogon fallax	
	Enteropogon acicularis	
Forbs/other sp.		
	Seringia collina	
	Chrysocephalum apiculatum	

Biocondition datasheet (cont.)

10 x 10m Plots: Ground Cover

Ground cover type	1	2	3	4	5	Mean
Native perennial (preferred and intermediate) grass	20	15	30	40	2	21.4
Native non-preferred grass	0	0	0	0	0	0
Native forbs and other species	0	0	0	0	0	0
Native shrubs (< 1m height)	0	0	0	0	0	0
Non-native grass	0	0	0	0	0	0
Non-native forbs and shrubs	5	0	2	2	0	1.8
litter	30	50	40	25	10	31
rock	0	0	0	0	0	0
bare ground	45	35	28	33	88	45.8
Cryptograms	0	0	0	0	0	0
Total	100	100	100	100	100	100

100 x 50m Area: Large Trees	Plot size	100x 50		100x 20		100 x 10	
Species	Euc (E) Non-Euc (N)	Diam (cm)	DBH				

Eucalypts	Avg DBH threshold		RE	47	Euc Benchm	Euc Benchmark	
	No. Trees	1	No. Trees > =	Benchmark/ha		2	
Non-Eucalypts	Avg DBH threshold		RE	32	Euc Benchm	Euc Benchmark	
	No. Trees		No. Trees > =	Benchmark/ha		0	

100m Transect: Tree and Shrub Canopy Cover Canopy (C), Subcanopy (SC), Emergent (E), Shrub (S)

Distance (m)		Type	Distance (m)		Type	Distance (m)		Type
50.5-58	7.5	E	53.5-56	2.5	SC			
			58-60	2	SC			
15-18.5	3.5	C	63.5-66.5	3	SC			
			71.5-76	4.5	SC			
11.5-13.5	2	SC	81-86	5	SC			
14-15	1	SC	90-92	2	SC			
22.5-26	3.5	SC	99.5-100	0.5	SC			
31.5-32.5	1	SC						
33-33.5	0.5	SC	45-45.5	0.5	Sh			
34.5-37	2.5	SC				canopy total		3.5
38-38.5	0.5	SC				subcanopy total		33.5
40.5-43	2.5	SC				emergent total		7.5
47.5-48.5	1	SC				shrub total		0.5

North

South

East

West

Ground

Biocondition Datasheet

Site ID	1330				Date	2/12/2020	
Observers	Donovan Sharp, Matt H						
Site Information:							
100x50m Area:							
Location (GPS reference)					Bioregion	Brigalow Belt South	
Datum	GDA94						
Zone	55 J	Easting		Northing			
Plot origin			723650		7061368		924
Plot centre			723686		7061331		925
Plot Bearing	E	Plot Alignment Description					
Locality	Roma SD 22 Wilgavale						
Regional Ecosystem and Tree height							
Habitat Description	Brigalow low regrowth Ground cover largely absent.						
Regional Ecosystem		11.9.5		Median Tree canopy Height (m)		4	
	Emergent height (m)		10	Subcanopy ht (m)			
Site Photos	Plot centre	North	6174	South	6175	S	
Photo Numbers		East	6176	West	6177		
	Plot Origin			other	6178		

Disturbance					**100 x 50m Area: Tree SPP. Richness**		
Type	mean fire scar height	severity	last event	obs type	Tree Species	Acacia harpophylla	
Wildfire	na					Casuarina cristata	Tree Spp. Count
Prescribed burn	na						2
Logging	na						
Treatment	na						
Grazing	yes	moderate			50 x 20m Area: Coarse woody Debris		
Non-native plant cove	<1%				Specimen length (mm)		
Erosion	na						site total m
Regeneration	100						0
Storm	na						per ha (m)
Other (specify)	na						0

50 x 10m Area	**Native Plant Species Richness**	Total
Shrub sp.		
	Capparis lasiantha	
	Eremophila sp.	
	Citrus glauca	
	Acacia harpophylla	
	Carissa ovata	
	Atalaya hemiglauca	
Grass sp.		
	*Cenchrus ciliaris	
	Panicum effusum	
	Chloris truncata	
Forbs/other sp.		
	Salsola australis	
	Sclerolaena birchii	
	Sclerolaena bicornis	
	Abutilon oxycarpum	
	Einadia hastata	
	Enchylaena tomentosa	
	*Opuntia tomentosa	

Biocondition datasheet (cont.)

10 x 10m Plots: Ground Cover

Ground cover type	1	2	3	4	5	Mean
Native perennial (preferred and intermediate) grass	0	2	0	5	0	1.4
Native non-preferred grass	0	0	0	0	0	0
Native forbs and other species	3	0	0	10	3	3.2
Native shrubs (< 1m height)	0	0	0	0	0	0
Non-native grass	0	0	0	0	0	0
Non-native forbs and shrubs	0	0	0	0	0	0
litter	5	0	3	0	80	17.6
rock	0	0	0	0	0	0
bare ground	92	98	97	85	17	77.8
Cryptograms	0	0	0	0	0	0
Total	100	100	100	100	100	100

100 x 50m Area: Large Trees	Plot size	100x 50		100x 20		100 x 10	
Species	Euc (E) Non-Euc (N)	Diam (cm)	DBH				

Eucalypts	Avg DBH threshold		RE	45	Euc Benchm	Euc Benchmark	
	No. Trees		No. Trees > =	Benchmark/ha			0
Non-Eucalypts	Avg DBH threshold		RE	27	Euc Benchm	Euc Benchmark	
	No. Trees		No. Trees > =	Benchmark/ha			0

100m Transect: Tree and Shrub Canopy Cover Canopy (C), Subcanopy (SC), Emergent (E), Shrub (S)

Distance (m)		Type	Distance (m)		Type	Distance (m)		Type
68-72	4	E						
11-16.5	5.5	C						
21.5-25	3.5	C						
55.5-57.5	2	C						
65.5-67	1.5	C						
69.5-71	1.5	C						
72-75.5	3.5	C						
78.5-81	2.5	C						
						canopy total		20
23.5-24.5	1	S				subcanopy total		
						emergent total		4
						shrub total		1

North

South

East

West

Ground

Biocondition Datasheet

Site ID	940					Date	3/12/2020
Observers	Donovan Sharp, Matt H						

Site Information:

100x50m Area:

Location (GPS reference)						Bioregion	Brigalow Belt South
Datum	GDA94						
Zone	55 J	Easting		Northing			
Plot origin			726360		7061132		940
Plot centre			726311		7061116		941
Plot Bearing	SW	Plot Alignment Description					
Locality	Roma SD 22						
	Burnside						

Regional Ecosystem and Tree height

Habitat Description							
Regional Ecosystem		11.9.10		Median Tree canopy Height (m)		9	
	Emergent height (m)		18	Subcanopy ht (m)		3	

Site Photos	Plot centre	North	6204	South	6205	S	
Photo Numbers		East	6206	West	6207		
	Plot Origin			other	6208		

Disturbance					**100 x 50m Area: Tree SPP. Richness**		
Type	mean fire scar height	severity	last event	obs type	Tree Species	Acacia harpophylla	
Wildfire	na					Eucalyptus populnea	Tree Spp. Count
Prescribed burn	na					Eremophila deserti	7
Logging	na					Casuarina cristata	
						Atalaya hemiglauca	
						Eucalyptus crebra	
Treatment	na					Brachychiton rupestris	
Grazing	yes	moderate			50 x 20m Area: Coarse woody Debris		
Non-native plant cover		<1%			Specimen length (mm)		
Erosion	na						site total m
Regeneration		50%					109
Storm	na						per ha (m)
Other (specify)	na						1090

50 x 10m Area	**Native Plant Species Richness**		Total
Shrub sp.			
	Geijera parviflora		
	Eremophila sp.		
Grass sp.			
	Ancistrachne uncinulata		
	Enteropogon acicularis		
	Aristida caput-medusae		
Forbs/other sp.			
	Solanum ellipticum		

Biocondition datasheet (cont.)

10 x 10m Plots: Ground Cover

Ground cover type	1	2	3	4	5	Mean
Native perennial (preferred and intermediate) grass	0	0	0	0	0	0
Native non-preferred grass	0	0	0	0	0	0
Native forbs and other species	0	2	0	0	0	0.4
Native shrubs (< 1m height)	0	0	0	0	0	0
Non-native grass	0	0	0	0	0	0
Non-native forbs and shrubs	0	0	0	0	0	0
litter	88	82	85	40	50	69
rock	2	1	5	10	10	5.6
bare ground	10	15	10	50	40	25
Cryptograms	0	0	0	0	0	0
Total	100	100	100	100	100	100

100 x 50m Area: Large Trees	Plot size	100x 50		100x 20		100 x 10	
Species	Euc (E) Non-Euc (N)	Diam (cm)	DBH				

Eucalypts	Avg DBH threshold		RE	45	Euc Benchm	Euc Benchmark	
	No. Trees		No. Trees > =	Benchmark/ha			0
Non-Eucalypts	Avg DBH threshold		RE	27	Euc Benchm	Euc Benchmark	
	No. Trees		No. Trees > =	Benchmark/ha			36

100m Transect: Tree and Shrub Canopy Cover Canopy (C), Subcanopy (SC), Emergent (E), Shrub (S)

Distance (m)		Type	Distance (m)		Type	Distance (m)		Type
6.5-12	5.5	C	91-93	2	SC			
14-35	21	C	98-100	2	SC			
38.5-40	1.5	C						
42-44.5	2.5	C	42-43.5	1.5	SC			
46-48.5	2.5	C						
60-74	14	C						
76.5-88.5	12	C						
92.5-93	0.5	C						
38.5-42.5	4	SC				canopy total		59.5
60.5-62	1.5	SC				subcanopy total		12
79-81	2	SC				emergent total		
88-88.5	0.5	SC				shrub total		1.5

North

South

East

West

Ground

Biocondition Datasheet

Site ID	984				Date	4/12/2020	
Observers	Donovan Sharp, Matt H						
Site Information:							
100x50m Area:							
Location (GPS reference)					Bioregion	Brigalow Belt South	
Datum	GDA94						
Zone	55 J	Easting		Northing			
Plot origin			726829		7064010		984
Plot centre			726782		7063991		985
Plot Bearing	W	Plot Alignment Description					
Locality	Roma SD 22						
	Burnside						
Regional Ecosystem and Tree height							
Habitat Description	11.3.2 low regrowth						
Regional Ecosystem		11.3.2		Median Tree canopy Height (m)		5	
	Emergent height (m)		22	Subcanopy ht (m)			
Site Photos	Plot centre	North	6278	South	6279	S	
Photo Numbers		East	6280	West	6281		
	Plot Origin			other	6282		

Disturbance					**100 x 50m Area: Tree SPP. Richness**		
Type	mean fire scar height	severity	last event	obs type	Tree Species	Eucalyptus populnea	
Wildfire	na						Tree Spp. Count
Prescribed burn	na						1
Logging	na						
Treatment	na						
Grazing	yes	moderate			50 x 20m Area: Coarse woody Debris		
Non-native plant cover		<1%			Specimen length (mm)		
Erosion	na						site total m
Regeneration		100%					3
Storm	na						per ha (m)
Other (specify)	na						30

50 x 10m Area	**Native Plant Species Richness**	Total
Shrub sp.		
	Maireana microphylla	
Grass sp.		
	Dichanthium sericeum	
	Heteropogon contortus	
	Aristida calycina	
	Aristida ramosa	
Forbs/other sp.		
	Sclerolaena birchii	
	Seringia collina	

Biocondition datasheet (cont.)

10 x 10m Plots: Ground Cover

Ground cover type	1	2	3	4	5	Mean
Native perennial (preferred and intermediate) grass	50	30	25	25	40	34
Native non-preferred grass	0	0	0	0	0	0
Native forbs and other species	0	0	0	0	0	0
Native shrubs (< 1m height)	0	0	0	0	0	0
Non-native grass	0	0	0	0	0	0
Non-native forbs and shrubs	0	0	0	0	0	0
litter	40	40	45	15	45	37
rock	0	0	0	0	0	0
bare ground	10	30	28	45	5	23.6
Cryptograms	0	0	2	15	10	5.4
Total	100	100	100	100	100	100

100 x 50m Area: Large Trees	Plot size	100x 50		100x 20		100 x 10	
Species	Euc (E) Non-Euc (N)	Diam (cm)	DBH				

Eucalypts	Avg DBH threshold		RE	40	Euc Benchm	Euc Benchmark	
	No. Trees	1	No. Trees > =	Benchmark/ha		2	
Non-Eucalypts	Avg DBH threshold		RE	NA	Euc Benchm	Euc Benchmark	
	No. Trees		No. Trees > =	Benchmark/ha			

100m Transect: Tree and Shrub Canopy Cover Canopy (C), Subcanopy (SC), Emergent (E), Shrub (S)

Distance (m)		Type	Distance (m)		Type	Distance (m)		Type
2.5-4.5	2	C						
12-15.5	3.5	C						
38.5-40.5	2	C						
44-49	5	C						
51.5-54	2.5	C						
68.5-72.5	4	C						
76-78.5	2.5	C						
95.5-99.5	4	C						
66.5-68	1.5	SC				canopy total		25.5
89.5-91	1.5	SC				subcanopy total		3
						emergent total		
						shrub total		

North

South

East

West

Ground

Biocondition Datasheet

Site ID	989					Date	4/12/2020
Observers	Donovan Sharp,Matt H						

Site Information:

100x50m Area:

Location (GPS reference)						Bioregion	Brigalow Belt South
Datum	GDA94						
Zone	55 J	Easting		Northing			
Plot origin			728539		7060935		989
Plot centre			728580		7060962		990
Plot Bearing	E	Plot Alignment Description					
Locality	Roma SD 22						
	The Paddock						

Regional Ecosystem and Tree height

Habitat Description	11.3.25 Remnant					
Regional Ecosystem		11.3.25	Median Tree canopy Height (m)		23	
	Emergent height (m)			Subcanopy ht (m)		

Site Photos	Plot centre	North	6271	South	6272	S	
Photo Numbers		East	6273	West	6274		
	Plot Origin			other	6275		

Disturbance					**100 x 50m Area: Tree SPP. Richness**		
Type	mean fire scar height	severity	last event	obs type	Tree Species	Eucalyptus camaldulensis	
Wildfire	na					Melaleuca bracteata	Tree Spp. Count
Prescribed burn	na					Acacia harpophylla	4
Logging	na					Eucalyptus populnea	
Treatment	na						
Grazing	yes	moderate			50 x 20m Area: Coarse woody Debris		
Non-native plant cove	100.00%				Specimen length (mm)		
Erosion	na						site total m
Regeneration	0%						1
Storm	na						per ha (m)
Other (specify)	na						10

50 x 10m Area	**Native Plant Species Richness**	Total
Shrub sp.		
	Acacia excelsa	
Grass sp.		
	*Cenchrus ciliaris	
Forbs/other sp.		

Biocondition datasheet (cont.)

10 x 10m Plots: Ground Cover

Ground cover type	1	2	3	4	5	Mean
Native perennial (preferred and intermediate) grass	0	0	0	0	0	0
Native non-preferred grass	0	0	0	0	0	0
Native forbs and other species	0	0	0	0	0	0
Native shrubs (< 1m height)	0	0	0	0	0	0
Non-native grass	50	40	60	90	60	60
Non-native forbs and shrubs	0	0	0	0	0	0
litter	45	50	40	10	20	33
rock	0	0	0	0	0	0
bare ground	5	10	0	0	20	7
Cryptograms	0	0	0	0	0	0
Total	100	100	100	100	100	100

100 x 50m Area: Large Trees	Plot size	100x 50		100x 20		100 x 10	
Species	Euc (E) Non-Euc (N)	Diam (cm)	DBH				

Eucalypts	Avg DBH threshold		RE	49	Euc Benchm	Euc Benchmark	
	No. Trees	10	No. Trees > =	Benchmark/ha		20	
Non-Eucalypts	Avg DBH threshold		RE	29	Euc Benchm	Euc Benchmark	
	No. Trees		No. Trees > =	Benchmark/ha		0	

100m Transect: Tree and Shrub Canopy Cover Canopy (C), Subcanopy (SC), Emergent (E), Shrub (S)

Distance (m)		Type	Distance (m)		Type	Distance (m)		Type
0.5-15	14.5	C						
31.5-63.5	32	C						
75-100	25	C						
37-38	1	S						
						canopy total		71.5
						subcanopy total		
						emergent total		
						shrub total		1

North

South

East

West

Ground

Biocondition Datasheet

Site ID	989					Date	4/12/2020
Observers	Donovan Sharp,Matt H						

Site Information:

100x50m Area:

Location (GPS reference)						Bioregion	Brigalow Belt South
Datum	GDA94						
Zone	55 J	Easting		Northing			
Plot origin			728539		7060935		989
Plot centre			728580		7060962		990
Plot Bearing	E	Plot Alignment Description					
Locality	Roma SD 22						
	The Paddock						

Regional Ecosystem and Tree height

Habitat Description	11.3.25 Remnant					
Regional Ecosystem		11.3.25	Median Tree canopy Height (m)		23	
	Emergent height (m)			Subcanopy ht (m)		

Site Photos	Plot centre	North	6271	South	6272	S	
Photo Numbers		East	6273	West	6274		
	Plot Origin			other	6275		

Disturbance					**100 x 50m Area: Tree SPP. Richness**		
Type	mean fire scar height	severity	last event	obs type	Tree Species	Eucalyptus camaldulensis	
Wildfire	na					Melaleuca bracteata	Tree Spp. Count
Prescribed burn	na					Acacia harpophylla	4
Logging	na					Eucalyptus populnea	
Treatment	na						
Grazing	yes	moderate			50 x 20m Area: Coarse woody Debris		
Non-native plant cove	100.00%				Specimen length (mm)		
Erosion	na						site total m
Regeneration	0%						1
Storm	na						per ha (m)
Other (specify)	na						10

50 x 10m Area	**Native Plant Species Richness**	Total
Shrub sp.		
	Acacia excelsa	
Grass sp.		
	*Cenchrus ciliaris	
Forbs/other sp.		

Biocondition datasheet (cont.)

10 x 10m Plots: Ground Cover

Ground cover type	1	2	3	4	5	Mean
Native perennial (preferred and intermediate) grass	0	0	0	0	0	0
Native non-preferred grass	0	0	0	0	0	0
Native forbs and other species	0	0	0	0	0	0
Native shrubs (< 1m height)	0	0	0	0	0	0
Non-native grass	50	40	60	90	60	60
Non-native forbs and shrubs	0	0	0	0	0	0
litter	45	50	40	10	20	33
rock	0	0	0	0	0	0
bare ground	5	10	0	0	20	7
Cryptograms	0	0	0	0	0	0
Total	100	100	100	100	100	100

100 x 50m Area: Large Trees	Plot size	100x 50		100x 20		100 x 10	
Species	Euc (E) Non-Euc (N)	Diam (cm)	DBH				

Eucalypts	Avg DBH threshold		RE	49	Euc Benchm	Euc Benchmark	
	No. Trees	10	No. Trees > =	Benchmark/ha		20	
Non-Eucalypts	Avg DBH threshold		RE	29	Euc Benchm	Euc Benchmark	
	No. Trees		No. Trees > =	Benchmark/ha		0	

100m Transect: Tree and Shrub Canopy Cover Canopy (C), Subcanopy (SC), Emergent (E), Shrub (S)

Distance (m)		Type	Distance (m)		Type	Distance (m)		Type
0.5-15	14.5	C						
31.5-63.5	32	C						
75-100	25	C						
37-38	1	S						
						canopy total		71.5
						subcanopy total		
						emergent total		
						shrub total		1

North

South

East

West

Ground

Biocondition Datasheet

Site ID	1007				Date	15/02/2020	
Observers	Donovan Sharp, Matt H						
Site Information:							
100x50m Area:							
Location (GPS reference)					Bioregion	Brigalow Belt South	
Datum	GDA94						
Zone	55 J	Easting		Northing			
Plot origin			731895		7060242		1007
Plot centre			731847		7060233		1008
Plot Bearing	W	Plot Alignment Description					
Locality	Roma SD 22						
	Myalla						
Regional Ecosystem and Tree height							
Habitat Description	HVR 11.7.2						
Regional Ecosystem		11.7.2		Median Tree canopy Height (m)		8	
	Emergent height (m)			Subcanopy ht (m)		2	

Site Photos	Plot centre	North	6321	South	6322	S	
Photo Numbers		East	6323	West	6324		
	Plot Origin			other	6325		

Disturbance					**100 x 50m Area: Tree SPP. Richness**		
Type	mean fire scar height	severity	last event	obs type	Tree Species	Acacia shirleyi	
Wildfire	na					Eucalyptus crebra	Tree Spp. Count
Prescribed burn	na					Eucalyptus chloroclada	3
Logging	na						
Treatment	na						
Grazing	yes	moderate			50 x 20m Area: Coarse woody Debris		
Non-native plant cove	<1%				Specimen length (mm)		
Erosion	na						site total m
Regeneration	100%						360
Storm	na						per ha (m)
Other (specify)	na						3600

50 x 10m Area	**Native Plant Species Richness**	Total
Shrub sp.		
	Acacia burrowii	
Grass sp.		
	Aristida caput-medusae	
Forbs/other sp.		
	Lomandra multiflora	
	Cyperus sp.	

Biocondition datasheet (cont.)

10 x 10m Plots: Ground Cover

Ground cover type	1	2	3	4	5	Mean
Native perennial (preferred and intermediate) grass	10	5	5	0	5	5
Native non-preferred grass	0	0	0	0	0	0
Native forbs and other species	0	0	0	0	0	0
Native shrubs (< 1m height)	0	0	0	0	0	0
Non-native grass	0	0	0	0	0	0
Non-native forbs and shrubs	0	0	0	0	0	0
litter	30	95	70	55	90	68
rock	5	0	5	5	0	3
bare ground	55	0	20	40	5	24
Cryptograms	0	0	0	0	0	0
Total	100	100	100	100	100	100

100 x 50m Area: Large Trees	Plot size	100x 50		100x 20		100 x 10	
Species	Euc (E) Non-Euc (N)	Diam (cm)	DBH				

Eucalypts	Avg DBH threshold		RE	41	Euc Benchm	Euc Benchmark	
	No. Trees		No. Trees > =	Benchmark/ha			0
Non-Eucalypts	Avg DBH threshold		RE	26	Euc Benchm	Euc Benchmark	
	No. Trees		No. Trees > =	Benchmark/ha			0

100m Transect: Tree and Shrub Canopy Cover Canopy (C), Subcanopy (SC), Emergent (E), Shrub (S)

Distance (m)		Type	Distance (m)		Type	Distance (m)		Type
0-1.5	1.5	C						
12-16.5	4.5	C						
30.5-44.5	14	C						
51-60	9	C						
61-76	15	C						
79-81	2	C						
82.5-86	3.5	C						
96.5-100	3.5	C						
						canopy total		53
87.5-89.5	2	SC				subcanopy total		2
						emergent total		
42.5-43	0.5	S				shrub total		0.5

North

South

East

West

Ground

Biocondition Datasheet

Site ID	1171				Date	9/02/2021	
Observers	Donovan Sharp, Heath Agnew						
Site Information:							
100x50m Area:							
Location (GPS reference)					Bioregion	Brigalow Belt South	
Datum	GDA94						
Zone	55 J	Easting		Northing			
Plot origin			735131		7061009		1171
Plot centre			735077		7061011		1172
Plot Bearing	W	Plot Alignment Description					
Locality	Roma SD 22						
	Highfield						

Regional Ecosystem and Tree height

Habitat Description	Advanced regrowth					
Regional Ecosystem	11.5.1		Median Tree canopy Height (m)		17	
	Emergent height (m)			Subcanopy ht (m)	7	

Site Photos	Plot centre	North	6624	South	6625	S	
Photo Numbers		East	6626	West	6627		
	Plot Origin			other	6628		

Disturbance					**100 x 50m Area: Tree SPP. Richness**		
Type	mean fire scar height	severity	last event	obs type	Tree Species	Eucalyptus crebra	
Wildfire	na					Callitris glaucophylla	Tree Spp. Count
Prescribed burn	na						2
Logging	na						
Treatment	na						
Grazing	yes	moderate			50 x 20m Area: Coarse woody Debris		
Non-native plant cove	<1%				Specimen length (mm)		
Erosion	na						site total m
Regeneration	50%						30
Storm	na						per ha (m)
Other (specify)	na						300

50 x 10m Area	**Native Plant Species Richness**	Total
Shrub sp.		
	Petalostigma pubescens	
	Denhamia cunninghamii	
Grass sp.	Aristida caput-medusae	
	Aristida jerichoensis	
	Eragrostis brownii	
Forbs/other sp.	Fimbristylis sp.	
	Sida corrugata	
	Opuntia tomentosa*	

Biocondition datasheet (cont.)

10 x 10m Plots: Ground Cover

Ground cover type	1	2	3	4	5	Mean
Native perennial (preferred and intermediate) grass	0	10	20	10	15	11
Native non-preferred grass	0	0	0	0	0	0
Native forbs and other species	0	0	0	0	5	1
Native shrubs (< 1m height)	0	0	0	0	0	0
Non-native grass	0	0	0	0	0	0
Non-native forbs and shrubs	0	5	0	15	5	5
litter	10	85	65	70	25	51
rock	0	0	0	0	0	0
bare ground	90	0	15	5	50	32
Cryptograms	0	0	0	0	0	0
Total	100	100	100	100	100	100

100 x 50m Area: Large Trees	Plot size	100x 50		100x 20		100 x 10	
Species	Euc (E) Non-Euc (N)	Diam (cm)	DBH				

Eucalypts	Avg DBH threshold		RE	44	Euc Benchm	Euc Benchmark	
	No. Trees	0	No. Trees > =	Benchmark/ha			
Non-Eucalypts	Avg DBH threshold		RE	24	Euc Benchm	Euc Benchmark	
	No. Trees	0	No. Trees > =	Benchmark/ha			

100m Transect: Tree and Shrub Canopy Cover Canopy (C), Subcanopy (SC), Emergent (E), Shrub (S)

Distance (m)		Type	Distance (m)		Type	Distance (m)		Type
19-22.5	3.5	C		8	c			
26-33	7	C						
46-51	5	C						
58-65	7	C						
84-85	1	C						
12-14	2							
15-16	1							
26-28	2							
34-39	5					canopy total		23.5
43-45	2					subcanopy total		17
55-58	3					emergent total		
66-68	2					shrub total		

North

South

East

West

Ground

Biocondition Datasheet

Site ID	1171				Date	9/02/2021	
Observers	Donovan Sharp, Heath Agnew						
Site Information:							
100x50m Area:							
Location (GPS reference)					Bioregion	Brigalow Belt South	
Datum	GDA94						
Zone	55 J	Easting		Northing			
Plot origin			735131		7061009		1171
Plot centre			735077		7061011		1172
Plot Bearing	W	Plot Alignment Description					
Locality	Roma SD 22						
	Highfield						

Regional Ecosystem and Tree height

Habitat Description	Advanced regrowth					
Regional Ecosystem	11.5.1		Median Tree canopy Height (m)		17	
	Emergent height (m)			Subcanopy ht (m)	7	

Site Photos	Plot centre	North	6624	South	6625	S	
Photo Numbers		East	6626	West	6627		
	Plot Origin			other	6628		

Disturbance					**100 x 50m Area: Tree SPP. Richness**		
Type	mean fire scar height	severity	last event	obs type	Tree Species	Eucalyptus crebra	
Wildfire	na					Callitris glaucophylla	Tree Spp. Count
Prescribed burn	na						2
Logging	na						
Treatment	na						
Grazing	yes	moderate			50 x 20m Area: Coarse woody Debris		
Non-native plant cove	<1%				Specimen length (mm)		
Erosion	na						site total m
Regeneration	50%						30
Storm	na						per ha (m)
Other (specify)	na						300

50 x 10m Area	**Native Plant Species Richness**	Total
Shrub sp.		
	Petalostigma pubescens	
	Denhamia cunninghamii	
Grass sp.	Aristida caput-medusae	
	Aristida jerichoensis	
	Eragrostis brownii	
Forbs/other sp.	Fimbristylis sp.	
	Sida corrugata	
	Opuntia tomentosa*	

Biocondition datasheet (cont.)

10 x 10m Plots: Ground Cover

Ground cover type	1	2	3	4	5	Mean
Native perennial (preferred and intermediate) grass	0	10	20	10	15	11
Native non-preferred grass	0	0	0	0	0	0
Native forbs and other species	0	0	0	0	5	1
Native shrubs (< 1m height)	0	0	0	0	0	0
Non-native grass	0	0	0	0	0	0
Non-native forbs and shrubs	0	5	0	15	5	5
litter	10	85	65	70	25	51
rock	0	0	0	0	0	0
bare ground	90	0	15	5	50	32
Cryptograms	0	0	0	0	0	0
Total	100	100	100	100	100	100

100 x 50m Area: Large Trees	Plot size	100x 50		100x 20		100 x 10	
Species	Euc (E) Non-Euc (N)	Diam (cm)	DBH				

Eucalypts	Avg DBH threshold		RE	44	Euc Benchm	Euc Benchmark	
	No. Trees	0	No. Trees > =	Benchmark/ha			
Non-Eucalypts	Avg DBH threshold		RE	24	Euc Benchm	Euc Benchmark	
	No. Trees	0	No. Trees > =	Benchmark/ha			

100m Transect: Tree and Shrub Canopy Cover Canopy (C), Subcanopy (SC), Emergent (E), Shrub (S)

Distance (m)		Type	Distance (m)		Type	Distance (m)		Type
19-22.5	3.5	C		8	c			
26-33	7	C						
46-51	5	C						
58-65	7	C						
84-85	1	C						
12-14	2							
15-16	1							
26-28	2							
34-39	5					canopy total		23.5
43-45	2					subcanopy total		17
55-58	3					emergent total		
66-68	2					shrub total		

North

South

East

West

Ground

Biocondition Datasheet

Site ID	1229					Date	10/02/2021
Observers	Donovan Sharp, Heath Agnew						

Site Information:

100x50m Area:

Location (GPS reference)						Bioregion	Brigalow Belt South
Datum	GDA94						
Zone	55 J	Easting	740573	Northing	7060502		
Plot origin			740527		7060516		
Plot centre							
Plot Bearing		Plot Alignment Description					
Locality	Roma SD 22 Romalls Station						

Regional Ecosystem and Tree height

Habitat Description	young regrwoth						
Regional Ecosystem		11.3.25		Median Tree canopy Height (m)		10	
	Emergent height (m)		16		Subcanopy ht (m)	5	

Site Photos	Plot centre	North	6720	South	6721	S	
Photo Numbers		East	6722		6723		
	Plot Origin			other			

Disturbance					**100 x 50m Area: Tree SPP. Richness**		
Type	mean fire scar height	severity	last event	obs type	Tree Species	Eucalyptus camaldulensis	
Wildfire	na					Eucalyptus crebra	Tree Spp. Count
Prescribed burn	na					Calllitris glaucophylla	4
Logging	na					Alphitonia excelsa	
Treatment	na						
Grazing	yes	moderate			50 x 20m Area: Coarse woody Debris		
Non-native plant cove	100.00%				Specimen length (mm)		
Erosion	na						site total m
Regeneration	100						
Storm	na						29.5
Other (specify)	na						295

50 x 10m Area	**Native Plant Species Richness**	Total
Shrub sp.		
	Acacia leiocarpa	
	Opuntia tomentosa*	
Grass sp.		
	Cenchrus ciliaris*	
	Aristida caput-medusae	
	Ophiuros sp	
	Megathyrsus maximus*	
	Paspallidium distans	
	Melinis repens*	
	Eragrostis sp	
	Arundienella nepalensis	
Forbs/other sp.		
	Glanduligera aristigera*	
	Jasmimum simplicifolium	
	Cynathillium cinereum	
	Solanum sp.	

Biocondition datasheet (cont.)

10 x 10m Plots: Ground Cover

Ground cover type	1	2	3	4	5	Mean
Native perennial (preferred and intermediate) grass	30	0	0	25	0	11
Native non-preferred grass	0	0	0	0	0	
Native forbs and other species	0	0	5	0	0	1
Native shrubs (< 1m height)	0	0	0	0	0	0
Non-native grass	0	40	10	0	45	19
Non-native forbs and shrubs	0	0	0	0	0	0
litter	60	60	80	10	15	45
rock	0	0	0	0	0	0
bare ground	10	0	5	65	40	0
Cryptograms	0	0	0	0	0	
Total	100	100	100	100	100	100

100 x 50m Area: Large Trees Plot size 100x 50 | 100x 20 | 100 x 10

Species	Euc (E) Non-Euc (N)	Diam (cm)	DBH

Eucalypts	Avg DBH threshold		RE		Euc Benchm	Euc Benchmark
	No. Trees	0	No. Trees > =	Benchmark/ha		
Non-Eucalypts	Avg DBH threshold		RE		Euc Benchm	Euc Benchmark
	No. Trees	0	No. Trees > =	Benchmark/ha	0	

100m Transect: Tree and Shrub Canopy Cover Canopy (C), Subcanopy (SC), Emergent (E), Shrub (S)

Distance (m)		Type	Distance (m)		Type	Distance (m)		Type
	10	c						
	5	s						
	3	s						
	1	s						
	11	c						
	7	c						
	3	s						
	4	c						
						canopy total		22
						subcanopy total		12
						emergent total		
						shrub total		0

North

South

East

West

Ground

Biocondition Datasheet

Site ID	1232				Date	1/03/2021
Observers	Donovan Sharp, Heath Agnew					

Site Information:

100x50m Area:

Location (GPS reference)					Bioregion	Brigalow Belt South
Datum	GDA94					
Zone	55 J	Easting	740113	Northing	7060235	
Plot origin			740116		7060283	
Plot centre						
Plot Bearing		Plot Alignment Description				
Locality	Roma SD 22 Romalls Station					

Regional Ecosystem and Tree height

Habitat Description	advanced regrowth					
Regional Ecosystem		11.5.1	Median Tree canopy Height (m)		6	
	Emergent height (m)		12	Subcanopy ht (m)		

Site Photos	Plot centre	North	6728	South	6729	S
Photo Numbers		East	6730	West	6731	
	Plot Origin			other		

Disturbance					**100 x 50m Area: Tree SPP. Richness**		
Type	mean fire scar height	severity	last event	obs type	Tree Species	Eucalyptus populnea	
Wildfire	na				Alphitonia ex	Callitris glaucophylla	Tree Spp. Count
Prescribed burn	na					Acacia salicina	6
Logging	na					Grevillea striata	
Treatment	na					Angohpora leicocarpa	
Grazing	yes	moderate			50 x 20m Area: Coarse woody Debris		
Non-native plant cove	80.00%				Specimen length (mm)		
Erosion	na						site total m
Regeneration	100						49.5
Storm	na						per ha (m)
Other (specify)	na						495

50 x 10m Area	**Native Plant Species Richness**	Total
Shrub sp.		
	Geijera parvifloa	
Grass sp.	Cenchrus ciliaris*	
	Aristida caput-medusae	
	Eriachne mucronata	
	Eragrostis lacunaria	
	Fimbristylis dichotoma	
	Eragrostis brownii	
	Paspallidium distans	
	Chloris truncata	
Forbs/other sp.		
	Melhania sp	
	Sida corrugata	
	Solanum ellipticum	
	*Malvastrum americanum	
	Solanum coracinum	
	Cheilanthes seiberi	

Biocondition datasheet (cont.)

10 x 10m Plots: Ground Cover

Ground cover type	1	2	3	4	5	Mean
Native perennial (preferred and intermediate) grass	0	5	15	10	30	12
Native non-preferred grass	0	0	0	0	0	
Native forbs and other species	5	5	0	0	0	2
Native shrubs (< 1m height)	0	0	0	0	0	0
Non-native grass	0	15	0	10	0	5
Non-native forbs and shrubs	35	0	10	0	0	0
litter	45	50	45	75	60	55
rock	0	0	0	0	0	0
bare ground	15	25	30	5	10	0
Cryptograms	0	0	0	0	0	
Total	100	100	100	100	100	100

100 x 50m Area: Large Trees	Plot size	100x 50		100x 20		100 x 10	
Species	Euc (E) Non-Euc (N)	Diam (cm)	DBH				

Eucalypts	Avg DBH threshold		RE		Euc Benchm	Euc Benchmark	
	No. Trees	0	No. Trees > =	Benchmark/ha		0	
Non-Eucalypts	Avg DBH threshold		RE		Euc Benchm	Euc Benchmark	
	No. Trees	0	No. Trees > =	Benchmark/ha		0	

100m Transect: Tree and Shrub Canopy Cover Canopy (C), Subcanopy (SC), Emergent (E), Shrub (S)

Distance (m)		Type	Distance (m)		Type	Distance (m)		Type
	9	E						
	2	c						
	9	c						
	13.5	c						
	4	E						
						canopy total		24.5
						subcanopy total		
						emergent total		13
						shrub total		

North

South

East

West

Ground

Biocondition Datasheet

Site ID	1242				Date	10/02/2021
Observers	Donovan Sharp, Heath Agnew					

Site Information:

100x50m Area:

Location (GPS reference)					Bioregion	Brigalow Belt South
Datum	GDA94					
Zone	55 J	Easting	734205	Northing	7055801	
Plot origin			734148		7055806	
Plot centre						
Plot Bearing		Plot Alignment Description				
Locality	Roma SD 22					

Regional Ecosystem and Tree height

Habitat Description	Myall TEC non-functional					
Regional Ecosystem		11.3.2	Median Tree canopy Height (m)			
	Emergent height (m)			Subcanopy ht (m)		

Site Photos	Plot centre	North	6742	South	6743	S
Photo Numbers		East	6744	West	6745	
	Plot Origin			other		

Disturbance					**100 x 50m Area: Tree SPP. Richness**	
Type	mean fire scar height	severity	last event	obs type	Tree Species	Acacia pendula
Wildfire	na					Eremophila deserti
Prescribed burn	na					Tree Spp. Count
Logging	na					2
Treatment	na					
Grazing	yes	moderate			50 x 20m Area: Coarse woody Debris	
Non-native plant cove	80.00%				Specimen length (mm)	
Erosion	na					site total m
Regeneration	100%					14
Storm	na					per ha (m)
Other (specify)	na					

50 x 10m Area	**Native Plant Species Richness**	Total
Shrub sp.		
Grass sp.		
	Aristida calycina	
	Austrostipa verticillata	
	*Cenchrus ciliaris	
	Sporobolus caroli	
	*Urochloa panicoides	
	Eragrostis brownii	
	Paspalidium distans	
	Panicum effusum	
Forbs/other sp.		
	Sclerolaena birchii	
	Portulaca australis	
	Sclerolaena bicornis	
	Maireana microphylla	
	Sclerolaena sp.	
	Enchylaena tomentosa	

Biocondition datasheet (cont.)							
10 x 10m Plots: Ground Cover							
Ground cover type		1	2	3	4	5	Mean
Native perennial (preferred and intermediate) grass				25			25
Native non-preferred grass							
Native forbs and other species		2.5	55	35	30	80	40.5
Native shrubs (< 1m height)							#DIV/0!
Non-native grass		7.5	15				11.25
Non-native forbs and shrubs							0
litter		10	10	30	25	15	18
rock							#DIV/0!
bare ground		80	20	10	45	5	0
Cryptograms							
Total		100	100	100	100	100	100

100 x 50m Area: Large Trees	Plot size	100x 50		100x 20		100 x 10	
Species	Euc (E) Non-Euc (N)	Diam (cm)	DBH				

Eucalypts	Avg DBH threshold		RE		Euc Benchm	Euc Benchmark
	No. Trees		No. Trees > =	Benchmark/ha		0
Non-Eucalypts	Avg DBH threshold		RE		Euc Benchm	Euc Benchmark
	No. Trees		No. Trees > =	Benchmark/ha		0

100m Transect: Tree and Shrub Canopy Cover Canopy (C), Subcanopy (SC), Emergent (E), Shrub (S)

Distance (m)		Type	Distance (m)		Type	Distance (m)		Type
26-32	6	C		8	c			
45-53	8	C						
71-84	13	C						
94-100	6	C						
						canopy total		33
						subcanopy total		
						emergent total		
						shrub total		

North

South

East

West

Ground

Biocondition Datasheet

Site ID	1247					Date	11/02/2021
Observers	Donovan Sharp, Heath Agnew						

Site Information:

100x50m Area:

Location (GPS reference)						Bioregion	Brigalow Belt South
Datum	GDA94						
Zone	55 J	Easting	735110	Northing	7056212		
Plot origin			735113		7056199		
Plot centre							
Plot Bearing		Plot Alignment Description					
Locality	Roma SD 22						

Regional Ecosystem and Tree height

Habitat Description	regrowth						
Regional Ecosystem		11.3.25		Median Tree canopy Height (m)		10	
	Emergent height (m)				Subcanopy ht (m)	6	

Site Photos	Plot centre	North	6749	South	6750	S	
Photo Numbers		East	6751	West	6752		
	Plot Origin			other	3753		

Disturbance					**100 x 50m Area: Tree SPP. Richness**		
Type	mean fire scar height	severity	last event	obs type	Tree Species	Eucalyptus camaldulensis	
Wildfire	na					Callitris glaucophylla	Tree Spp. Count
Prescribed burn	na						2
Logging	na						
Treatment	na						
Grazing	yes	moderate			50 x 20m Area: Coarse woody Debris		
Non-native plant cove	80.00%				Specimen length (mm)		
Erosion	na						site total m
Regeneration	100						55.5
Storm	na						per ha (m)
Other (specify)	na						555

50 x 10m Area	**Native Plant Species Richness**	Total
Shrub sp.		
	Dodonaea viscosa	
Grass sp.	Cenchrus ciliaris*	
	Eragrostis collina	
	Heteropogon contortus	
	Aristida jerichoensis	
	Arisitda romosa	
	Peotis rara	
	Melinis repens*	
	Digitaria divaricatisima	
Forbs/other sp.	Fimbrystylis dichotoma	
	Portulacca pilosa	
	Opuntia tomentosa*	
	Abutilon oxycarpon	
	Sida corrugata	
	Amaranthus spinosus*	
	Chrysocephalum apiculatum	
	*Glandularia aristigera	

Biocondition datasheet (cont.)

10 x 10m Plots: Ground Cover

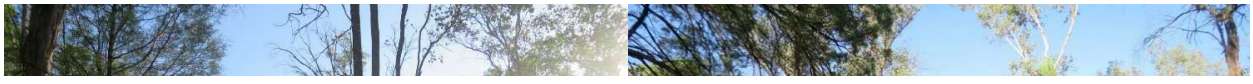
Ground cover type	1	2	3	4	5	Mean
Native perennial (preferred and intermediate) grass	10	15	30	35	0	18
Native non-preferred grass	0	0	0	0	0	0
Native forbs and other species	0	0	5	10	5	4
Native shrubs (< 1m height)	0	0	0	0	0	0
Non-native grass	60	65	0	10	60	39
Non-native forbs and shrubs	5	0	0	0	5	0
litter	0	20	60	30	10	24
rock	0	0	0	0	0	0
bare ground	25	0	5	15	20	0
Cryptograms	0	0	0	0	0	
Total	100	100	100	100	100	100

100 x 50m Area: Large Trees	Plot size	100x 50		100x 20		100 x 10	
Species	Euc (E) Non-Euc (N)	Diam (cm)	DBH				

Eucalypts	Avg DBH threshold		RE	0	Euc Benchm	Euc Benchmark
	No. Trees	0	No. Trees > =	Benchmark/ha		
Non-Eucalypts	Avg DBH threshold		RE	0	Euc Benchm	Euc Benchmark
	No. Trees	0	No. Trees > =	Benchmark/ha		

100m Transect: Tree and Shrub Canopy Cover Canopy (C), Subcanopy (SC), Emergent (E), Shrub (S)

Distance (m)		Type	Distance (m)		Type	Distance (m)		Type
	5	C						
	17.5	C						
	13.5	C						
	18	C						
	2	C						
						canopy total		56
						subcanopy total		
						emergent total		
						shrub total		



North

South

East

West

Ground

Biocondition Datasheet

Site ID	1249					Date	11/02/2021
Observers	Donovan Sharp, Heath Agnew						
Site Information:							
100x50m Area:							
Location (GPS reference)						Bioregion	Brigalow Belt South
Datum	GDA94						
Zone	55 J	Easting	734951	Northing	7056259		
Plot origin			734903		7056204		
Plot centre							
Plot Bearing		Plot Alignment Description					
Locality	Roma SD 22 Lagoons station						
Regional Ecosystem and Tree height							
Habitat Description	regrowth						
Regional Ecosystem		11.5.5		Median Tree canopy Height (m)		13	
	Emergent height (m)			Subcanopy ht (m)		8	
Site Photos	Plot centre	North	6754	South	6755	S	
Photo Numbers		East	6756	West	6757		
	Plot Origin			other			

Disturbance					**100 x 50m Area: Tree SPP. Richness**		
Type	mean fire scar height	severity	last event	obs type	Tree Species	Eucalyptus melanophloia	
Wildfire	na					Angophora leiocarpa	Tree Spp. Count
Prescribed burn	na					Callitris galucophylla	
Logging	na					Eucalyptus poplunea	
Treatment	na						4
Grazing	yes	moderate			50 x 20m Area: Coarse woody Debris		
Non-native plant cove	10.00%				Specimen length (mm)		
Erosion	na						site total m
Regeneration	100						14
Storm	na						per ha (m)
Other (specify)	na						140

50 x 10m Area	**Native Plant Species Richness**		Total
Shrub sp.			
	Petalostigma pubscens		
	Geijera parviflora		
	Psydrax olieofolia		
	Acacia decora		
	Notloaea longfolia		
Grass sp.	Cenchrus ciliaris*		
	Heteropgon contortus		
	Parotis rara		
	Eragrostis brownii		
	Aristida holathera		
	Panicum effusum		
	Urochloa mombasciensis*		
Forbs/other sp.	Chyrocephalum apiculatum	Opuntia tomentosa*	
	Fimbrystilis dichotoma	Dysphania carinata	
	Cheilanthes seiberi	Cyprus difformis	
	Lomandra sp	Comelina diffusa	
	Sclerolaena birchii	Einadia hastata	
	Portulacca australis	Solanum ellipticum	
	Clandrinia sp	Sida corrugata	

Biocondition datasheet (cont.)

10 x 10m Plots: Ground Cover

Ground cover type	1	2	3	4	5	Mean
Native perennial (preferred and intermediate) grass	0	0	20	0	0	4
Native non-preferred grass	0	0	0	0	0	0
Native forbs and other species	3	55	35	30	80	40.6
Native shrubs (< 1m height)	0	0	0	0	0	0
Non-native grass	7	15	0	0	0	4.4
Non-native forbs and shrubs	0	0	0	0	0	0
litter	10	10	30	25	15	18
rock	0	0	0	0	0	0
bare ground	80	20	15	45	5	33
Cryptograms	0	0	0	0	0	0
Total	100	100	100	100	100	100

100 x 50m Area: Large Trees	Plot size	100x 50		100x 20		100 x 10	
Species	Euc (E) Non-Euc (N)	Diam (cm)	DBH				

Eucalypts	Avg DBH threshold		RE	0	Euc Benchm	Euc Benchmark
	No. Trees	0	No. Trees > =	Benchmark/ha		
Non-Eucalypts	Avg DBH threshold		RE	0	Euc Benchm	Euc Benchmark
	No. Trees	0	No. Trees > =	Benchmark/ha		

100m Transect: Tree and Shrub Canopy Cover Canopy (C), Subcanopy (SC), Emergent (E), Shrub (S)

Distance (m)		Type	Distance (m)		Type	Distance (m)		Type
	2	s						
	3.5	s						
	15	s						
	20	s						
	4	c						
	1	s						
						canopy total		4
						subcanopy total		41.5
						emergent total		
						shrub total		

North

South

East

West

Ground

Biocondition Datasheet

Site ID	1255					Date	11/02/2021
Observers	Donovan Sharp, Heath Agnew						

Site Information:

100x50m Area:

Location (GPS reference)						Bioregion	Brigalow Belt South
Datum	GDA94						
Zone	55 J	Easting	735109	Northing	7056577		
Plot origin			735077		7056616		
Plot centre							
Plot Bearing		Plot Alignment Description					
Locality	Roma SD 22						

Regional Ecosystem and Tree height

Habitat Description	young regrowth						
Regional Ecosystem		11.5.5		Median Tree canopy Height (m)		6	
	Emergent height (m)				Subcanopy ht (m)		

Site Photos	Plot centre	North	6762	South	6763	S	
Photo Numbers		East	6764	West	6765		
	Plot Origin			other			

Disturbance					**100 x 50m Area: Tree SPP. Richness**		
Type	mean fire scar height	severity	last event	obs type	Tree Species	Eucalyptus melanophloia	
Wildfire	na					Callitris glaucophylla	Tree Spp. Count
Prescribed burn	na					Allocasuarina leuhmanii	4
Logging	na					Angophora leiocarpa	
Treatment	na						
Grazing	yes	moderate			50 x 20m Area: Coarse woody Debris		
Non-native plant cove	<5				Specimen length (mm)		
Erosion	na						site total m
Regeneration	100						36
Storm	na						per ha (m)
Other (specify)	na						360

50 x 10m Area	**Native Plant Species Richness**	Total
Shrub sp.		
	Psydrax odorata	
	Petalostigma pubescens	
	Alstonia constricta	
Grass sp.	Cenchrus ciliaris*	
	Paspallidium distans	
	Eragrostis brownii	
	Aristida ramosa	
	Aristida calycina	
	Chrysopogon fallax	
	Eriachne mucronata	
Forbs/other sp.	Solanum sp.	
	Portulacca pilosa	
	Sida corrugata	
	Corchorus trilocularis	
	Evolvulus alsinoides	
	Fimbristylis dichotoma	
	Cyperus exaltatus	
	Opuntia tomentosa*	
	Comelina diffusa	

Biocondition datasheet (cont.)

10 x 10m Plots: Ground Cover

Ground cover type	1	2	3	4	5	Mean
Native perennial (preferred and intermediate) grass	60	25	15	15	30	29
Native non-preferred grass	0	0	0	0	0	0
Native forbs and other species	0	0	0	0	0	0
Native shrubs (< 1m height)	0	0	0	0	0	0
Non-native grass	0	0	0	0	0	0
Non-native forbs and shrubs	5	5	0	0	0	2
litter	20	30	50	20	40	32
rock	0	5	0	5	0	2
bare ground	15	35	35	60	30	35
Cryptograms	0	0	0	0	0	0
Total	100	100	100	100	100	100

100 x 50m Area: Large Trees	Plot size	100x 50		100x 20		100 x 10	
Species	Euc (E) Non-Euc (N)	Diam (cm)	DBH				

Eucalypts	Avg DBH threshold		RE	0	Euc Benchm	Euc Benchmark
	No. Trees	0	No. Trees > =	Benchmark/ha		
Non-Eucalypts	Avg DBH threshold		RE	0	Euc Benchm	Euc Benchmark
	No. Trees	0	No. Trees > =	Benchmark/ha		

100m Transect: Tree and Shrub Canopy Cover Canopy (C), Subcanopy (SC), Emergent (E), Shrub (S)

Distance (m)		Type	Distance (m)		Type	Distance (m)		Type
	4	c						
	2	s						
	7	c						
	8	c						
	3	s						
	1.5	s						
	1	c						
	9	c						
	5	s						
						canopy total		25
						subcanopy total		11.5
						emergent total		
						shrub total		0

North

South

East

West

Ground

Biocondition Datasheet

Site ID	1278			Date	11/02/2021
Observers	Donovan Sharp, Heath Agnew				

Site Information:

100x50m Area:

Location (GPS reference)						Bioregion	Brigalow Belt South
Datum	GDA94						
Zone	55 J	Easting	736089	Northing	7058554		
Plot origin			736043		7058864		
Plot centre							
Plot Bearing		Plot Alignment Description					
Locality	Roma SD 22 Lagoons Station						

Regional Ecosystem and Tree height

Habitat Description	remnant						
Regional Ecosystem		11.3.2		Median Tree canopy Height (m)		18	
	Emergent height (m)			Subcanopy ht (m)		7	

Site Photos	Plot centre	North		South		S	
Photo Numbers		East		West			
	Plot Origin			other			

Disturbance					**100 x 50m Area: Tree SPP. Richness**		
Type	mean fire scar height	severity	last event	obs type	Tree Species	Euclayptus populnea	
Wildfire	na					Allocasuarina luehmanii	Tree Spp. Count
Prescribed burn	na					Callitris glaucophylla	3
Logging	na						
Treatment	na						
Grazing	yes	moderate			50 x 20m Area: Coarse woody Debris		
Non-native plant cove	15.00%				Specimen length (mm)		
Erosion	na						site total m
Regeneration	66%						25
Storm	na						per ha (m)
Other (specify)	na						250

50 x 10m Area	**Native Plant Species Richness**	Total
Shrub sp.		
	Geijera parviflora	
	Grevillea striata	
	Eremophila sp	
Grass sp.	Cenchrus ciliaris*	
	Aristida caput-medusae	
	Enteropogon acicularis	
	Eragrostis brownii	
Forbs/other sp.	Cyperus exaltatus	
	Evolvus alsinoides	
	Einadia trigonos	
	Cheilanthes seiberi	
	Fimbristylis dochotoma	
	Solanum ellipticum	
	Sida corrugata	
	Nyssnathes erecta	

Biocondition datasheet (cont.)

10 x 10m Plots: Ground Cover

Ground cover type	1	2	3	4	5	Mean
Native perennial (preferred and intermediate) grass	30	10	10	45	10	21
Native non-preferred grass	0	0	0	0	0	0
Native forbs and other species	5	5	5	5	0	4
Native shrubs (< 1m height)	0	0	0	0	0	0
Non-native grass	10	0	0	0	5	3
Non-native forbs and shrubs	0	0	0	0	0	0
litter	45	45	40	25	65	44
rock	0	0	5	0	5	2
bare ground	10	40	40	25	15	26
Cryptograms	0	0	0	0	0	0
Total	100	100	100	100	100	100

100 x 50m Area: Large Trees	Plot size	100x 50		100x 20		100 x 10	
Species	Euc (E) Non-Euc (N)	Diam (cm)	DBH				

Eucalypts	Avg DBH threshold		RE		Euc Benchm	Euc Benchmark
	No. Trees		No. Trees > =	Benchmark/ha		0
Non-Eucalypts	Avg DBH threshold		RE		Euc Benchm	Euc Benchmark
	No. Trees		No. Trees > =	Benchmark/ha		0

100m Transect: Tree and Shrub Canopy Cover Canopy (C), Subcanopy (SC), Emergent (E), Shrub (S)

Distance (m)		Type	Distance (m)		Type	Distance (m)		Type
	3	s						
	1	s						
	29	s						
	5	c						
	4	s						
	5	s						
	3.5	c						
	1	s						
	9	c						
						canopy total		17.5
						subcanopy total		40
						emergent total		
						shrub total		1

North

South

East

West

Ground

Biocondition Datasheet

Site ID	1328					Date	11/02/2021
Observers	Donovan Sharp, Heath Agnew						

Site Information:

100x50m Area:

Location (GPS reference)						Bioregion	Brigalow Belt South
Datum	GDA94						
Zone	55 J	Easting	735137	Northing	7055345		
Plot origin			735090		7055327		
Plot centre							
Plot Bearing		Plot Alignment Description					
Locality	Roma SD 22 lagoons						

Regional Ecosystem and Tree height

Habitat Description	remnant						
Regional Ecosystem		11.3.25		Median Tree canopy Height (m)		16	
	Emergent height (m)			Subcanopy ht (m)			

Site Photos	Plot centre	North	6804	South	6805	S	
Photo Numbers		East	6806	West	6807		
	Plot Origin			other			

Disturbance					**100 x 50m Area: Tree SPP. Richness**		
Type	mean fire scar height	severity	last event	obs type	Tree Species	Eucalyptus camaldulensis	
Wildfire	na					Euclayptus populnea	Tree Spp. Count
Prescribed burn	na					Melaleuca viminalis	
Logging	na					Acacia salicina	
Treatment	na						
Grazing	yes	moderate			50 x 20m Area: Coarse woody Debris		
Non-native plant cover					Specimen length (mm)		
Erosion	na						site total m
Regeneration							5.5
Storm	na						per ha (m)
Other (specify)	na						22

50 x 10m Area	**Native Plant Species Richness**	Total
Shrub sp.		
	Geijrea parvflora	
	Vachellia farnesiana*	
Grass sp.	Megathyrsus maximus*	
	Themeda traindra	
	Dichanthium sericeum	
	Arundianella nepaliensis	
	Cenchrus ciliaris*	
Forbs/other sp.	Portulacca australis	
	Malvastrum americanum	
	Maireana microphylla	
	Schlerolaena brichii	
	Sida corrugata	
	*Glandularia aristigera	
	Alternanthera nana	
	Lomandra hystrix	
	Chrysocephalum apliculata	

Biocondition datasheet (cont.)

10 x 10m Plots: Ground Cover

Ground cover type	1	2	3	4	5	Mean
Native perennial (preferred and intermediate) grass	90	85	65	35	100	75
Native non-preferred grass	0	0	0	0	0	0
Native forbs and other species	0	0	25	0	0	5
Native shrubs (< 1m height)	0	0	0	0	0	0
Non-native grass	0	0	0	0	0	0
Non-native forbs and shrubs	0	0	0	0	0	0
litter	5	10	5	30	0	10
rock	0	0	0	0	0	0
bare ground	5	5	5	35	0	10
Cryptograms	0	0	0	0	0	0
Total	100	100	100	100	100	100

100 x 50m Area: Large Trees	Plot size	100x 50		100x 20		100 x 10	
Species	Euc (E) Non-Euc (N)	Diam (cm)	DBH				

Eucalypts	Avg DBH threshold		RE		Euc Benchm	Euc Benchmark
	No. Trees	8	No. Trees > =	Benchmark/ha		
Non-Eucalypts	Avg DBH threshold		RE		Euc Benchm	Euc Benchmark
	No. Trees	1	No. Trees > =	Benchmark/ha		

100m Transect: Tree and Shrub Canopy Cover Canopy (C), Subcanopy (SC), Emergent (E), Shrub (S)

Distance (m)		Type	Distance (m)		Type	Distance (m)		Type
	5							
	8							
	50							
						canopy total		63
						subcanopy total		
						emergent total		
						shrub total		

North

South

East

West

Ground

Biocondition Datasheet

Site ID	1330					Date	12/02/2021
Observers	Donovan Sharp, Heath Agnew						

Site Information:

100x50m Area:

Location (GPS reference)						Bioregion	Brigalow Belt South
Datum	GDA94						
Zone	55 J	Easting	723202	Northing	7062793		
Plot origin			726209		7062760		
Plot centre							
Plot Bearing	NW	Plot Alignment Description					
Locality	Roma SD 22						
	Burnside Station						

Regional Ecosystem and Tree height

Habitat Description	remnant						
Regional Ecosystem		11.9.10		Median Tree canopy Height (m)		14	
	Emergent height (m)			Subcanopy ht (m)		9	

Site Photos	Plot centre	North	6809	South	6810	S	
Photo Numbers		East	6811	West	6812		
	Plot Origin			other	6813		

Disturbance					**100 x 50m Area: Tree SPP. Richness**		
Type	mean fire scar height	severity	last event	obs type	Tree Species	Eucalyptus populnea	
Wildfire	na					Acacia harpophylla	Tree Spp. Count
Prescribed burn	na					Casuarina cristata	3
Logging	na						
Treatment	na						
Grazing	yes	moderate			50 x 20m Area: Coarse woody Debris		
Non-native plant cove	< 5				Specimen length (mm)		
Erosion	na						site total m
Regeneration	100						104
Storm	na						per ha (m)
Other (specify)	na						1040

50 x 10m Area	**Native Plant Species Richness**	Total
Shrub sp.		
	Geijera parvflora	
	Eremophila mitchellii	
	Carissa ovata	
Grass sp.		
	Eragrostis brownii	
Forbs/other sp.		

Biocondition datasheet (cont.)

10 x 10m Plots: Ground Cover

Ground cover type	1	2	3	4	5	Mean
Native perennial (preferred and intermediate) grass	0	0	0	0	0	0
Native non-preferred grass	0	0	0	0	0	0
Native forbs and other species	0	0	0	0	0	0
Native shrubs (< 1m height)	0	0	0	0	0	0
Non-native grass	0	0	0	0	0	0
Non-native forbs and shrubs	0	0	0	0	0	0
litter	90	70	40	75	80	71
rock	4	5	15	10	10	8.8
bare ground	6	25	45	15	10	20.2
Cryptograms	0	0	0	0	0	0
Total	100	100	100	100	100	100

100 x 50m Area: Large Trees	Plot size	100x 50		100x 20		100 x 10	
Species	Euc (E) Non-Euc (N)	Diam (cm)	DBH				

Eucalypts	Avg DBH threshold		RE	2	Euc Benchm	Euc Benchmark
	No. Trees	1	No. Trees > =	Benchmark/ha		
Non-Eucalypts	Avg DBH threshold		RE	6	Euc Benchm	Euc Benchmark
	No. Trees	3	No. Trees > =	Benchmark/ha		

100m Transect: Tree and Shrub Canopy Cover Canopy (C), Subcanopy (SC), Emergent (E), Shrub (S)

Distance (m)		Type	Distance (m)		Type	Distance (m)		Type
	3	s		12	SH			
	1	c		16	SH			
	4	c		5	SH			
	2	c		3	SH			
	4	s		1	SH			
				22	SH			
						canopy total		7
						subcanopy total		7
						emergent total		
						shrub total		59

North

South

East

West

Ground

Biocondition Datasheet

Site ID						Date	12/02/2021
Observers	Donovan Sharp, Heath Agnew						

Site Information:

100x50m Area:

Location (GPS reference)						Bioregion	Brigalow Belt South
Datum	GDA94						
Zone	55 J	Easting	725449	Northing	7063082		
Plot origin			725498		7063085		
Plot centre							
Plot Bearing		Plot Alignment Description					
Locality	Roma SD 22 Burnisde Station						

Regional Ecosystem and Tree height

Habitat Description	advanced regrowth						
Regional Ecosystem		11.5.5		Median Tree canopy Height (m)		12	
	Emergent height (m)				Subcanopy ht (m)	3	

Site Photos	Plot centre	North	6614	South	6615	S	
Photo Numbers		East	6616	West	6617		
	Plot Origin			other	6618		

Disturbance					**100 x 50m Area: Tree SPP. Richness**		
Type	mean fire scar height	severity	last event	obs type	Tree Species	Eucalyptus melanophloia	
Wildfire	na					Eucalyptus populnea	Tree Spp. Count
Prescribed burn	na					Acacia harpophylla	3
Logging	na						
Treatment	na						
Grazing	yes	moderate			50 x 20m Area: Coarse woody Debris		
Non-native plant cove	<5				Specimen length (mm)		
Erosion	na						site total m
Regeneration	100						54
Storm	na						per ha (m)
Other (specify)	na						540

50 x 10m Area	**Native Plant Species Richness**		Total
Shrub sp.			
	Geijera parviflora		
	Santalum lanceolatum		
	Eremophila sp.		
	Acacia decora		
	Citrus glauca		
Grass sp.	Aristida calycina		
	Chloris truncata		
	Cenchrus ciliaris*		
	Enteropogon acicularis		
	Panicum effusum		
	Paspallidium distans		
	Sporobolus caroli		
Forbs/other sp.	Malvastrum americanum	Boerhavia dominii	
	Sclerolaena birchii		
	Abutilon oxycarpon		
	Maireana microphylla		
	Sida sp		
	Harrissia martini*		

Biocondition datasheet (cont.)

10 x 10m Plots: Ground Cover

Ground cover type	1	2	3	4	5	Mean
Native perennial (preferred and intermediate) grass	65	0	15	15	0	19
Native non-preferred grass	0	0	0	0	0	0
Native forbs and other species	10	0	10	15	0	7
Native shrubs (< 1m height)	0	0	10	0	0	2
Non-native grass	0	0	0	0	0	0
Non-native forbs and shrubs	0	0	0	0	0	0
litter	20	35	50	50	10	33
rock	0	0	0	0	0	0
bare ground	5	65	15	20	90	39
Cryptograms	0	0	0	0	0	0
Total	100	100	100	100	100	100

100 x 50m Area: Large Trees Plot size 100x 50 | 100x 20 | 100 x 10

Species	Euc (E) Non-Euc (N)	Diam (cm)	DBH

Eucalypts	Avg DBH threshold		RE		Euc Benchm	Euc Benchmark
	No. Trees	0	No. Trees > =	Benchmark/ha		
Non-Eucalypts	Avg DBH threshold		RE		Euc Benchm	Euc Benchmark
	No. Trees	0	No. Trees > =	Benchmark/ha		

100m Transect: Tree and Shrub Canopy Cover Canopy (C), Subcanopy (SC), Emergent (E), Shrub (S)

Distance (m)		Type	Distance (m)		Type	Distance (m)		Type
	9	c		1	sh			
	6	c		1	sh			
	14	c		1	sh			
	7	c						
						canopy total		36
						subcanopy total		
						emergent total		
						shrub total		

North

South

East

West

Ground

Biocondition Datasheet

Site ID	1334					Date	12/02/2021
Observers	Donovan Sharp, Heath Agnew						

Site Information:

100x50m Area:

Location (GPS reference)						Bioregion	Brigalow Belt South
Datum	GDA94						
Zone	55 J	Easting	725519	Northing	7063031		
Plot origin			725571		7063041		
Plot centre							
Plot Bearing		Plot Alignment Description					
Locality	Roma SD 22						

Regional Ecosystem and Tree height

Habitat Description	advanced regrowth						
Regional Ecosystem		11.9.10		Median Tree canopy Height (m)		9	
	Emergent height (m)			Subcanopy ht (m)			

Site Photos	Plot centre	North	6819	South	6820	S	
Photo Numbers		East	6821		6822		
	Plot Origin			other	6823		

Disturbance					**100 x 50m Area: Tree SPP. Richness**		
Type	mean fire scar height	severity	last event	obs type	Tree Species	Acacia harpophylla	
Wildfire	na					Eucalyptus populnea	Tree Spp. Count
Prescribed burn	na						2
Logging	na						
Treatment	na						
Grazing	yes	moderate			50 x 20m Area: Coarse woody Debris		
Non-native plant cove	< 1				Specimen length (mm)		
Erosion	na						site total m
Regeneration	100						77
Storm	na						per ha (m)
Other (specify)	na						770

50 x 10m Area	**Native Plant Species Richness**	Total
Shrub sp.		
	Geijera parviflora	
	Citrus glauca	
	Eremophila mitchellii	
Grass sp.	Aristida Holathera	
	Paspallidium distans	
	Chloris truncata	
	Ancistrachne uncinulata	
	Sporobolus australis	
	Enteropogon acicularis	
	Aristida calycina	
Forbs/other sp.	Sclerolaena birchii	
	Harissia martinii*	
	Solanum ellipticum	
	Abuliton oxycarpon	
	Comellina difusa	

Biocondition datasheet (cont.)

10 x 10m Plots: Ground Cover

Ground cover type	1	2	3	4	5	Mean
Native perennial (preferred and intermediate) grass	0	0	5	10	0	3
Native non-preferred grass	0	0	0	0	0	0
Native forbs and other species	20	5	0	5	15	9
Native shrubs (< 1m height)	0	0	0	0	0	0
Non-native grass	0	0	0	0	0	0
Non-native forbs and shrubs	0	0	0	0	0	0
litter	80	95	95	85	80	87
rock	0	0	0	0	0	0
bare ground	0	0	0	0	5	1
Cryptograms	0	0	0	0	0	0
Total	100	100	100	100	100	100

100 x 50m Area: Large Trees	Plot size	100x 50		100x 20		100 x 10	
Species	Euc (E) Non-Euc (N)	Diam (cm)	DBH				

Eucalypts	Avg DBH threshold		RE		Euc Benchm Euc Benchmark
	No. Trees	0	No. Trees > = Benchmark/ha		
Non-Eucalypts	Avg DBH threshold		RE		Euc Benchm Euc Benchmark
	No. Trees	0	No. Trees > = Benchmark/ha		

100m Transect: Tree and Shrub Canopy Cover Canopy (C), Subcanopy (SC), Emergent (E), Shrub (S)

Distance (m)		Type	Distance (m)		Type	Distance (m)		Type
	3.5	c						
	1	c						
	3	c						
	9	c						
	3.5	c						
	15	c						
	12.5	c						
	6	c						
	7	s						
	1	c				canopy total		62.5
	2	c				subcanopy total		7
	6	c				emergent total		
						shrub total		

North

South

East

West

Ground

Biocondition Datasheet

Site ID	1336					Date	13/02/2021
Observers	Donovan Sharp, Heath Agnew						

Site Information:

100x50m Area:

Location (GPS reference)						Bioregion	Brigalow Belt South
Datum	GDA94						
Zone	55 J	Easting	727380	Northing	7062930		
Plot origin			727373		7062981		
Plot centre							
Plot Bearing		Plot Alignment Description					
Locality	Roma SD 22 Burnside Station						

Regional Ecosystem and Tree height

Habitat Description	11.3.2 remnant						
Regional Ecosystem		11.3.2		Median Tree canopy Height (m)		18	
	Emergent height (m)				Subcanopy ht (m)	9	

Site Photos	Plot centre	North	6824	South	6825	S	
Photo Numbers		East	6826	West	6827		
	Plot Origin			other	6828		

Disturbance					**100 x 50m Area: Tree SPP. Richness**		
Type	mean fire scar height	severity	last event	obs type	Tree Species	Eucalyptus populnea	
Wildfire	na					Geijera parviflora	Tree Spp. Count
Prescribed burn	na						2
Logging	na						
Treatment	na						
Grazing	yes	moderate			50 x 20m Area: Coarse woody Debris		
Non-native plant cove	< 1%				Specimen length (mm)		
Erosion	na						site total m
Regeneration	100						70
Storm	na						per ha (m)
Other (specify)	na						700

50 x 10m Area	**Native Plant Species Richness**	Total
Shrub sp.		
	Geijera parviflora	
	Eremophila mitchellii	
	Citrus glauca	
	Capparis lasiantha	
Grass sp.	Chloris truncata	
	Paspalidium distans	
	Arisitda ramosa	
	Aristida calycina	
	Aristida caput-medusae	
	Enteropogon ascicularis	
	Sporobolus carolii	
Forbs/other sp.	Harissia martinii*	
	Einadia hastata	
	Abutilon oxycarpon	
	Sclerolaena bicornis	
	Sclerolaena birchii	
	Glandularia aristigera*	
	Nyssanthes erecta	
	Sida corrugata	

Biocondition datasheet (cont.)

10 x 10m Plots: Ground Cover

Ground cover type	1	2	3	4	5	Mean
Native perennial (preferred and intermediate) grass	2.5	5	5	5	30	9.5
Native non-preferred grass	0	0	0	0	0	0
Native forbs and other species	2.5	0	0	2.5	15	4
Native shrubs (< 1m height)	0	0	0	0	0	0
Non-native grass	0	0	0	0	0	0
Non-native forbs and shrubs	0	0	0	0	0	0
litter	80	55	65	80	30	62
rock	0	0	0	0	0	0
bare ground	15	40	30	12.5	25	24.5
Cryptograms	0	0	0	0	0	0
Total	100	100	100	100	100	100

100 x 50m Area: Large Trees	Plot size	100x 50		100x 20		100 x 10	
Species	Euc (E) Non-Euc (N)	Diam (cm)	DBH				

Eucalypts	Avg DBH threshold		RE		Euc Benchm	Euc Benchmark
	No. Trees	0	No. Trees > =	Benchmark/ha		
Non-Eucalypts	Avg DBH threshold		RE		Euc Benchm	Euc Benchmark
	No. Trees	0	No. Trees > =	Benchmark/ha		

100m Transect: Tree and Shrub Canopy Cover Canopy (C), Subcanopy (SC), Emergent (E), Shrub (S)

Distance (m)		Type	Distance (m)		Type	Distance (m)		Type
	30	c						
	1	s						
	3.5	s						
	5	s						
	4	c						
	6	s						
	4	c						
	1	s						
	7	c						
	1.5	c				canopy total		34.5
	18	c				subcanopy total		16.5
						emergent total		
						shrub total		

North

South

East

West

Ground

Biocondition Datasheet

Site ID	1348				Date	2/03/2021	
Observers	Donovan Sharp, Heath Agnew						
Site Information:							
100x50m Area:							
Location (GPS reference)					Bioregion	Brigalow Belt South	
Datum	GDA94						
Zone	55 J	Easting		Northing			
Plot origin			723234		7062814		1348
Plot centre			723217		7062866		1349
Plot Bearing		Plot Alignment Description					
Locality	Roma SD 22 Wilgavale						

Regional Ecosystem and Tree height

Habitat Description	11.7.6 regrowth. Crebra regrowth with Callitris understorey. Sandy and rocky.						
Regional Ecosystem		11.7.6		Median Tree canopy Height (m)		12	
	Emergent height (m)			Subcanopy ht (m)		8	

Site Photos	Plot centre	North	6856	South	6857	S	
Photo Numbers		East	6858	West	6859		
	Plot Origin			other	6860 6861		

Disturbance					**100 x 50m Area: Tree SPP. Richness**		
Type	mean fire scar height	severity	last event	obs type	Tree Species	Eucalyptus crebra	
Wildfire	na					Callitris glaucophylla	Tree Spp. Count
Prescribed burn	na					Corymbia tessellaris	4
Logging	na					Brachychiton populneus	
Treatment	na						
Grazing	yes	moderate			50 x 20m Area: Coarse woody Debris		
Non-native plant cove	<5%				Specimen length (mm)		
Erosion	na						site total m
Regeneration	100%						19.5
Storm	na						per ha (m)
Other (specify)	na						195

50 x 10m Area	**Native Plant Species Richness**		Total
Shrub sp.	Carissa ovata		
	Pittosporum spinescens		
	Psydrax oleifolia		
Grass sp.	Enneapogon truncatus	Echinopogon caespitosus	
	Digitaria divaricatissima	Urochloa panicoides*	
	Aristida calycina		
	Eragrostis brownii		
	Cenchrus ciliaris*		
	Aristida jerichoensis		
	Fimbristylis dichotoma		
	Panicum effusum		
	Cymbopogon refractus		
Forbs/other sp.	Nyssanthes erecta	Commelina diffusa	
	Evolvulus alsinoides	Euphorbia tannensis	
	Plectranthus scutellarioides	Dysphania carinata	
	Portulaca sp.	Cyperus betchei	
	Solanum ellipticum	Cheilanthes sieberi	
	*Malvastrum americanum	Seringia collina	
		Sida corrugata	
		Einadia hastata	

Biocondition datasheet (cont.)

10 x 10m Plots: Ground Cover

Ground cover type	1	2	3	4	5	Mean
Native perennial (preferred and intermediate) grass	25	10	20	15	15	17
Native non-preferred grass	0	0	0	0	0	0
Native forbs and other species	15	5	5	0	5	6
Native shrubs (< 1m height)	0	0	0	0	0	0
Non-native grass	0	0	0	0	0	0
Non-native forbs and shrubs	0	0	0	0	0	0
litter	45	30	30	65	30	40
rock	0	0	0	0	0	0
bare ground	15	45	45	20	50	35
Cryptograms	0	0	0	0	0	0
Total	100	90	100	100	100	98

100 x 50m Area: Large Trees	Plot size	100x 50		100x 20		100 x 10	
Species	Euc (E) Non-Euc (N)	Diam (cm)	DBH				

Eucalypts	Avg DBH threshold		RE	49	Euc Benchm	Euc Benchmark	
	No. Trees	0	No. Trees > =	Benchmark/ha		0	
Non-Eucalypts	Avg DBH threshold		RE	23	Euc Benchm	Euc Benchmark	
	No. Trees	0	No. Trees > =	Benchmark/ha		0	

100m Transect: Tree and Shrub Canopy Cover Canopy (C), Subcanopy (SC), Emergent (E), Shrub (S)

Distance (m)		Type	Distance (m)		Type	Distance (m)		Type
3.5-12	8.5	C						
24.5-28	3.5	C						
31-37	6	C						
54-69	5	C						
91-95	4	C						
0-2	2	S						
15-16	16	S						
21.5-24	2.5	S						
29-32	3	S				canopy total		27
33-46	13	S				subcanopy total		57
50.5-86	36	S				emergent total		
						shrub total		

North

South

East

West

Ground

Ground

Biocondition Datasheet

Site ID	1340				Date	1/03/2021	
Observers	Donovan Sharp, Heath Agnew						
Site Information:							
100x50m Area:							
Location (GPS reference)					Bioregion	Brigalow Belt South	
Datum	GDA94						
Zone	55 J	Easting		Northing			
Plot origin			722937		7062883		1340
Plot centre			722946		7062833		1341
Plot Bearing		Plot Alignment Description					
Locality	Roma SD 22						

Regional Ecosystem and Tree height

Habitat Description	Base of rocky jumpup. Regrowth.						
Regional Ecosystem		11.7.6		Median Tree canopy Height (m)		14	
	Emergent height (m)				Subcanopy ht (m)	5	

Site Photos	Plot centre	North	6834	South	6835	S	
Photo Numbers		East	6836	West	6837		
	Plot Origin			other	6838		

Disturbance					**100 x 50m Area: Tree SPP. Richness**		
Type	mean fire scar height	severity	last event	obs type	Tree Species	Eucalyptus woollsiana	
Wildfire	na					Casuarina cristata	Tree Spp. Count
Prescribed burn	na						7
Logging	na					Psydrax oleifolia	
Treatment	na					Callitris glaucophylla	
						Brachychiton populneus	
						Brachychiton rupestris	
						Eucalyptus populnea	
Grazing	yes	moderate			50 x 20m Area: Coarse woody Debris		
Non-native plant cove	<5%				Specimen length (mm)		
Erosion	na						site total m
Regeneration	0%						98
Storm	na						per ha (m)
Other (specify)	na						980

50 x 10m Area	**Native Plant Species Richness**		Total
Shrub sp.	Carissa ovata		
	Psydrax oleifolia		
	Geijera parviflora		
	Eremophila deserti		
	Capparis lasiantha		
Grass sp.	Paspalidium distans		
	Cenchrus ciliaris*		
	Ancistrachne uncinulata		
	Sporobolus australasicus		
	Dactyloctenium radulans		
Forbs/other sp.	Evolvulus alsinoides	Jasminum simplicifolium	
	Seringia collina	Opuntia tomentosa*	
	Portulaca australis	Portulaca pilosa	
	Tetragonia tetragonoides	Maireana microphylla	
	Solanum ellipticum	Harrisia martinii*	
	Sclerolaena birchii	Abutilon oxycarpum	
	Einadia hastata	Malvastrum americanum	
		Alternanthera nana	

Biocondition datasheet (cont.)

10 x 10m Plots: Ground Cover

Ground cover type	1	2	3	4	5	Mean
Native perennial (preferred and intermediate) grass	25	35	5	2.5	2.5	14
Native non-preferred grass	0	0	0	0	0	0
Native forbs and other species	5	0	0	2.5	0	1.5
Native shrubs (< 1m height)	0	0	10	0	0	2
Non-native grass	0	0	15	0	2.5	3.5
Non-native forbs and shrubs	0	5	0	0	0	1
litter	55	55	65	85	20	56
rock	0	0	0	0	0	0
bare ground	20	5	5	10	75	23
Cryptograms	0	0	0	0	0	0
Total	105	100	100	100	100	101

100 x 50m Area: Large Trees	Plot size	100x 50		100x 20		100 x 10	
Species	Euc (E) Non-Euc (N)	Diam (cm)	DBH				

Eucalypts	Avg DBH threshold		RE	46	Euc Benchm	Euc Benchmark	
	No. Trees	0	No. Trees > =	Benchmark/ha		0	
Non-Eucalypts	Avg DBH threshold		RE	23	Euc Benchm	Euc Benchmark	
	No. Trees	0	No. Trees > =	Benchmark/ha		0	

100m Transect: Tree and Shrub Canopy Cover Canopy (C), Subcanopy (SC), Emergent (E), Shrub (S)

Distance (m)		Type	Distance (m)		Type	Distance (m)		Type
C	0-2.5	2.5		8	c			
C	13-73	60						
C	90-97	7						
C	99-100	1						
S	5.5-6.5	1						
						canopy total		75
						subcanopy total		1
						emergent total		
						shrub total		

North

South

East

West

Ground

Biocondition Datasheet

Site ID	1342				Date	1/03/2021
Observers	Donovan Sharp, Heath Agnew					

Site Information:

100x50m Area:

Location (GPS reference)					Bioregion	Brigalow Belt South
Datum	GDA94					
Zone	55 J	Easting		Northing		
Plot origin			723093		7062824	1342
Plot centre			723090		7062775	1343
Plot Bearing		Plot Alignment Description				
Locality	Roma SD 22 Wilgavale					

Regional Ecosystem and Tree height

Habitat Description	Regrowth 11.7.6. Some relictual emergents. Shrub layer largely absent. Sandy loam rocky.					
Regional Ecosystem		11.7.6	Median Tree canopy Height (m)		13	
	Emergent height (m)		18	Subcanopy ht (m)		

Site Photos	Plot centre	North	6839	South	6840	S
Photo Numbers		East	6841	West	6842	
	Plot Origin			other	6843	

Disturbance					**100 x 50m Area: Tree SPP. Richness**		
Type	mean fire scar height	severity	last event	obs type	Tree Species	Eucalyptus crebra	
Wildfire	na					Callitris glaucophylla	Tree Spp. Count
Prescribed burn	na					Eucalyptus woollsiana	3
Logging	na						
Treatment	na						
Grazing	yes	moderate			50 x 20m Area: Coarse woody Debris		
Non-native plant cove	<1%				Specimen length (mm)		
Erosion	na						site total m
Regeneration	0%						26
Storm	na						per ha (m)
Other (specify)	na						260

50 x 10m Area	**Native Plant Species Richness**		Total
Shrub sp.	Bursaria incana		
	Psydrax oleifolia		
Grass sp.	Eragrostis brownii		
	Eragrostis lacunaria		
	Dactyloctenium radulans		
	Enneapogon truncatus		
	Enneapogon robustissimus		
	Panicum effusum		
	Aristida caput-medusae		
	Cymbopogon refractus		
	Aristida calycina		
Forbs/other sp.	Nyssanthes erecta	Cheilanthes sieberi	
	Evolvulus alsinoides	*Harrisia martinii	
	Seringia collina	*Malvastrum americanum	
	Dysphania carinata	Jasminum simplicifolium	
	Portulaca australis	Solanum ellipticum	
	Salvia plebeia	Tragus australianus	
	Commelina diffusa	Cyperus gracilis	
	Einadia hastata	Fimbristylis dichotoma	
		Cyperus betchei	

Biocondition datasheet (cont.)

10 x 10m Plots: Ground Cover

Ground cover type	1	2	3	4	5	Mean
Native perennial (preferred and intermediate) grass	80	20	15	10	5	26
Native non-preferred grass	0	0	0	0	0	0
Native forbs and other species	0	40	5	35	0	16
Native shrubs (< 1m height)	0	0	0	0	0	0
Non-native grass	0	0	0	0	0	0
Non-native forbs and shrubs	0	0	0	0	0	0
litter	10	30	45	15	40	28
rock	0	0	25	40	20	17
bare ground	10	10	10	0	35	13
Cryptograms	0	0	0	0	0	0
Total	100	100	100	100	100	100

100 x 50m Area: Large Trees	Plot size	100x 50		100x 20		100 x 10	
Species	Euc (E) Non-Euc (N)	Diam (cm)	DBH				

Eucalypts	Avg DBH threshold		RE		Euc Benchm	Euc Benchmark
	No. Trees		No. Trees > =	Benchmark/ha		0
Non-Eucalypts	Avg DBH threshold		RE		Euc Benchm	Euc Benchmark
	No. Trees		No. Trees > =	Benchmark/ha		0

100m Transect: Tree and Shrub Canopy Cover Canopy (C), Subcanopy (SC), Emergent (E), Shrub (S)

Distance (m)		Type	Distance (m)		Type	Distance (m)		Type
1-3	2	E						
13-17	4	C						
17-28.5	11.5	C						
31-37	6	C						
37-43	6	C						
69-73	4	C						
80-90	10	C						
						canopy total		41.5
						subcanopy total		
						emergent total		2
						shrub total		

North

South

East

West

Ground

Biocondition Datasheet

Site ID	1344				Date	1/03/2021	
Observers	Donovan Sharp, Heath Agnew						
Site Information:							
100x50m Area:							
Location (GPS reference)					Bioregion	Brigalow Belt South	
Datum	GDA94						
Zone	55 J	Easting		Northing			
Plot origin			724756		7060159		1344
Plot centre			724801		7060181		1345
Plot Bearing		Plot Alignment Description					
Locality	Roma SD 22						
	Wilgavale						

Regional Ecosystem and Tree height

Habitat Description						
Regional Ecosystem	11.7.2		Median Tree canopy Height (m)	10		
	Emergent height (m)			Subcanopy ht (m)	6	

Site Photos	Plot centre	North	6844	South	6845	S	
Photo Numbers		East	6846	West	6847		
	Plot Origin			other	6848		

Disturbance					**100 x 50m Area: Tree SPP. Richness**		
Type	mean fire scar height	severity	last event	obs type	Tree Species	Acacia shirleyi	
Wildfire	na					Callitris glaucophylla	Tree Spp. Count
Prescribed burn	na					Hakea lorea subsp. lorea	6
Logging	na					Eucalyptus populnea	
Treatment	na					Casuarina cristata	
						Allocasuarina luehmannii	
Grazing	yes	moderate			50 x 20m Area: Coarse woody Debris		
Non-native plant cove	<1%				Specimen length (mm)		
Erosion	na						site total m
Regeneration	60%						49
Storm	na						per ha (m)
Other (specify)	na						490

50 x 10m Area	**Native Plant Species Richness**	Total
Shrub sp.		
	Geijera parviflora	
Grass sp.	Aristida caput-medusae	
	Paspalidium distans	
	Eragrostis sp.	
	Austrostipa verticillata	
Forbs/other sp.	Seringia collina	
	Abutilon oxycarpum	
	Oxalis perennans	
	Cheilanthes sieberi	
	Dysphania carinata	

Biocondition datasheet (cont.)

10 x 10m Plots: Ground Cover

Ground cover type	1	2	3	4	5	Mean
Native perennial (preferred and intermediate) grass	20	0	0	5	70	19
Native non-preferred grass	0	0	0	0	0	0
Native forbs and other species	20	60	5	25	0	22
Native shrubs (< 1m height)	0	0	0	0	0	0
Non-native grass	0	0	0	0	0	0
Non-native forbs and shrubs	0	0	0	0	0	0
litter	20	20	15	45	20	24
rock	0	0	0	0	0	0
bare ground	40	20	80	30	10	36
Cryptograms	0	0	0	0	0	0
Total	100	100	100	105	100	101

100 x 50m Area: Large Trees	Plot size	100x 50		100x 20		100 x 10	
Species	Euc (E) Non-Euc (N)	Diam (cm)	DBH				

Eucalypts	Avg DBH threshold		RE		Euc Benchm	Euc Benchmark
	No. Trees	0	No. Trees > =	Benchmark/ha		0
Non-Eucalypts	Avg DBH threshold		RE		Euc Benchm	Euc Benchmark
	No. Trees	0	No. Trees > =	Benchmark/ha		0

100m Transect: Tree and Shrub Canopy Cover Canopy (C), Subcanopy (SC), Emergent (E), Shrub (S)

Distance (m)		Type	Distance (m)		Type	Distance (m)		Type
18-28.5	11	C						
32.5-40	7.5	C						
85-90.5	5.5	C						
0-1	1	S						
5-7	2	S						
50-52	2	S						
69-70	1	S						
87-93	6	S						
95-100	5	S				canopy total		24
						subcanopy total		17
						emergent total		
						shrub total		

North

South

East

West

Ground

Biocondition Datasheet

Site ID	1348				Date	2/03/2021	
Observers	Donovan Sharp, Heath Agnew						
Site Information:							
100x50m Area:							
Location (GPS reference)					Bioregion	Brigalow Belt South	
Datum	GDA94						
Zone	55 J	Easting		Northing			
Plot origin			723234		7062814		1348
Plot centre			723217		7062866		1349
Plot Bearing		Plot Alignment Description					
Locality	Roma SD 22 Wilgavale						

Regional Ecosystem and Tree height

Habitat Description	11.7.6 regrowth. Crebra regrowth with Callitris understorey. Sandy and rocky.						
Regional Ecosystem		11.7.6		Median Tree canopy Height (m)		12	
	Emergent height (m)			Subcanopy ht (m)		8	

Site Photos	Plot centre	North	6856	South	6857	S	
Photo Numbers		East	6858	West	6859		
	Plot Origin			other	6860 6861		

Disturbance					**100 x 50m Area: Tree SPP. Richness**		
Type	mean fire scar height	severity	last event	obs type	Tree Species	Eucalyptus crebra	
Wildfire	na					Callitris glaucophylla	Tree Spp. Count
Prescribed burn	na					Corymbia tessellaris	4
Logging	na					Brachychiton populneus	
Treatment	na						
Grazing	yes	moderate			50 x 20m Area: Coarse woody Debris		
Non-native plant cove	<5%				Specimen length (mm)		
Erosion	na						site total m
Regeneration	100%						19.5
Storm	na						per ha (m)
Other (specify)	na						195

50 x 10m Area	**Native Plant Species Richness**		Total
Shrub sp.	Carissa ovata		
	Pittosporum spinescens		
	Psydrax oleifolia		
Grass sp.	Enneapogon truncatus	Echinopogon caespitosus	
	Digitaria divaricatissima	Urochloa panicoides*	
	Aristida calycina		
	Eragrostis brownii		
	Cenchrus ciliaris*		
	Aristida jerichoensis		
	Fimbristylis dichotoma		
	Panicum effusum		
	Cymbopogon refractus		
Forbs/other sp.	Nyssanthes erecta	Commelina diffusa	
	Evolvulus alsinoides	Euphorbia tannensis	
	Plectranthus scutellarioides	Dysphania carinata	
	Portulaca sp.	Cyperus betchei	
	Solanum ellipticum	Cheilanthes sieberi	
	*Malvastrum americanum	Seringia collina	
		Sida corrugata	
		Einadia hastata	

Biocondition datasheet (cont.)

10 x 10m Plots: Ground Cover

Ground cover type	1	2	3	4	5	Mean
Native perennial (preferred and intermediate) grass	25	10	20	15	15	17
Native non-preferred grass	0	0	0	0	0	0
Native forbs and other species	15	5	5	0	5	6
Native shrubs (< 1m height)	0	0	0	0	0	0
Non-native grass	0	0	0	0	0	0
Non-native forbs and shrubs	0	0	0	0	0	0
litter	45	30	30	65	30	40
rock	0	0	0	0	0	0
bare ground	15	45	45	20	50	35
Cryptograms	0	0	0	0	0	0
Total	100	90	100	100	100	98

100 x 50m Area: Large Trees	Plot size	100x 50		100x 20		100 x 10	
Species	Euc (E) Non-Euc (N)	Diam (cm)	DBH				

Eucalypts	Avg DBH threshold		RE	49	Euc Benchm	Euc Benchmark	
	No. Trees	0	No. Trees > =	Benchmark/ha		0	
Non-Eucalypts	Avg DBH threshold		RE	23	Euc Benchm	Euc Benchmark	
	No. Trees	0	No. Trees > =	Benchmark/ha		0	

100m Transect: Tree and Shrub Canopy Cover Canopy (C), Subcanopy (SC), Emergent (E), Shrub (S)

Distance (m)		Type	Distance (m)		Type	Distance (m)		Type
3.5-12	8.5	C						
24.5-28	3.5	C						
31-37	6	C						
54-69	5	C						
91-95	4	C						
0-2	2	S						
15-16	16	S						
21.5-24	2.5	S						
29-32	3	S				canopy total		27
33-46	13	S				subcanopy total		57
50.5-86	36	S				emergent total		
						shrub total		

North

South

East

West

Ground

Ground

Biocondition Datasheet

Site ID	1350				Date	2/03/2021	
Observers	Donovan Sharp, Heath Agnew						
Site Information:							
100x50m Area:							
Location (GPS reference)					Bioregion	Brigalow Belt South	
Datum	GDA94						
Zone	55 J	Easting		Northing			
Plot origin			722758		7062933		1350
Plot centre			722778		7062978		1351
Plot Bearing		Plot Alignment Description					
Locality	Roma SD 22 Wilgavale						

Regional Ecosystem and Tree height

Habitat Description	Remnant crebra. Soil sandy, rocky in patches.						
Regional Ecosystem				Median Tree canopy Height (m)		16	
	Emergent height (m)			Subcanopy ht (m)		8	

Site Photos	Plot centre	North	6862	South	6863	S	
Photo Numbers		East	6864	West	6865		
	Plot Origin			other	6866		

Disturbance					**100 x 50m Area: Tree SPP. Richness**		
Type	mean fire scar height	severity	last event	obs type	Tree Species	Eucalyptus crebra	
Wildfire	na					Callitris glaucophylla	Tree Spp. Count
Prescribed burn	na					Bursaria incana	6
Logging	na					Eucalyptus populnea	
Treatment	na					Petalostigma pubescens	
						Geijera parviflora	
Grazing	yes	moderate			50 x 20m Area: Coarse woody Debris		
Non-native plant cove	<5%				Specimen length (mm)		
Erosion	na						site total m
Regeneration	60%						34
Storm	na						per ha (m)
Other (specify)	na						340

50 x 10m Area	**Native Plant Species Richness**		Total
Shrub sp.	Carissa ovata		
	Carissa ovata		
Grass sp.	Cenchrus ciliaris		
	Dactyloctenium radulans		
	Austrostipa verticillata		
	Fimbristylis dichotoma		
	Eragrostis brownii		
	Enneapogon truncatus		
	Cyperus betchei		
	Melinis repens		
	Chloris truncata		
	Paspalidium distans		
Forbs/other sp.	Seringia collina	Portulaca pilosa	
	Portulaca australis	Einadia hastata	
	Solanum ellipticum	Dysphania carinata	
	Evolvulus alsinoides	*Harrisia martinii	
	Portulaca sp.	Echinopogon caespitosus	
	*Opuntia tomentosa	Jasminum simplicifolium	
	Corchorus trilocularis		

Biocondition datasheet (cont.)

10 x 10m Plots: Ground Cover

Ground cover type	1	2	3	4	5	Mean
Native perennial (preferred and intermediate) grass	40	95	25	30	0	38
Native non-preferred grass	0	0	0	0	0	0
Native forbs and other species	5	0	15	5	5	6
Native shrubs (< 1m height)	0	0	0	0	40	8
Non-native grass	0	0	0	0	0	0
Non-native forbs and shrubs	0	0	0	0	0	0
litter	30	5	60	40	55	38
rock	0	0	0	0	0	0
bare ground	15	0	0	25	0	8
Cryptograms	0	0	0	0	0	0
Total	90	100	100	100	100	98

100 x 50m Area: Large Trees	Plot size	100x 50		100x 20		100 x 10	
Species	Euc (E) Non-Euc (N)	Diam (cm)	DBH				

Eucalypts	Avg DBH threshold		RE	44	Euc Benchm	Euc Benchmark	
	No. Trees	1	No. Trees > =	Benchmark/ha		2	
Non-Eucalypts	Avg DBH threshold		RE	24	Euc Benchm	Euc Benchmark	
	No. Trees	0	No. Trees > =	Benchmark/ha		0	

100m Transect: Tree and Shrub Canopy Cover Canopy (C), Subcanopy (SC), Emergent (E), Shrub (S)

Distance (m)		Type	Distance (m)		Type	Distance (m)		Type
0-3	3	C		8	c			
20-29	9	C						
34-46	12	C						
83-100	17	C						
1-4	3							
78-82	4							
						canopy total		41
						subcanopy total		
						emergent total		
						shrub total		7

North

South

East

West

Ground

Biocondition Datasheet

Site ID	1353				Date	2/03/2021	
Observers	Donovan Sharp, Heath Agnew						
Site Information:							
100x50m Area:							
Location (GPS reference)					Bioregion	Brigalow Belt South	
Datum	GDA94						
Zone	55 J	Easting		Northing			
Plot origin			727644		7056693		1353
Plot centre			727665		7056738		1354
Plot Bearing		Plot Alignment Description					
Locality	Roma SD 22 Reuben Downs						
Regional Ecosystem and Tree height							
Habitat Description	11.7.7 remnant						
Regional Ecosystem		11.7.7		Median Tree canopy Height (m)		16	
	Emergent height (m)			Subcanopy ht (m)		7	

Site Photos	Plot centre	North	6868	South	6869	
Photo Numbers		East	6870	West	6871	
	Plot Origin			other	6872	

Disturbance					**100 x 50m Area: Tree SPP. Richness**		
Type	mean fire scar height	severity	last event	obs type	Tree Species	Eucalyptus fibrosa subsp.nubilis	
Wildfire	na					Acacia shirleyi	Tree Spp. Count
Prescribed burn	na					Acacia burrowii	3
Logging	na						
Treatment	na						
Grazing	yes	moderate			50 x 20m Area: Coarse woody Debris		
Non-native plant cove	<5%				Specimen length (mm)		
Erosion	na						site total m
Regeneration	66%						67m
Storm	na						per ha (m)
Other (specify)	na						670

50 x 10m Area	**Native Plant Species Richness**	Total
Shrub sp.		
	Pittosporum spinescens	
	Geijera parviflora	
Grass sp.	Thyridolepis xerophila	
	Aristida caput-medusae	
	Aristida calycina	
	Eragrostis brownii	
	Ancistrachne uncinulata	
	Fimbristylis dichotoma	
	Paspalidium distans	
Forbs/other sp.	Seringia collina	
	Abutilon oxycarpum	
	Euphorbia tannensis	
	Evolvulus alsinoides	
	Cheilanthes distans	
	Calotis cuneifolia	
	Sida corrugata	
	Corchorus trilocularis	

Biocondition datasheet (cont.)

10 x 10m Plots: Ground Cover

Ground cover type	1	2	3	4	5	Mean
Native perennial (preferred and intermediate) grass	15	20	20	40	50	29
Native non-preferred grass	0	0	0	0	0	0
Native forbs and other species	10	10	40	20	20	20
Native shrubs (< 1m height)	0	0	0	0	0	0
Non-native grass	0	0	0	0	0	0
Non-native forbs and shrubs	0	0	0	0	0	0
litter	70	55	25	35	30	43
rock	0	0	0	0	0	0
bare ground	5	15	15	5	0	8
Cryptograms	0	0	0	0	0	0
Total	100	100	100	100	100	100

100 x 50m Area: Large Trees	Plot size	100x 50		100x 20		100 x 10	
Species	Euc (E) Non-Euc (N)	Diam (cm)	DBH				

Eucalypts	Avg DBH threshold		RE		Euc Benchm	Euc Benchmark
	No. Trees		No. Trees > =	Benchmark/ha		
Non-Eucalypts	Avg DBH threshold		RE		Euc Benchm	Euc Benchmark
	No. Trees		No. Trees > =	Benchmark/ha		

100m Transect: Tree and Shrub Canopy Cover Canopy (C), Subcanopy (SC), Emergent (E), Shrub (S)

Distance (m)		Type	Distance (m)		Type	Distance (m)		Type
0-1	1	C	81-91	9	S			
12.5-16	3.5	C						
17-25	8	C						
37-39.5	2.5	C						
56-59	3	C						
93-100	7	C						
2-11.5	9.5	S						
14-20	6	S						
29-32	3	S				canopy total		24
34-37	4	S				subcanopy total		49
47.47.5	0.5	S				emergent total		
62-79	17	S				shrub total		

North

South

East

West

Ground

Biocondition Datasheet

Site ID	1355				Date	2/03/2021	
Observers	Donovan Sharp, Heath Agnew						
Site Information:							
100x50m Area:							
Location (GPS reference)					Bioregion	Brigalow Belt South	
Datum	GDA94						
Zone	55 J	Easting		Northing			
Plot origin			726559		7057003		1355
Plot centre			726568		7056955		1356
Plot Bearing	S	Plot Alignment Description					
Locality	Roma SD 22 Reuben Downs						
Regional Ecosystem and Tree height							
Habitat Description	11.7.2 regrowth. Silty brown soil, rocky on surface.						
Regional Ecosystem		11.7.2		Median Tree canopy Height (m)	9		
	Emergent height (m)			Subcanopy ht (m)			

Site Photos	Plot centre	North	6873	South	6874	
Photo Numbers		East	6875	West	6876	
	Plot Origin			other	6877	

Disturbance					**100 x 50m Area: Tree SPP. Richness**		
Type	mean fire scar height	severity	last event	obs type	Tree Species	Acacia shirleyi	
Wildfire	na					Eucalyptus exserta	Tree Spp. Count
Prescribed burn	na					Alstonia constricta	3
Logging	na						
Treatment	na						
Grazing	yes	moderate			50 x 20m Area: Coarse woody Debris		
Non-native plant cove	<1%				Specimen length (mm)		
Erosion	na						site total m
Regeneration	100%						21
Storm	na						per ha (m)
Other (specify)	na						210

50 x 10m Area		**Native Plant Species Richness**	Total
Shrub sp.			
Grass sp.	Aristida calycina		
	Aristida sp.		
	Paspalidium distans		
Forbs/other sp.	Corchorus trilocularis		
	Abutilon oxycarpum		
	Seringia collina		
	*Opuntia tomentosa		
	Cheilanthes sieberi		
	Solanum ellipticum		
	Solanum coracinum		

Biocondition datasheet (cont.)

10 x 10m Plots: Ground Cover

Ground cover type	1	2	3	4	5	Mean
Native perennial (preferred and intermediate) grass	5	0	45	50	70	34
Native non-preferred grass	0	0	0	0	0	0
Native forbs and other species	5	70	35	5	10	25
Native shrubs (< 1m height)	0	0	0	0	0	0
Non-native grass	0	0	0	0	0	0
Non-native forbs and shrubs	0	0	0	0	0	0
litter	80	20	20	30	20	34
rock	0	0	0	0	0	0
bare ground	10	10	0	15	0	7
Cryptograms	0	0	0	0	0	0
Total	100	100	100	100	100	100

100 x 50m Area: Large Trees	Plot size	100x 50		100x 20		100 x 10	
Species	Euc (E) Non-Euc (N)	Diam (cm)	DBH				

Eucalypts	Avg DBH threshold		RE	41	Euc Benchm	Euc Benchmark	
	No. Trees		No. Trees > =	Benchmark/ha		0	
Non-Eucalypts	Avg DBH threshold		RE	26	Euc Benchm	Euc Benchmark	
	No. Trees		No. Trees > =	Benchmark/ha		0	

100m Transect: Tree and Shrub Canopy Cover Canopy (C), Subcanopy (SC), Emergent (E), Shrub (S)

Distance (m)		Type	Distance (m)		Type	Distance (m)		Type
0-3	3	C						
11-18	7	C						
19-28	9	C						
34-56.5	23	C						
58.5-64	5.5	C						
70-79	9	C						
81-100	19	C						
						canopy total		75.5
						subcanopy total		
						emergent total		
						shrub total		

North

South

East

West

Ground

Biocondition Datasheet

Site ID	1357				Date	2/03/2021	
Observers	Donovan Sharp, Heath Agnew						
Site Information:							
100x50m Area:							
Location (GPS reference)					Bioregion	Brigalow Belt South	
Datum	GDA94						
Zone	55 J	Easting		Northing			
Plot origin			726753		7058436		1357
Plot centre			726728		7058392		1358
Plot Bearing	S	Plot Alignment Description					
Locality	Roma SD 22						
	Reuben Downs						
Regional Ecosystem and Tree height							
Habitat Description	Low 11.7.2 regrowth. Yellow clay. Lots oof rock. Lots of ironstone.						
Regional Ecosystem		11.7.2		Median Tree canopy Height (m)		4	
	Emergent height (m)			Subcanopy ht (m)			

Site Photos	Plot centre	North	6878	South	6879
Photo Numbers		East	6880	West	6881
	Plot Origin			other	6882

Disturbance					**100 x 50m Area: Tree SPP. Richness**		
Type	mean fire scar height	severity	last event	obs type	Tree Species	Acacia shirleyi	
Wildfire	na					Eucalyptus crebra	Tree Spp. Count
Prescribed burn	na						2
Logging	na						
Treatment	na						
Grazing	yes	moderate			50 x 20m Area: Coarse woody Debris		
Non-native plant cove	30% buffel				Specimen length (mm)		
Erosion	na						site total m
Regeneration	100%						3
Storm	na						per ha (m)
Other (specify)	na						30

50 x 10m Area	**Native Plant Species Richness**	Total
Shrub sp.		
Grass sp.	Panicum effusum	
	Cenchrus ciliaris*	
	Aristida caput-medusae	
	Aristida calycina	
	Aristida jerichoensis	
	Eragrostis brownii	
Forbs/other sp.	Corchorus trilocularis	
	Calotis cuneifolia	
	*Malvastrum americanum	
	Abutilon oxycarpum	
	Phyllanthus maderaspatensis	
	Cheilanthes sieberi	

Biocondition datasheet (cont.)

10 x 10m Plots: Ground Cover

Ground cover type	1	2	3	4	5	Mean
Native perennial (preferred and intermediate) grass	15	0	20	0	5	8
Native non-preferred grass	0	0	0	0	0	0
Native forbs and other species	0	5	0	0	0	1
Native shrubs (< 1m height)	0	0	0	0	0	0
Non-native grass	20	20	5	0	0	9
Non-native forbs and shrubs	0	0	0	0	0	0
litter	40	50	70	90	80	66
rock	20	0	0	0	0	4
bare ground	5	25	5	10	15	12
Cryptograms	0	0	0	0	0	0
Total	100	100	100	100	100	100

100 x 50m Area: Large Trees	Plot size	100x 50		100x 20		100 x 10	
Species	Euc (E) Non-Euc (N)	Diam (cm)	DBH				

Eucalypts	Avg DBH threshold		RE	41	Euc Benchm	Euc Benchmark	
	No. Trees		No. Trees > =	Benchmark/ha		0	
Non-Eucalypts	Avg DBH threshold		RE	26	Euc Benchm	Euc Benchmark	
	No. Trees		No. Trees > =	Benchmark/ha		0	

100m Transect: Tree and Shrub Canopy Cover Canopy (C), Subcanopy (SC), Emergent (E), Shrub (S)

Distance (m)		Type	Distance (m)		Type	Distance (m)		Type
0-6	6	C						
12-21	9	C						
24-25.5	1.5	C						
34-37	3	C						
40-41	1	C						
45.5-56	10.5	C						
58-63	5	C						
72-87	15	C						
94-95	1	C						
						canopy total		52.5
						subcanopy total		
						emergent total		
						shrub total		

North

South

East

West

Ground

Biocondition Datasheet

Site ID	1359				Date	12/03/2021	
Observers	Donovan Sharp, Heath Agnew						
Site Information:							
100x50m Area:							
Location (GPS reference)					Bioregion	Brigalow Belt South	
Datum	GDA94						
Zone	55 J	Easting		Northing			
Plot origin			726804		7057322		1359
Plot centre			726836		7057284		1360
Plot Bearing	S	Plot Alignment Description					
Locality	Roma SD 22 Reuben Downs						

Regional Ecosystem and Tree height

Habitat Description	11.7.7 remnant. Fibrosa 18m with Ac. Shirleyi understorey sparse 8m. A sparse low tree layer of Ac. Shirleyi to 4m is					
Regional Ecosystem			Median Tree canopy Height (m)		16	
	Emergent height (m)			Subcanopy ht (m)	8	

Site Photos	Plot centre	North	6883	South	6884	
Photo Numbers		East	6885	West	6886	
	Plot Origin			other	6887	

Disturbance					**100 x 50m Area: Tree SPP. Richness**		
Type	mean fire scar height	severity	last event	obs type	Tree Species	Eucalyptus fibrosa subsp. nubilis	
Wildfire	na					Acacia shirleyi	Tree Spp. Count
Prescribed burn	na					Allocasuarina leuhmanii	3
Logging	na						
Treatment	na						
Grazing	yes	moderate			50 x 20m Area: Coarse woody Debris		
Non-native plant cove	<5%				Specimen length (mm)		
Erosion	na						site total m
Regeneration	50%						37
Storm	na						per ha (m)
Other (specify)	na						370

50 x 10m Area	**Native Plant Species Richness**	Total
Shrub sp.		
	Alstonia constricta	
	Carissa ovata	
	Casuarina cristata	
Grass sp.		
	Paspalidium distans	
	Thyridolepis xerophila	
	Ancistrachne uncinulata	
	Aristida caput-medusae	
	Aristida ramosa	
Forbs/other sp.		
	Seringia collina	
	Abutilon oxycarpum	
	Corchorus trilocularis	

Biocondition datasheet (cont.)

10 x 10m Plots: Ground Cover

Ground cover type	1	2	3	4	5	Mean
Native perennial (preferred and intermediate) grass	55	0	35	15	0	21
Native non-preferred grass	0	0	0	0	0	0
Native forbs and other species	15	35	45	0	5	20
Native shrubs (< 1m height)	0	25	0	10	0	7
Non-native grass	0	0	0	0	0	0
Non-native forbs and shrubs	0	0	0	0	0	0
litter	20	20	15	15	50	24
rock	0	10	5	60	30	21
bare ground	10	10	0	0	15	7
Cryptograms	0	0	0	0	0	0
Total	100	100	100	100	100	100

100 x 50m Area: Large Trees	Plot size	100x 50		100x 20		100 x 10	
Species	Euc (E) Non-Euc (N)	Diam (cm)	DBH				

Eucalypts	Avg DBH threshold		RE	49	Euc Benchm	Euc Benchmark	
	No. Trees		No. Trees > =	Benchmark/ha		0	
Non-Eucalypts	Avg DBH threshold		RE	28	Euc Benchm	Euc Benchmark	
	No. Trees		No. Trees > =	Benchmark/ha		0	

100m Transect: Tree and Shrub Canopy Cover Canopy (C), Subcanopy (SC), Emergent (E), Shrub (S)

Distance (m)		Type	Distance (m)		Type	Distance (m)		Type
0-4	4	C						
31-45	14	C						
94-100	6	C						
4-17	13	S						
68-70	2	S						
84-98	14	S						
						canopy total		6
						subcanopy total		29
						emergent total		
						shrub total		

North

South

East

West

Ground

Biocondition Datasheet

Site ID	1361				Date	3/03/2021
Observers	Donovan Sharp, Heath Agnew					

Site Information:

100x50m Area:

Location (GPS reference)					Bioregion	Brigalow Belt South
Datum	GDA94					
Zone	55 J	Easting		Northing		
Plot origin			736535		7063950	1361
Plot centre			736524		7063902	1362
Plot Bearing	N	Plot Alignment Description				
Locality	Roma SD 22					
	Mostyn					

Regional Ecosystem and Tree height

Habitat Description	11.5.1 remnant. Sparse shrub layer.					
Regional Ecosystem		11.5.1		Median Tree canopy Height (m)	16	
	Emergent height (m)			Subcanopy ht (m)	8	

Site Photos	Plot centre	North	6888	South	6889	
Photo Numbers		East	6890	West	6891	
	Plot Origin			other	6892	

Disturbance					**100 x 50m Area: Tree SPP. Richness**		
Type	mean fire scar height	severity	last event	obs type	Tree Species	Eucalyptus crebra	
Wildfire	na					Callitris glaucophylla	Tree Spp. Count
Prescribed burn	na					Petalostigma pubescens	3
Logging	na						
Treatment	na						
Grazing	yes	moderate			50 x 20m Area: Coarse woody Debris		
Non-native plant cove	<5%				Specimen length (mm)		
Erosion	na						site total m
Regeneration	100%						39
Storm	na						per ha (m)
Other (specify)	na						390

50 x 10m Area	**Native Plant Species Richness**		Total
Shrub sp.	Alstonia constricta		
	Dodonaea viscosa		
Grass sp.	Echinopogon caespitosus		
	Aristida calycina		
	Melinis repens*		
	Fimbristylis dichotoma		
	Enneapogon truncatus		
	Perotis rara		
	Eragrostis brownii		
	Cenchrus ciliaris*		
Forbs/other sp.	Seringia collina	Alternanthera nana	
	Sida corrugata	Nyssanthes erecta	
	Calotis cuneifolia	Cyperus sp.	
	Solanum ellipticum	Fimbristylis dichotoma	
	Evolvulus alsinoides		
	Cheilanthes sieberi		
	Lomandra multiflora		
	*Glandularia aristigera		
	Amaranthus spinosus*		

Biocondition datasheet (cont.)

10 x 10m Plots: Ground Cover

Ground cover type	1	2	3	4	5	Mean
Native perennial (preferred and intermediate) grass	70	80	55	40	80	65
Native non-preferred grass	0	0	0	0	0	0
Native forbs and other species	10	0	15	10	5	8
Native shrubs (< 1m height)	0	0	0	0	0	0
Non-native grass	0	0	0	0	0	0
Non-native forbs and shrubs	0	0	0	0	0	0
litter	20	20	25	50	15	26
rock	0	0	0	0	0	0
bare ground	0	0	5	0	0	1
Cryptograms	0	0	0	0	0	0
Total	100	100	100	100	100	100

100 x 50m Area: Large Trees	Plot size	100x 50		100x 20		100 x 10	
Species	Euc (E) Non-Euc (N)	Diam (cm)	DBH				

Eucalypts	Avg DBH threshold		RE	44	Euc Benchm	Euc Benchmark	
	No. Trees	7	No. Trees > =	Benchmark/ha		14	
Non-Eucalypts	Avg DBH threshold		RE	24	Euc Benchm	Euc Benchmark	
	No. Trees	12	No. Trees > =	Benchmark/ha		24	

100m Transect: Tree and Shrub Canopy Cover Canopy (C), Subcanopy (SC), Emergent (E), Shrub (S)

Distance (m)		Type	Distance (m)		Type	Distance (m)		Type
4-14	10	C						
36-45	9	C						
50-59	9	C						
16-18	2	S						
26-35	9	S						
42-44	2	S						
48-52	4	S						
56.5-62.5	6	S						
66-69	3	S				canopy total		28
84-85	1	S				subcanopy total		28.5
85.5-89	3.5	S				emergent total		
						shrub total		

North

South

East

West

Ground

Biocondition Datasheet

Site ID	1363				Date	3/03/2021	
Observers	Donovan Sharp, Heath Agnew						
Site Information:							
100x50m Area:							
Location (GPS reference)					Bioregion	Brigalow Belt South	
Datum	GDA94						
Zone	55 J	Easting		Northing			
Plot origin			736823		7063838		1363
Plot centre			736783		7063812		1364
Plot Bearing	NE	Plot Alignment Description					
Locality	Roma SD 22						
	Mostyn						
Regional Ecosystem and Tree height							
Habitat Description	11.5.1 remnant. Sparse shrub layer. Rocks present. Brown loam.						
Regional Ecosystem		11.5.1		Median Tree canopy Height (m)		18	
	Emergent height (m)			Subcanopy ht (m)		9	

Site Photos	Plot centre	North		South		
Photo Numbers		East		West		
	Plot Origin			other		

Disturbance					**100 x 50m Area: Tree SPP. Richness**		
Type	mean fire scar height	severity	last event	obs type	Tree Species	Eucalyptus crebra	
Wildfire	na					Callitris glaucophylla	Tree Spp. Count
Prescribed burn	na						2
Logging	na						
Treatment	na						
Grazing	yes	moderate			50 x 20m Area: Coarse woody Debris		
Non-native plant cove	50.00%				Specimen length (mm)		
Erosion	na						site total m
Regeneration	50%						38
Storm	na						per ha (m)
Other (specify)	na						380

50 x 10m Area	**Native Plant Species Richness**		Total
Shrub sp.	Alphitonia excelsa		
	Acacia decora		
	Dodonaea viscosa		
	Carissa ovata		
	Notelaea microcarpa		
Grass sp.	*Cenchrus ciliaris	Capillipedium spicigerum	
	*Paspalum urvillei	Cymbopogon refractus	
	Aristida calycina	Thyridolepis xerophila	
	*Urochloa panicoides	Fimbristylis dichotoma	
	Panicum effusum		
	Aristida ramosa		
	Eragrostis brownii		
Forbs/other sp.	*Sida corrugata	*Glandularia aristigera	
	Sclerolaena birchii	Cyperus sp.	
	Evolvulus alsinoides		
	Alternanthera nana		
	Nyssanthes erecta		
	Calotis cuneifolia		
	Cheilanthes sieberi		
	Euphorbia tannensis		

Biocondition datasheet (cont.)

10 x 10m Plots: Ground Cover

Ground cover type	1	2	3	4	5	Mean
Native perennial (preferred and intermediate) grass	0	65	70	40	10	37
Native non-preferred grass	0	0	0	0	0	0
Native forbs and other species	5	5	5	5	5	5
Native shrubs (< 1m height)	0	0	0	0	0	0
Non-native grass	65	0	0	0	0	13
Non-native forbs and shrubs	0	0	0	0	0	0
litter	10	20	15	30	70	29
rock	0	0	0	0	0	0
bare ground	20	10	10	20	15	15
Cryptograms	0	0	0	0	0	0
Total	100	100	100	95	100	99

100 x 50m Area: Large Trees	Plot size	100x 50		100x 20		100 x 10	
Species	Euc (E) Non-Euc (N)	Diam (cm)	DBH				

Eucalypts	Avg DBH threshold		RE	44	Euc Benchm	Euc Benchmark	
	No. Trees	14	No. Trees > =	Benchmark/ha		28	
Non-Eucalypts	Avg DBH threshold		RE	26	Euc Benchm	Euc Benchmark	
	No. Trees	2	No. Trees > =	Benchmark/ha		4	

100m Transect: Tree and Shrub Canopy Cover Canopy (C), Subcanopy (SC), Emergent (E), Shrub (S)

Distance (m)		Type	Distance (m)		Type	Distance (m)		Type
3-13	10	C						
41-53	12	C						
74-97	23	C						
11-13	2	S						
17-22	5	S						
31-34	3	S						
67-72	5	S						
75-76	1	S						
88-91	3	S				canopy total		45
						subcanopy total		19
						emergent total		
						shrub total		

North

South

East

West

Ground

Biocondition Datasheet

Site ID	1368				Date	3/03/2021
Observers	Donovan Sharp, Heath Agnew					

Site Information:

100x50m Area:

Location (GPS reference)					Bioregion	Brigalow Belt South
Datum	GDA94					
Zone	55 J	Easting		Northing		
Plot origin			735068		7065039	1368
Plot centre			735041		7065080	1369
Plot Bearing	NW	Plot Alignment Description				
Locality	Roma SD 22					
	Mostyn					

Regional Ecosystem and Tree height

Habitat Description	Ac melvillei/burrowii 7m mid-dense to dense. E. melnophloia and E. crebra emergentd to 12m very sparse. Brown s					
Regional Ecosystem		11.7.7	Median Tree canopy Height (m)		6	
	Emergent height (m)		13	Subcanopy ht (m)		

Site Photos	Plot centre	North	6906	South	6907	
Photo Numbers		East	6908	West	6909	
	Plot Origin			other	6910	

Disturbance					**100 x 50m Area: Tree SPP. Richness**		
Type	mean fire scar height	severity	last event	obs type	Tree Species	Eucalyptus melanophloia	
Wildfire	na					Acacia melvillei/burrowii	Tree Spp. Count
Prescribed burn	na						2
Logging	na						
Treatment	na						
Grazing	yes	moderate			50 x 20m Area: Coarse woody Debris		
Non-native plant cove	<5%				Specimen length (mm)		
Erosion	na						site total m
Regeneration	50%						41
Storm	na						per ha (m)
Other (specify)	na						410

50 x 10m Area	**Native Plant Species Richness**	Total
Shrub sp.		
Grass sp.		
	Eragrostis brownii	
	Aristida calycina	
	*Paspalum urvillei	
	Paspalidium distans	
Forbs/other sp.		
	Evolvulus alsinoides	
	Cheilanthes sieberi	
	Calotis cuneifolia	
	Abutilon oxycarpum	
	Solanum ellipticum	
	Solanum coracinum	
	Vigna suberecta	
	Calandrinia sp.	
	*Opuntia tomentosa	
	Fimbristylis dichotoma	
	Cyperus sp.	

Biocondition datasheet (cont.)

10 x 10m Plots: Ground Cover

Ground cover type	1	2	3	4	5	Mean
Native perennial (preferred and intermediate) grass	70	30	70	25	5	40
Native non-preferred grass	0	0	0	0	0	0
Native forbs and other species	15	20	10	10	10	13
Native shrubs (< 1m height)	0	0	0	0	0	0
Non-native grass	0	0	0	0	0	0
Non-native forbs and shrubs	0	0	0	0	0	0
litter	10	35	20	50	80	39
rock	0	0	0	0	0	0
bare ground	5	15	0	15	5	8
Cryptograms	0	0	0	0	0	0
Total	100	100	100	100	100	100

100 x 50m Area: Large Trees	Plot size	100x 50		100x 20		100 x 10	
Species	Euc (E) Non-Euc (N)	Diam (cm)	DBH				

Eucalypts	Avg DBH threshold		RE		Euc Benchm	Euc Benchmark
	No. Trees		No. Trees > =	Benchmark/ha		0
Non-Eucalypts	Avg DBH threshold		RE		Euc Benchm	Euc Benchmark
	No. Trees		No. Trees > =	Benchmark/ha		0

100m Transect: Tree and Shrub Canopy Cover Canopy (C), Subcanopy (SC), Emergent (E), Shrub (S)

Distance (m)		Type	Distance (m)		Type	Distance (m)		Type
14-20	6	E						
2-8	6	C						
20-100	80	C						
						canopy total		86
						subcanopy total		
						emergent total		6
						shrub total		

North

South

East

West

Ground

Biocondition Datasheet

Site ID	1370				Date	3/03/2021
Observers	Donovan Sharp, Heath Agnew					

Site Information:

100x50m Area:

Location (GPS reference)					Bioregion	Brigalow Belt South
Datum	GDA94					
Zone	55 J	Easting		Northing		
Plot origin			736742		7062656	1370
Plot centre			736695		7062646	1371
Plot Bearing	E	Plot Alignment Description				
Locality	Roma SD 22 Mostyn					

Regional Ecosystem and Tree height

Habitat Description	11.3.2b. No benchmark					
Regional Ecosystem		11.3.2b	Median Tree canopy Height (m)		17	
	Emergent height (m)			Subcanopy ht (m)		

Site Photos	Plot centre	North	6911	South	6912	
Photo Numbers		East	6913	West	6914	
	Plot Origin			other	6915	

Disturbance					**100 x 50m Area: Tree SPP. Richness**	
Type	mean fire scar height	severity	last event	obs type	Tree Species	Eucalyptus camaldulensis
Wildfire	na					Tree Spp. Count
Prescribed burn	na					1
Logging	na					
Treatment	na					
Grazing	yes	moderate			50 x 20m Area: Coarse woody Debris	
Non-native plant cove	<1%				Specimen length (mm)	
Erosion	na					site total m
Regeneration	0%					22
Storm	na					per ha (m)
Other (specify)	na					220

50 x 10m Area	**Native Plant Species Richness**	Total
Shrub sp.		
Grass sp.	Brachyachne convergens	
	Arundinella nepalensis	
	Echinochloa crus-galli*	
Forbs/other sp.	Marsilea drummondii	
	Sclerolaena birchii	
	Alternanthera nana	
	*Glandularia aristigera	
	Dysphania carinata	
	Atriplex muelleri	
	Lomandra multiflora	
	Physalis peruviana	
	Xanthium occidentale*	
	Sclerolaena bicornis	
	*Malvastrum americanum	
	Solanum nigrum	
	Malva parviflora	
	Enchylaena tomentosa	
	Persicaria lapathifolia	
	Centipeda minima	

Biocondition datasheet (cont.)

10 x 10m Plots: Ground Cover

Ground cover type	1	2	3	4	5	Mean
Native perennial (preferred and intermediate) grass	0	15	5	0	0	4
Native non-preferred grass	0	0	0	0	0	0
Native forbs and other species	55	50	5	10	10	26
Native shrubs (< 1m height)	0	0	0	0	0	0
Non-native grass	0	0	0	0	0	0
Non-native forbs and shrubs	0	0	0	0	0	0
litter	35	15	65	65	15	39
rock	0	0	0	0	0	0
bare ground	10	20	25	25	75	31
Cryptograms	0	0	0	0	0	0
Total	100	100	100	100	100	100

100 x 50m Area: Large Trees	Plot size	100x 50		100x 20		100 x 10	
Species	Euc (E) Non-Euc (N)	Diam (cm)	DBH				

Eucalypts	Avg DBH threshold		RE		Euc Benchm	Euc Benchmark	No benchmark
	No. Trees	22	No. Trees > =	Benchmark/ha		44	45cm
Non-Eucalypts	Avg DBH threshold		RE		Euc Benchm	Euc Benchmark	No benchmark
	No. Trees	0	No. Trees > =	Benchmark/ha		0	

100m Transect: Tree and Shrub Canopy Cover Canopy (C), Subcanopy (SC), Emergent (E), Shrub (S)

Distance (m)		Type	Distance (m)		Type	Distance (m)		Type
0-17	17	C						
28-47	19	C						
98-100	2	C						
						canopy total		38
						subcanopy total		
						emergent total		
						shrub total		

North

South

East

West

Ground

Biocondition Datasheet

Site ID	1372			Date	3/03/2021
Observers	Donovan Sharp, Heath Agnew				

Site Information:

100x50m Area:

Location (GPS reference)					Bioregion	Brigalow Belt South	
Datum	GDA94						
Zone	55 J	Easting		Northing			
Plot origin			736750		7061624		1372
Plot centre			736706		7061606		1373
Plot Bearing	E	Plot Alignment Description					
Locality	Roma SD 22						
	Mostyn						

Regional Ecosystem and Tree height

Habitat Description	E. camaldulensis and Angophora floribunda 26m on ox-bow. No benchmark					
Regional Ecosystem		11.3.2b		Median Tree canopy Height (m)	21	
	Emergent height (m)			Subcanopy ht (m)		

Site Photos	Plot centre	North		South		
Photo Numbers		East		West		
	Plot Origin			other		

Disturbance					**100 x 50m Area: Tree SPP. Richness**		
Type	mean fire scar height	severity	last event	obs type	Tree Species	Eucalyptus camaldulensis	
Wildfire	na					Angophora floribunda	Tree Spp. Count
Prescribed burn	na					Acacia salicina	3
Logging	na						
Treatment	na						
Grazing	yes	moderate			50 x 20m Area: Coarse woody Debris		
Non-native plant cove	<5%				Specimen length (mm)		
Erosion	na						site total m
Regeneration	33%						14
Storm	na						per ha (m)
Other (specify)	na						140

50 x 10m Area	**Native Plant Species Richness**	Total
Shrub sp.	Vachellia farnesiana*	
Grass sp.	Dichanthium sericeum	
	Capillipedium spicigerum	
	Leptochloa digitata	
	Echinochloa crus-galli*	
	*Paspalum dilatatum	
Forbs/other sp.	*Sida rhombifolia	Marsilea drummondii
	*Glandularia aristigera	Cullen tenax
	Swainsona queenslandica	*Phyla canescens
	*Xanthium occidentale	
	*Verbena officinalis	
	Alternanthera nana	
	Sclerolaena birchii	
	Jasminum simplicifolium	
	*Verbena gaudichaudii	
	Cyperus sp.	
	*Guilleminea densa	
	*Solanum nigrum	
	*Physalis peruviana	
	Rumex brownii	

Biocondition datasheet (cont.)

10 x 10m Plots: Ground Cover

Ground cover type	1	2	3	4	5	Mean
Native perennial (preferred and intermediate) grass	65	35	25	70	0	39
Native non-preferred grass	0	0	0	0	0	0
Native forbs and other species	5	0	0	0	20	5
Native shrubs (< 1m height)	0	35	5	0	0	8
Non-native grass	0	0	0	0	0	0
Non-native forbs and shrubs	0	0	0	0	0	0
litter	10	25	50	30	60	35
rock	0	0	0	0	0	0
bare ground	20	5	20	0	20	13
Cryptograms	0	0	0	0	0	0
Total	100	100	100	100	100	100

100 x 50m Area: Large Trees Plot size 100x 50 100x 20 100 x 10

Species	Euc (E) Non-Euc (N)	Diam (cm)	DBH

Eucalypts	Avg DBH threshold		RE		Euc Benchm	Euc Benchmark	No Benchmark
	No. Trees	0	No. Trees > =	Benchmark/ha			
Non-Eucalypts	Avg DBH threshold		RE		Euc Benchm	Euc Benchmark	
	No. Trees	0	No. Trees > =	Benchmark/ha			No Benchmark

100m Transect: Tree and Shrub Canopy Cover Canopy (C), Subcanopy (SC), Emergent (E), Shrub (S)

Distance (m)		Type	Distance (m)		Type	Distance (m)		Type
0-40	40	C						
45-59	14	C						
62-78	16	C						
88-100	12	C						
10.5-12	1.5	sh						
20-21	1	sh						
31-32	1	sh						
						canopy total		82
						subcanopy total		
						emergent total		
						shrub total		3.5

North

South

East

West

Ground

Biocondition Datasheet

Site ID	1374				Date	3/03/2021
Observers	Donovan Sharp, Heath Agnew					

Site Information:

100x50m Area:

Location (GPS reference)					Bioregion	Brigalow Belt South
Datum	GDA94					
Zone	55 J	Easting		Northing		
Plot origin			737774		7062581	1374
Plot centre			737796		7062535	1375
Plot Bearing	NW	Plot Alignment Description				
Locality	Roma SD 22					
	Mostyn					

Regional Ecosystem and Tree height

Habitat Description	Low-lying area adjacent towatercourse. No shrub or low tree layer present					
Regional Ecosystem		11.3.2b	Median Tree canopy Height (m)		24	
	Emergent height (m)			Subcanopy ht (m)		

Site Photos	Plot centre	North	6931	South	6932	
Photo Numbers		East	6933	West	6934	
	Plot Origin			other	6935	

Disturbance					**100 x 50m Area: Tree SPP. Richness**	
Type	mean fire scar height	severity	last event	obs type	Tree Species	Eucalyptus camaldulensis
Wildfire	na					Tree Spp. Count
Prescribed burn	na					1
Logging	na					
Treatment	na					
Grazing	yes	moderate			50 x 20m Area: Coarse woody Debris	
Non-native plant cove	<1				Specimen length (mm)	
Erosion	na					site total m
Regeneration	100					40
Storm	na					per ha (m)
Other (specify)	na					400

50 x 10m Area	**Native Plant Species Richness**	Total
Shrub sp.		
Grass sp.		
	Brachyachne convergens	
Forbs/other sp.		
	Centipeda minima	
	Atriplex muelleri	
	*Xanthium occidentale	
	Persicaria lapathifolia	
	Sclerolaena birchii	
	Eleocharis pallens?	
	*Physalis peruviana	

Biocondition datasheet (cont.)

10 x 10m Plots: Ground Cover

Ground cover type	1	2	3	4	5	Mean
Native perennial (preferred and intermediate) grass	20	5	5	0	70	20
Native non-preferred grass	0	0	0	0	0	0
Native forbs and other species	0	0	10	0	10	4
Native shrubs (< 1m height)	0	0	0	0	0	0
Non-native grass	0	0	0	0	0	0
Non-native forbs and shrubs	0	0	0	0	0	0
litter	60	70	15	10	10	33
rock	0	0	0	0	0	0
bare ground	20	25	75	90	10	44
Cryptograms	0	0	0	0	0	0
Total	100	100	105	100	100	101

100 x 50m Area: Large Trees	Plot size	100x 50		100x 20		100 x 10	
Species	Euc (E) Non-Euc (N)	Diam (cm)	DBH				

Eucalypts	Avg DBH threshold		RE		Euc Benchm	Euc Benchmark	
	No. Trees	24	No. Trees > =	Benchmark/ha		48	No Benchmark
Non-Eucalypts	Avg DBH threshold		RE		Euc Benchm	Euc Benchmark	
	No. Trees	0	No. Trees > =	Benchmark/ha		0	No Benchmark

100m Transect: Tree and Shrub Canopy Cover Canopy (C), Subcanopy (SC), Emergent (E), Shrub (S)

Distance (m)		Type	Distance (m)		Type	Distance (m)		Type
0-5	5	C						
16-43	27	C						
75-80	5	C						
86-100	14	C						
						canopy total		51
						subcanopy total		
						emergent total		
						shrub total		

North

South

East

West

Ground

Biocondition Datasheet

Site ID	1376				Date	3/03/2021	
Observers	Donovan Sharp, Heath Agnew						
Site Information:							
100x50m Area:							
Location (GPS reference)					Bioregion	Brigalow Belt South	
Datum	GDA94						
Zone	55 J	Easting		Northing			
Plot origin			740436		7063272		1376
Plot centre			740404		7063229		1377
Plot Bearing	N	Plot Alignment Description					
Locality	Roma SD 22						
	Wyena						
Regional Ecosystem and Tree height							
Habitat Description							
Regional Ecosystem		11.7.7		Median Tree canopy Height (m)	20		
	Emergent height (m)			Subcanopy ht (m)	8		

Site Photos	Plot centre	North	6941	South	6942	
Photo Numbers		East	6943	West	6945	
	Plot Origin			other	6945	

Disturbance					**100 x 50m Area: Tree SPP. Richness**		
Type	mean fire scar height	severity	last event	obs type	Tree Species	Eucalyptus fibrosa subsp.nubilis	
Wildfire	na					Callitris glaucophylla	Tree Spp. Count
Prescribed burn	na					Allocasuarina luehmanni	*3*
Logging	na						
Treatment	na						
Grazing	yes	moderate			50 x 20m Area: Coarse woody Debris		
Non-native plant cove	<5%				Specimen length (mm)		
Erosion	na						site total m
Regeneration	30%						92
Storm	na						per ha (m)
Other (specify)	na						920

50 x 10m Area	**Native Plant Species Richness**		Total
Shrub sp.	Geijera parviflora		
	Acacia shirleyi		
	Psydrax oleifolia		
Grass sp.	Aristida calycina	Capillipedium spicigerum	
	Aristida ramosa	Enteropogon acicularis	
	Eragrostis brownii	*Melinis repens	
	Aristida caput-medusae		
	Panicum laevinode		
	Paspalidium distans		
	Ancistrachne uncinulata		
	*Paspalum urvillei		
Forbs/other sp.	Solanum ellipticum		
	*Malvastrum americanum		
	*Sida corrugata		
	Seringia collina		
	Calotis cuneifolia		
	Solanum coracinum		
	Abutilon oxycarpum		
	Fimbristylis dichotoma		

Biocondition datasheet (cont.)

10 x 10m Plots: Ground Cover

Ground cover type	1	2	3	4	5	Mean
Native perennial (preferred and intermediate) grass	25	40	20	60	20	33
Native non-preferred grass	0	0	0	0	0	0
Native forbs and other species	5	0	40	10	40	19
Native shrubs (< 1m height)	0	0	0	0	0	0
Non-native grass	0	0	0	0	0	0
Non-native forbs and shrubs	0	0	0	0	0	0
litter	40	40	25	25	30	32
rock	0	0	0	0	0	0
bare ground	30	20	15	5	10	16
Cryptograms	0	0	0	0	0	0
Total	100	100	100	100	100	100

100 x 50m Area: Large Trees	Plot size	100x 50		100x 20		100 x 10	
Species	Euc (E) Non-Euc (N)	Diam (cm)	DBH				

Eucalypts	Avg DBH threshold		RE	49	Euc Benchm	Euc Benchmark	
	No. Trees	4	No. Trees > =	Benchmark/ha		8	
Non-Eucalypts	Avg DBH threshold		RE	28	Euc Benchm	Euc Benchmark	
	No. Trees	4	No. Trees > =	Benchmark/ha		8	

100m Transect: Tree and Shrub Canopy Cover Canopy (C), Subcanopy (SC), Emergent (E), Shrub (S)

Distance (m)		Type	Distance (m)		Type	Distance (m)		Type
0-3	3	C						
25.5-30.5	5	C						
56-62	6	C						
69-72.5	3.5	C						
87-91	4	C						
21-24	3	S						
26.5-36	9.5	S						
41.5-42	0.5	S						
98-100	2	S				canopy total		21.5
						subcanopy total		15
						emergent total		
						shrub total		

North

South

East

West

Ground

Biocondition Datasheet

Site ID	1394				Date	4/03/2021	
Observers	Donovan Sharp, Heath Agnew						
Site Information:							
100x50m Area:							
Location (GPS reference)					Bioregion	Brigalow Belt South	
Datum	GDA94						
Zone	55 J	Easting		Northing			
Plot origin			728918		7058636		1394
Plot centre			728959		7058607		1395
Plot Bearing		Plot Alignment Description					
Locality	Roma SD 22						
	Myalla						

Regional Ecosystem and Tree height

Habitat Description	11.7.7 Regrowth after clearing. Occasional relictual emergents					
Regional Ecosystem	11.7.7		Median Tree canopy Height (m)		12	
	Emergent height (m)	21	Subcanopy ht (m)		5	

Site Photos	Plot centre	North	6988	South	6989	
Photo Numbers		East	6990	West	6991	
	Plot Origin			other	6992	

Disturbance					**100 x 50m Area: Tree SPP. Richness**		
Type	mean fire scar height	severity	last event	obs type	Tree Species	Eucalyptus crebra	
Wildfire	na					Callitris glaucophylla	Tree Spp. Count
Prescribed burn	na					Acacia burrowii	6
Logging	na					Eremophila deserti	
Treatment	na					Eucalyptus fibrosa subsp.nubilis	
						Eucalyptus populnea	
Grazing	yes	moderate			50 x 20m Area: Coarse woody Debris		
Non-native plant cove	<5%				Specimen length (mm)		
Erosion	na						site total m
Regeneration	80%						95m
Storm	na						per ha (m)
Other (specify)	na						950

50 x 10m Area	**Native Plant Species Richness**	Total
Shrub sp.	Acacia decora	
	Petalostigma pubescens	
	Philotheca difformis	
Grass sp.	Ancistrachne uncinulata	
	Paspalidium distans	
	Aristida caput-medusae	
	Eriachne mucronata	
	Aristida ramosa	
	*Melinis repens	
	*Urochloa panicoides	
Forbs/other sp.	Evolvulus alsinoides	
	Seringia collina	
	Malvastrum americanum	
	Solanum ellipticum	
	Calotis cuneifolia	
	Solanum coracinum	
	Goodenia sp.	
	Sida corrugata	
	Nyssanthes erecta	

Biocondition datasheet (cont.)

10 x 10m Plots: Ground Cover

Ground cover type	1	2	3	4	5	Mean
Native perennial (preferred and intermediate) grass	10	5	10	5	5	7
Native non-preferred grass	0	0	0	0	0	0
Native forbs and other species	5	0	45	5	50	21
Native shrubs (< 1m height)	0	0	0	0	0	0
Non-native grass	0	0	0	0	0	0
Non-native forbs and shrubs	0	0	0	0	0	0
litter	55	25	35	35	30	36
rock	20	30	0	5	0	11
bare ground	10	40	10	50	15	25
Cryptograms	0	0	0	0	0	0
Total	100	100	100	100	100	100

100 x 50m Area: Large Trees	Plot size	100x 50		100x 20		100 x 10	
Species	Euc (E) Non-Euc (N)	Diam (cm)	DBH				

Eucalypts	Avg DBH threshold	49	RE	49	Euc Benchm	Euc Benchmark	
	No. Trees	6	No. Trees > =	Benchmark/ha		12	
Non-Eucalypts	Avg DBH threshold		RE	28	Euc Benchm	Euc Benchmark	
	No. Trees	0	No. Trees > =	Benchmark/ha		0	

100m Transect: Tree and Shrub Canopy Cover Canopy (C), Subcanopy (SC), Emergent (E), Shrub (S)

Distance (m)		Type	Distance (m)		Type	Distance (m)		Type
0-5	5	c						
18-19	1	c						
30.5-35.5	5	c						
45-48	3	c						
21-24	3	s						
39-42	3	s						
59-63	4	s						
79-80	1	s						
						canopy total		14
79-89	10	E				subcanopy total		11
						emergent total		10
						shrub total		

North

South

East

West

Ground

Biocondition Datasheet

Site ID	1396				Date	5/03/2021	
Observers	Donovan Sharp, Heath Agnew						
Site Information:							
100x50m Area:							
Location (GPS reference)					Bioregion	Brigalow Belt South	
Datum	GDA94						
Zone	55 J	Easting		Northing			
Plot origin			740213		7063353		1396
Plot centre			740196		7063401		1397
Plot Bearing	N	Plot Alignment Description					
Locality	Roma SD 22 Wyena						
Regional Ecosystem and Tree height							
Habitat Description	grey silty clay remnant						
Regional Ecosystem	11.9.10		Median Tree canopy Height (m)		10		
	Emergent height (m)	22	Subcanopy ht (m)		4		

Site Photos	Plot centre	North	7002	South	7003
Photo Numbers		East	7004	West	7005
	Plot Origin			other	7006

Disturbance					**100 x 50m Area: Tree SPP. Richness**		
Type	mean fire scar height	severity	last event	obs type	Tree Species	Eucalyptus woollsiana	
Wildfire	na					Acacia harpophylla	Tree Spp. Count
Prescribed burn	na					Eucalyptus crebra	7
Logging	na					Geijera parviflora	
						Eucalyptus populnea	
						Casuarina cristata	
Treatment	na					Hakea lorea subsp. lorea	
Grazing	yes	moderate			50 x 20m Area: Coarse woody Debris		
Non-native plant cove	<5%				Specimen length (mm)		
Erosion	na						site total m
Regeneration	100%						58
Storm	na						per ha (m)
Other (specify)	na						580

50 x 10m Area	**Native Plant Species Richness**	Total
Shrub sp.	Eremophila longifolia	
	Capparis lasiantha	
Grass sp.		
	Aristida caput-medusae	
	Eragrostis brownii	
	Eriochloa pseudoacrotricha	
	Paspalidium distans	
	Ancistrachne uncinulata	
Forbs/other sp.		
	*Harrisia martinii	
	Solanum ellipticum	
	Seringia collina	
	Solanum coracinum	
	Abutilon oxycarpum	
	Sclerolaena birchii	
	Cyperus gracilis	

Biocondition datasheet (cont.)

10 x 10m Plots: Ground Cover

Ground cover type	1	2	3	4	5	Mean
Native perennial (preferred and intermediate) grass	0	0	5	20	5	6
Native non-preferred grass	0	0	0	0	0	0
Native forbs and other species	5	0	15	5	25	10
Native shrubs (< 1m height)	0	0	0	0	0	0
Non-native grass	0	0	0	0	0	0
Non-native forbs and shrubs	0	0	0	0	0	0
litter	65	80	70	60	65	68
rock	5	0	0	0	0	1
bare ground	25	20	10	15	20	18
Cryptograms	0	0	0	0	0	0
Total	100	100	100	100	115	103

100 x 50m Area: Large Trees	Plot size	100x 50		100x 20		100 x 10	
Species	Euc (E) Non-Euc (N)	Diam (cm)	DBH				

Eucalypts	Avg DBH threshold		RE	47	Euc Benchm	Euc Benchmark	
	No. Trees	3	No. Trees > =	Benchmark/ha		6	
Non-Eucalypts	Avg DBH threshold		RE	27	Euc Benchm	Euc Benchmark	
	No. Trees	3	No. Trees > =	Benchmark/ha		6	

100m Transect: Tree and Shrub Canopy Cover Canopy (C), Subcanopy (SC), Emergent (E), Shrub (S)

Distance (m)		Type	Distance (m)		Type	Distance (m)		Type
30-37	7	c	47-50	3	s			
41-49	8	c	55-74	9	s			
77-80	3	c	78-81	3	s			
82.5-87	4.5	c	88-91	3	s			
			92-96	4	s			
3-13	10	E	99-100	1	s			
55-61	6							
2-4	2	s						
10-17	7	s				canopy total		22.5
23-36	13	s				subcanopy total		47
40-42	2	s				emergent total		16
						shrub total		

North

South

East

West

Ground

Biocondition Datasheet

Site ID	1819					Date	25/11/2021
Observers	A Daniel						

Site Information:

100x50m Area:

Location (GPS reference)						Bioregion	Brigalow Belt South
Datum	GDA94						
Zone	55 J	Easting	735424	Northing	7065164		
Plot origin			735404		7065116		
Plot centre							
Plot Bearing		Plot Alignment Description					
Locality	Roma SD 22 Mostyn Station						

Regional Ecosystem and Tree height

Habitat Description	remnant						
Regional Ecosystem		11.9.7		Median Tree canopy Height (m)		14	
	Emergent height (m)			Subcanopy ht (m)		10	

Site Photos	Plot centre	North	4224	South	4225	S	
Photo Numbers		East	4226	West	4227		
	Plot Origin			other			

Disturbance					**100 x 50m Area: Tree SPP. Richness**		
Type	mean fire scar height	severity	last event	obs type	Tree Species	Eucalyptus melanophloia	
Wildfire	na					Eucalptus populnea	Tree Spp. Count
Prescribed burn	na					Eremophila mitchellii	4
Logging	na					Callitris galucophylla	
Treatment	na						
Grazing	yes	moderate			50 x 20m Area: Coarse woody Debris		
Non-native plant cove	<1				Specimen length (mm)		
Erosion	na						site total m
Regeneration	100						32
Storm	na						per ha (m)
Other (specify)	na						320

50 x 10m Area	**Native Plant Species Richness**	Total
Shrub sp.		
	Geijera parviflora	
	Carissa ovata	
Grass sp.	Arisitda calycina	
	Cenchrus ciliaris*	
	Enteropgogon ascicularis	
Forbs/other sp.	Malvastrum amrcianum	
	Abutlion oxycarpon	
	Enchylaena tomentosa	

Biocondition datasheet (cont.)

10 x 10m Plots: Ground Cover

Ground cover type	1	2	3	4	5	Mean
Native perennial (preferred and intermediate) grass	5	10	5	0	15	7
Native non-preferred grass	0	0	0	0	0	0
Native forbs and other species	5	0	0	0	0	1
Native shrubs (< 1m height)	0	0	0	0	0	0
Non-native grass	0	0	0	0	0	0
Non-native forbs and shrubs	0	0	0	0	0	0
litter	25	50	20	60	15	34
rock	0	0	0	0	0	0
bare ground	65	40	75	40	70	58
Cryptograms	0	0	0	0	0	0
Total	100	100	100	100	100	100

100 x 50m Area: Large Trees Plot size 100x 50 | 100x 20 | 100 x 10

Species	Euc (E) Non-Euc (N)	Diam (cm)	DBH

Eucalypts	Avg DBH threshold		RE	6	Euc Benchm	Euc Benchmark
	No. Trees	3	No. Trees > =	Benchmark/ha		
Non-Eucalypts	Avg DBH threshold		RE	0	Euc Benchm	Euc Benchmark
	No. Trees	0	No. Trees > =	Benchmark/ha		

100m Transect: Tree and Shrub Canopy Cover Canopy (C), Subcanopy (SC), Emergent (E), Shrub (S)

Distance (m)		Type	Distance (m)		Type	Distance (m)		Type
	5	c		2	sh			
	11	c		5	sh			
	1	c						
	7	c						
						canopy total		24
						subcanopy total		
						emergent total		
						shrub total		7

North

South

East

West

Appendix H

BioCondition data

connectivity_rating	4.8	19.5	0	0
context_rating	48	3	3	0
patch_size_ha	654	43	1	13
25_litter_grd_cov	44	43	79.2	51.8
native_per_grass	35	28	1	2.6
non-native_cover	4	4	1	4
forb_other_sp_richness	2	3	4	6
grass_sp_richness	5	6	4	3
shrub_sp_richness	2	4	1	4
tree_sp_richness	7	5	2	9
woody debris_length_ha	385	520	1100	440
shrub_canopy_cover	5.5	2.5	0	4
tree_subcanopy_cov	21.5	36	0	0
tree_canopy_cov	38.5	40	59	38
tree_emergent_cov	NA	NA	NA	20.5
recruitment_canopy_sp	100	75	100	60
subcanopy_height	5	5	0	4
canopy_height	17	12	10	9
emergent_height	NA	14	NA	18
tot_num_large_trees_non_euc_ha	34	0	0	0
tot_num_large_trees_euc_ha	2	6	0	6
growth_status	remnant	remnant	remnant	regrowth
re	11.5.1	11.5.5	11.7.2	11.9.10
siteid	914	916	918	920

connectivity_rating	0	0	41.5	51.8	14.4
context_rating	9	11	8	13	12
patch_size_ha	10	10	12	15	27
25_litter_grd_cov	31	17.6	69	37	33
native_per_grass	21.4	1.4	0	34	0
non-native_cover	2	1	1	1	100
forb_other_sp_richness	2	6	1	2	0
grass_sp_richness	5	2	3	4	0
shrub_sp_richness	2	6	2	1	1
tree_sp_richness	5	2	7	1	4
woody debris_length_ha	50	0	1090	30	10
shrub_canopy_cover	0.5	1	1.5	0	1
tree_subcanopy_cov	33.5	0	12	3	0
tree_canopy_cov	3.5	20	59.5	25.5	71.5
tree_emergent_cov	7.5	4	0	NA	NA
recruitment_canopy_sp	100	100	50	100	0
subcanopy_height	5	0	3	0	0
canopy_height	8	4	9	5	23
emergent_height	18	10	18	22	NA
tot_num_large_trees_non_euc_ha	0	0	36	0	0
tot_num_large_trees_euc_ha	2	0	0	2	20
growth_status	regrowth	regrowth	remnant	regrowth	remnant
re	11.9.10	11.9.5	11.9.10	11.3.2	11.3.25
siteid	922	924	940	984	989

connectivity_rating	93.8	100	41	93.8	14.4
context_rating	56	61	64	68	7
patch_size_ha	318	24	441	593	27
25_litter_grd_cov	68	51	45	55	24
native_per_grass	5	11	11	12	18
non-native_cover	1	1	100	80	80
forb_other_sp_richness	2	2	3	6	5
grass_sp_richness	1	3	5	7	6
shrub_sp_richness	1	2	1	1	1
tree_sp_richness	3	2	4	5	2
woody debris_length_ha	360	300	295	495	555
shrub_canopy_cover	0.5	0	0	0	0
tree_subcanopy_cov	2	17	12	0	0
tree_canopy_cov	53	23.5	22	24.5	56
tree_emergent_cov	NA	NA	NA	13	NA
recruitment_canopy_sp	100	50	100	100	100
subcanopy_height	2	7	5	0	6
canopy_height	8	17	10	6	10
emergent_height	NA	NA	NA	12	NA
tot_num_large_trees_non_euc_ha	0	0	0	0	0
tot_num_large_trees_euc_ha	0	0	0	0	0
growth_status	remnant	regrowth	regrowth	regrowth	regrowth
re	11.7.2	11.5.1	11.3.25	11.5.1	11.3.25
siteid	1007	1171	1229	1232	1247

connectivity_rating	14.4	90.7	14.4	0	41.4
context_rating	9	28	12	7	31
patch_size_ha	27	73	27	6	60
25_litter_grd_cov	18	32	44	71	33
native_per_grass	4	27	21	0	19
non-native_cover	10	4	15	4	4
forb_other_sp_richness	13	8	8	0	6
grass_sp_richness	5	6	3	1	6
shrub_sp_richness	5	3	3	3	5
tree_sp_richness	4	4	3	3	3
woody debris_length_ha	140	360	250	1040	540
shrub_canopy_cover	0	0	1	59	0
tree_subcanopy_cov	41.5	11.5	40	7	0
tree_canopy_cov	4	25	17.5	7	36
tree_emergent_cov	NA	NA	NA	NA	NA
recruitment_canopy_sp	100	100	66	100	100
subcanopy_height	8	0	7	9	3
canopy_height	13	6	18	14	12
emergent_height	NA	NA	NA	NA	NA
tot_num_large_trees_non_euc_ha	0	0	0	6	0
tot_num_large_trees_euc_ha	0	0	0	2	0
growth_status	regrowth	Regrowth	remnant	remnant	regrowth
re	11.5.5	11.5.5	11.3.2	11.9.10	11.5.5
siteid	1249	1255	1278	1330	1332

connectivity_rating	0	0	60.1	0	0
context_rating	43	37	50	15	18
patch_size_ha	6	2	62	40	40
25_litter_grd_cov	87	62	78	56	28
native_per_grass	3	9.5	0	14	26
non-native_cover	1	1	1	4	1
forb_other_sp_richness	4	6	5	13	15
grass_sp_richness	7	7	1	4	9
shrub_sp_richness	3	4	4	5	2
tree_sp_richness	2	2	4	7	3
woody debris_length_ha	770	700	1380	980	260
shrub_canopy_cover	0	0	0	0	0
tree_subcanopy_cov	7	16.5	41	1	0
tree_canopy_cov	62.5	34.5	42.5	75	41.5
tree_emergent_cov	NA	NA	NA	NA	2
recruitment_canopy_sp	100	100	100	0	100
subcanopy_height	0	9		5	0
canopy_height	9	18		14	13
emergent_height	NA	NA	NA	NA	NA
tot_num_large_trees_non_euc_ha	0	0	0	0	0
tot_num_large_trees_euc_ha	0	0	0	0	0
growth_status	regrowth	remnant	regrowth	Regrowth	Regrowth
re	11.9.10	11.3.2	11.9.10	11.7.6	11.7.6
siteid	1334	1336	1338	1340	1342

connectivity_rating	88.1	88.1	0	14.5	0
context_rating	37	33	15	14	17
patch_size_ha	122	122	22	39	10
25_litter_grd_cov	24	40	38	43	34
native_per_grass	19	17	38	29	34
non-native_cover	1	4	4	4	1
forb_other_sp_richness	5	13	13	8	6
grass_sp_richness	4	9	6	7	3
shrub_sp_richness	1	3	2	2	0
tree_sp_richness	6	4	6	3	3
woody debris_length_ha	490	195	340	670	210
shrub_canopy_cover	0	0	7	0	0
tree_subcanopy_cov	17	57	0	49	0
tree_canopy_cov	24	27	41	24	75.5
tree_emergent_cov	NA	NA	NA	NA	NA
recruitment_canopy_sp	66	100	66	66	100
subcanopy_height	6	8	8	7	0
canopy_height	10	12	16	16	9
emergent_height	NA	NA	NA	NA	NA
tot_num_large_trees_non_euc_ha	0	0	0	0	0
tot_num_large_trees_euc_ha	0	0	2	0	0
growth_status	remnant	Remnant	Remnant	regrowth	regrowth
re	11.7.2	11.7.6	11.7.6	11.7.7	11.7.2
siteid	1344	1348	1350	1353	1355

connectivity_rating	35.5	35.4	52.9	63.1	51.8
context_rating	55	5	45	26	26
patch_size_ha	48	17	48	90	656
25_litter_grd_cov	66	24	26	29	36
native_per_grass	8	21	65	37	2
non-native_cover	30	4	4	50	1
forb_other_sp_richness	5	3	11	8	7
grass_sp_richness	5	5	6	8	4
shrub_sp_richness	0	3	2	5	2
tree_sp_richness	2	3	3	2	2
woody debris_length_ha	30	370	390	380	465
shrub_canopy_cover	0	0	0	0	0
tree_subcanopy_cov	0	29	28.5	19	0
tree_canopy_cov	52.5	6	28	45	59.5
tree_emergent_cov	NA	NA	NA	NA	NA
recruitment_canopy_sp	100	50	100	50	100
subcanopy_height	0	8	8	9	0
canopy_height	4	16	16	18	15
emergent_height	NA	NA	NA	NA	NA
tot_num_large_trees_non_euc_ha	0	0	24	4	20
tot_num_large_trees_euc_ha	0	0	14	28	10
growth_status	regrowth	remnant	remnant	remnant	remnant
re	11.7.2	11.7.7	11.5.1	11.5.1	11.9.6
siteid	1357	1359	1361	1363	1366

connectivity_rating	90.7	5.7	36.6	1.8	93.8
context_rating	29	8	11	29	68
patch_size_ha	73	40	35	10	593
25_litter_grd_cov	39	39	35	33	32
native_per_grass	40	4	39	20	33
non-native_cover	4	1	4	1	4
forb_other_sp_richness	10	13	8	6	6
grass_sp_richness	3	2	3	1	9
shrub_sp_richness	0	0	0	0	3
tree_sp_richness	2	1	3	1	3
woody debris_length_ha	410	220	140	400	920
shrub_canopy_cover	0	0	3.5	0	0
tree_subcanopy_cov	0	0	0	0	15
tree_canopy_cov	86	38	82	51	21.5
tree_emergent_cov	NA	NA	NA	NA	NA
recruitment_canopy_sp	50	0	33	100	30
subcanopy_height	0	0	0	0	8
canopy_height	6	17	21	24	20
emergent_height	NA	NA	NA	NA	NA
tot_num_large_trees_non_euc_ha	0	0	0	0	8
tot_num_large_trees_euc_ha	0	44	0	48	8
growth_status	regrowth	remnant	regrowth	remnant	remnant
re	11.9.6	11.3.2b	11.3.2b	11.3.2b	11.7.7
siteid	1368	1370	1372	1374	1376

connectivity_rating	55.3	57.5	78.2
context_rating	29	16	57
patch_size_ha	47	33	81
25_litter_grd_cov	36	68	34
native_per_grass	7	6	7
non-native_cover	4	4	1
forb_other_sp_richness	9	6	3
grass_sp_richness	5	5	2
shrub_sp_richness	3	2	2
tree_sp_richness	6	7	4
woody debris_length_ha	950	580	320
shrub_canopy_cover	10	16	7
tree_subcanopy_cov	11	47	0
tree_canopy_cov	14	22.5	24
tree_emergent_cov	NA	NA	NA
recruitment_canopy_sp	80	100	100
subcanopy_height	5	4	10
canopy_height	12	10	14
emergent_height	21	22	NA
tot_num_large_trees_non_euc_ha	0	6	0
tot_num_large_trees_euc_ha	12	6	6
growth_status	regrowth	remnant	remnant
re	11.7.7	11.9.10	11.9.7
siteid	1394	1396	1819

Appendix I

Threatened Wildlife Habitat Significant Residual Impact Assessment

Significant residual impact assessment for South-eastern Long-eared bat *Nyctophilus corbeni* (NCA Vulnerable; EPBC Vulnerable)	
Significant Residual Impact Guideline Criteria.	Response
MSES – a long-term decrease in the size of a local population. MNES – lead to a long-term decrease in the size of an important population of a species	**SRI unlikely** The impact area is comprised of 2.3 ha of habitat spread over 11 km of pipeline within a clearing width of no more than 42m. Habitat clearing is largely confined to the edges of larger patches of habitat. The largest remnant patch of habitat that will be cleared is a 0.87 ha linear strip less than 13m wide. Rehabilitation following pipe installation will restore much of the potential feeding habitat lost during the construction phase (refer condition I3 of EA EPPG04323316). There are no areas with high micro-habitat values for this species within the alignment.
MSES – a reduced extent of occurrence of the species MNES – reduce the area of occupancy of an important population	No significant Impact No areas of breeding or roosting habitat are likely to be cleared. The general absence of large old trees and associated exfoliating bark and hollows reduces the roosting quality of this habitat. There are large expanses of potential habitat for this species within the local landscape much of it containing older growth forests. The removal of the narrow strips of low-quality foraging habitat will not significantly impact on the ability of this species to forage within the Project area and will not reduce the extent of occurrence of the species.
MSES – fragmentation of an existing population MNES – fragment an existing important population into two or more populations	No significant Impact This is an aerial species that hunts and disperses at night the removal of the narrow strips of foraging habitat will not fragment an existing population.
MSES – result in genetically distinct populations forming as a result of habitat isolation MNES – adversely affect habitat critical to the survival of a species	No significant Impact This is an aerial species that hunts and disperses at night the removal of the narrow strips of foraging habitat will prevent the movement of genetic material within the local population.
MSES – Result in invasive species that are harmful to an endangered or vulnerable species becoming established in the	No significant Impact Clearing will not result in introduction of any invasive species known to predate the Painted Honeyeater not already present in the local environment.

Significant residual impact assessment for South-eastern Long-eared bat *Nyctophilus corbeni* (NCA Vulnerable; EPBC Vulnerable)	
Significant Residual Impact Guideline Criteria.	Response
endangered or vulnerable species' habitat. MNES – result in invasive species that are harmful to a vulnerable species becoming established in the vulnerable species' habitat	
MSES – Introduce disease that may cause the population to decline MNES – introduce disease that may cause the species to decline	No significant Impact The proposed clearing will not introduce any diseases known to impact on extant populations of this species.
MSES – Interfere with the recovery of the species. MNES – interfere substantially with the recovery of the species	No significant Impact The recovery of this species is predominantly dependant on the presence of large tracts of native open forest and woodlands with sufficient old growth and mature trees. The removal of the relatively small amount of linear areas of young woodlands is very unlikely to interfere with the recovery of this species.
MSES – disruption to ecologically significant locations (breeding, feeding or nesting sites) of a species MNES – Disrupt the breeding cycle of an important population.	No significant Impact No breeding or roosting sites are likely to be removed by the current Project and the loss of a relatively small amount of low quality feeding habitat for this species is unlikely to disrupt the breeding cycle of individuals within an important population.
MNES – modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline	No significant Impact The removal of a relatively small amount of low quality feeding habitat is unlikely to the decline in this species.

Significant residual impact assessment for Greater Glider *Petauroides volans* (NCA Vulnerable; EPBC Vulnerable)	
Significant Residual Impact Guideline Criteria.	Response
MSES – a long-term decrease in the size of a local population. MNES – lead to a long-term decrease in the size of an important population of a species	**SRI unlikely** The impact area is comprised of 2.9 ha of habitat spread over 11 km of pipeline within a clearing width of no more than 42m. Habitat clearing is largely confined to the edges of larger patches of habitat. The largest remnant patch of habitat that will be cleared is a 0.87 ha linear strip less than 13m wide. Rehabilitation following pipe installation will restore much of the potential feeding habitat lost during the construction phase (refer condition I3 of EA EPPG04323316). There are no areas with a sufficient density of large hollows to accommodate this species within the alignment.
MSES – a reduced extent of occurrence of the species MNES – reduce the area of occupancy of an important population	No significant Impact No areas of breeding or roosting habitat will be cleared. This species has a small home range associated with large hollows. The clearing is not located near areas supporting sufficient hollow densities to support this species and therefore the loss of potential feeding resource is insignificant.
MSES – fragmentation of an existing population MNES – fragment an existing important population into two or more populations	No significant Impact The clearing extent is never more than 42m wide. The gliding distance of this species is up to 100m. Rehabilitation is proposed for much of the alignment width providing for movement of this species between potential habitat patches. Fragmentation of an existing population will not occur,
MSES – result in genetically distinct populations forming as a result of habitat isolation MNES – adversely affect habitat critical to the survival of a species	No significant Impact The clearing extent is never more than 42m wide. The gliding distance of this species is up to 100m. Rehabilitation is proposed for much of the alignment width providing for movement of this species between potential habitat patches It is unlikely that the clearing will restrict the movement of individuals of this species preventing the formation of genetically distinct populations.
MSES – Result in invasive species that are harmful to an endangered or vulnerable species becoming established in the	No significant Impact Clearing will not result in introduction of any invasive species known to predate the Greater glider that are not already present in the local environment. Hyper predation by owls is likely to be decreased by the reduction in suitable habitat for Powerful and

Significant residual impact assessment for Greater Glider *Petauroides volans* (NCA Vulnerable; EPBC Vulnerable)	
Significant Residual Impact Guideline Criteria.	Response
endangered or vulnerable species' habitat. MNES – result in invasive species that are harmful to a vulnerable species becoming established in the vulnerable species' habitat	Sooty owls that prefer areas of dense cover (TSSC 2016).
MSES – Introduce disease that may cause the population to decline MNES – introduce disease that may cause the species to decline	No significant Impact Introduction of disease is not listed as a threat to this species (TSSC 2016). The project is unlikely to introduce a disease that may cause the species to decline.
MSES – Interfere with the recovery of the species. MNES – interfere substantially with the recovery of the species	No significant Impact No breeding habitat was identified within the clearing area and progressive rehabilitation post-construction will lead to a minimal net loss in potential feeding habitat for this species
MSES – disruption to ecologically significant locations (breeding, feeding or nesting sites) of a species MNES – Disrupt the breeding cycle of an important population.	No significant Impact No breeding or roosting habitat was identified within the clearing area. This is not a migratory species and therefore disruption of an ecologically significant population will not occur.
MNES – modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline	No significant Impact The habitats that will be cleared are very unlikely to support a significant population of this species. The habitat quality is low being mainly regrowth communities that have recently reached remnant status. Th availability of refuge sites and prey species is limited. The loss of this habitat is unlikely to cause a measurable decline in this species.

TPSP (2016) – Threatened Species Scientific Committee, *Petauroides volans* (greater glider) Conservation Advice; effective from 05/05/2016.

Significant residual impact assessment for Koala *Phascolarctos cinereus* (NCA Endangered; EPBC Endangered)	
MSES Significant Residual Impact Guideline Criteria.	Response
MSES – a long-term decrease in the size of a local population. MNES – lead to a long-term decrease in the size of an important population of a species	SRI unlikely The impact area is comprised of 2.3ha of habitat spread over 11 km of pipeline within a clearing width of no more than 42m. Habitat clearing is largely confined to the edges of larger patches of habitat. The largest remnant patch of habitat that will be cleared is a 0.87 ha linear strip less than 13m wide. Rehabilitation following pipe installation will restore much of the potential feeding habitat lost during the construction phase (refer condition I3 of EA EPPG04323316). The proposed action will not increase the known threats of increased mortality due to dog attacks and vehicle strikes.
MSES – a reduced extent of occurrence of the species MNES – reduce the area of occupancy of an important population	No significant Impact The koala is a widely distributed species. The current proposed impact will have a minimal impact on potential feeding habitat for a few individuals of this species and will not reduce its current extent of occurrence.
MSES – fragmentation of an existing population MNES – fragment an existing important population into two or more populations	No significant Impact The clearing extent is never more than 42m wide and will not be fenced post-construction. The koala is known to traverse open areas of at least 100m to reach food trees. No fencing is proposed. The rehabilitation of much of the alignment width will ensure that the existing population is not fragmented.
MSES – result in genetically distinct populations forming as a result of habitat isolation MNES – adversely affect habitat critical to the survival of a species	No significant Impact The clearing extent is never more than 42m wide and will not be fenced post-construction. Dispersing male koalas are known to travel kilometres in search of a mate. The proposed 42m wide clearing will not isolate local populations and therefore genetically distinct populations will not form.
MSES – Result in invasive species that are harmful to an endangered or vulnerable species becoming established in the endangered or vulnerable	No significant Impact Clearing will not result in introduction of any invasive species known to predate the koala not already present in the local environment. The proposed action will not increase the known threats of increased mortality due to dog attacks and vehicle strikes

Significant residual impact assessment for Koala *Phascolarctos cinereus* (NCA Endangered; EPBC Endangered)	
MSES Significant Residual Impact Guideline Criteria.	Response
species' habitat. MNES – result in invasive species that are harmful to a vulnerable species becoming established in the vulnerable species' habitat	
MSES – Introduce disease that may cause the population to decline MNES – introduce disease that may cause the species to decline	No significant Impact *Chlamydia pneumoniae* and *Chlamydia pecorum* are endemic in wild koala populations and will not be introduced from pipeline construction activities.
MSES – Interfere with the recovery of the species. MNES – interfere substantially with the recovery of the species	No significant Impact Habitat loss, fragmentation and feral animal predation are three key areas that impact koalas. None of these three factors will be significantly increased by the construction of the pipeline. The rehabilitation of most of the right of way post construction will aid in the recovery of habitat for this species. The proposed clearing will not interfere with the recovery of this species.
MSES – disruption to ecologically significant locations (breeding, feeding or nesting sites) of a species MNES – Disrupt the breeding cycle of an important population.	No significant Impact The potential habitat loss brought about by the construction of the pipeline is only a small proportion of any home range for this species and scattered as small patches over 11km. This represents the loss of a very small amount of feeding and resting resource for a few individuals of this species in a landscape that provides large areas of feeding, breeding and resting habitats. The proposed clearing will not disrupt any ecologically significant locations for this species.
MNES – modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline	No significant Impact The habitats that will be cleared are very unlikely to support a significant population of this species. The habitat quality is low being mainly regrowth communities that have recently reached remnant status. Th availability of refuge sites and prey species is limited. The loss of this habitat is unlikely to cause a measurable decline in this species.

Significant residual impact assessment for Glossy Black-Cockatoo *Calyptorhynchus lathami* (NCA Vulnerable; EPBC Not Listed)	
Significant Residual Impact Guideline Criteria.	Response
MSES – a long-term decrease in the size of a local population. MNES – lead to a long-term decrease in the size of an important population of a species	**SRI unlikely** The impact area is comprised of 2.3ha of habitat spread over 11 km of pipeline within a clearing width of no more than 42m. Habitat clearing is largely confined to the edges of larger patches of habitat. The largest remnant patch of habitat that will be cleared is a 0.87 ha linear strip less than 13m wide. Rehabilitation following pipe installation will restore much of the potential feeding habitat lost during the construction phase making the impact temporary (refer condition I3 of EA EPPG04323316). There are no areas with a high density of potential feed trees within the alignment and no feeding sites were observed.
MSES – a reduced extent of occurrence of the species MNES – reduce the area of occupancy of an important population	No significant Impact The loss in feeding resources for this species is small, spread out across 11 km and no occurrences of feeding were recorded within the impact area. This species is widely distributed with large home ranges the temporary and limited nature of the impact will not reduce the current extent.
MSES – fragmentation of an existing population MNES – fragment an existing important population into two or more populations	No significant Impact This species is a large bird that has been observed to fly more than 10 km between feeding areas. The 42m wide clearing will not create a barrier for this species and will not fragment existing populations.
MSES – result in genetically distinct populations forming as a result of habitat isolation MNES – adversely affect habitat critical to the survival of a species	No significant Impact The clearing extent is never more than 42m wide and will not be fenced post-construction. This species is a large bird that has been observed to fly more than 10 km between feeding areas allowing for the transfer of genetic material and preventing to formation of genetically distinct populations.
MSES – Result in invasive species that are harmful to an endangered or vulnerable species becoming established in the endangered or vulnerable species' habitat.	No significant Impact Clearing will not result in introduction of any invasive species known to predate the Glossy Black-cockatoo not already present in the local environment.

Significant residual impact assessment for Glossy Black-Cockatoo *Calyptorhynchus lathami* (NCA Vulnerable; EPBC Not Listed)	
Significant Residual Impact Guideline Criteria.	Response
MNES – result in invasive species that are harmful to a vulnerable species becoming established in the vulnerable species' habitat	
MSES – Introduce disease that may cause the population to decline MNES – introduce disease that may cause the species to decline	No significant Impact The proposed clearing will not introduce any diseases known to impact on extant populations of this species.
MSES – Interfere with the recovery of the species. MNES – interfere substantially with the recovery of the species	No significant Impact The loss of feeding habitat, nesting trees and drinking sites are thought to be the cause in the decline of this species (Glossy Black Conservancy 2010). The loss of food trees will be minimal and there will be no loss in nesting trees or drinking site brought about by the construction of the pipeline. Rehabilitation requirements will result in replacement of most of the lost potential feeding resource and an insignificant impact of the recovery of this species
MSES – disruption to ecologically significant locations (breeding, feeding or nesting sites) of a species MNES – Disrupt the breeding cycle of an important population.	No significant Impact The loss of feeding habitat, nesting trees and drinking sites are thought to be the cause in the decline of this species (Glossy Black Conservancy 2010). The loss of food trees will be minimal and there will be no loss in nesting trees brought about by the construction of the pipeline. There will be no significant impact on an ecologically significant location for this species.
MNES – modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline	No significant Impact The habitats that will be cleared are very unlikely to support a significant population of this species. The habitat quality is low being mainly regrowth communities that have recently reached remnant status. Th availability of refuge sites and prey species is limited. The loss of this habitat is unlikely to cause a measurable decline in this species.

Glossy Black-Cockatoo Conservation Guidelines for South-eastern Queensland and far North-Eastern New South Wales.

Significant residual impact assessment for Painted Honeyeater *Grantiella picta* (NCA Vulnerable; EPBC Vulnerable)	
Significant Residual Impact Guideline Criteria.	Response
MSES – a long-term decrease in the size of a local population. MNES – lead to a long-term decrease in the size of an important population of a species	**SRI unlikely** The impact area is comprised of 2.3ha of habitat spread over 11 km of pipeline within a clearing width of no more than 42m. Habitat clearing is largely confined to the edges of larger patches of habitat. The largest remnant patch of habitat that will be cleared is a 0.87 ha linear strip less than 13m wide. Rehabilitation following pipe installation will restore much of the potential feeding habitat lost during the construction phase (refer condition I3 of EA EPPG04323316). There are no areas with high micro-habitat values (mistletoe or old growth trees) for this species within the alignment.
MSES – a reduced extent of occurrence of the species MNES – reduce the area of occupancy of an important population	No significant Impact The species is sparsely distributed from south-eastern Australia to north-western Queensland and eastern Northern Territory. This species travels large distances following the seasonal fruiting of mistletoe. The clearing of 10.43 ha of potential habitat across a 42m wide strip spread over 11km will not reduce the extent of occurrence of this species.
MSES – fragmentation of an existing population MNES – fragment an existing important population into two or more populations	No significant Impact The clearing extent is never more than 42m wide and will not be fenced post-construction. The Painted Honey eater is known to move seasonally north-south governed principally by the fruiting of mistletoe. This clearing will not create a barrier that will fragment an existing population.
MSES – result in genetically distinct populations forming as a result of habitat isolation MNES – adversely affect habitat critical to the survival of a species	No significant Impact Considering its dispersive habits, the species is considered to have a single population (Garnett et al., 2011). This population is spread over 1000's of km^2, the bird dispersing readily in response to mistletoe flowering. The proposed clearing will not isolate habitat resulting in the formation of a genetically distinct population.
MSES – Result in invasive species that are harmful to an endangered or vulnerable species becoming established in the	No significant Impact Clearing will not result in introduction of any invasive species known to predate the Painted Honeyeater not already present in the local environment.

Significant residual impact assessment for Painted Honeyeater *Grantiella picta* (NCA Vulnerable; EPBC Vulnerable)	
Significant Residual Impact Guideline Criteria.	Response
endangered or vulnerable species' habitat. MNES – result in invasive species that are harmful to a vulnerable species becoming established in the vulnerable species' habitat	
MSES – Introduce disease that may cause the population to decline MNES – introduce disease that may cause the species to decline	No significant Impact The proposed clearing will not introduce any diseases known to impact on extant populations of this species.
MSES – Interfere with the recovery of the species. MNES – interfere substantially with the recovery of the species	No significant Impact Habitat loss, especially within the SE of Australia is the key threat to this species. The loss of such a small amount of potential feeding resource that does not provide any significant areas of feeding resource (mistletoes) combine with requirements to rehabilitate a substantial proportion of the clearing area will minimise impacts on this species and will not interfere with its recovery.
MSES – disruption to ecologically significant locations (breeding, feeding or nesting sites) of a species MNES – Disrupt the breeding cycle of an important population.	No significant Impact There were no areas of high mistletoe concentrations observed within the clearing footprint. The clearing will not cause disruption to significant locations of feeding or nesting sites for this species.
MNES – modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline	No significant Impact The habitats that will be cleared are very unlikely to support a significant population of this species. The habitat quality is low being mainly regrowth communities that have recently reached remnant status. Th availability of refuge sites and prey species is limited. The loss of this habitat is unlikely to cause a measurable decline in this species.

DotE (2015) Conservation Advice *Grantiella picta* – painted honeyeater (effective date 08/07/2015).

Garnett ST, Szabo JK and Dutson G (2011). The Action Plan for Australian Birds 2010. Birds Australia, CSIRO Publishing, Melbourne.

Significant residual impact assessment for White-throated Needletail *Hirundapus caudacutus* (NCA Vulnerable; EPBC Vulnerable)	
Significant Residual Impact Guideline Criteria.	Response
MSES – a long-term decrease in the size of a local population. MNES – lead to a long-term decrease in the size of an important population of a species	**SRI unlikely** The white throated needletail is a large widely distributed swift that is mostly aerial, very occasional observed roosting in trees amongst dense foliage in the canopy or in hollows. Clearing to construct the pipeline will not result in a significant residual impact to this species. No feeding, nesting or resting habitat for this species will be impacted and no barriers to its movement created. There are no areas with high micro-habitat values for this species within the alignment.
MSES – a reduced extent of occurrence of the species MNES – reduce the area of occupancy of an important population	No significant Impact This is a large widely distribute highly mobile species. The clearing of a 42m wide strip spread over 11 km will not reduce the extent of occurrence of this species.
MSES – fragmentation of an existing population MNES – fragment an existing important population into two or more populations	No significant Impact This is a large widely distribute highly mobile species. The clearing of a 42m wide strip spread over 11 km will not fragment the existing populations of this species.
MSES – result in genetically distinct populations forming as a result of habitat isolation MNES – adversely affect habitat critical to the survival of a species	No significant Impact This is a large widely distribute highly mobile species. The clearing of a 42m wide strip spread over 11 km will not isolate populations of this species causing distinct sub-populations forming.
MSES – Result in invasive species that are harmful to an endangered or vulnerable species becoming established in the endangered or vulnerable species'	No significant Impact The proposed clearing will not introduce invasive species that predate the White-throated Needletail.

Significant residual impact assessment for White-throated Needletail *Hirundapus caudacutus* (NCA Vulnerable; EPBC Vulnerable)	
Significant Residual Impact Guideline Criteria.	Response
habitat. MNES – result in invasive species that are harmful to a vulnerable species becoming established in the vulnerable species' habitat	
MSES – Introduce disease that may cause the population to decline MNES – introduce disease that may cause the species to decline	No significant Impact The proposed clearing will not introduce disease to this almost obligate aerial species.
MSES – Interfere with the recovery of the species. MNES – interfere substantially with the recovery of the species	No significant Impact The clearing of a 42m wide strip spread over 11 km, most of which will be rehabilitated, will not affect the recovery of this species
MSES – disruption to ecologically significant locations (breeding, feeding or nesting sites) of a species MNES – Disrupt the breeding cycle of an important population.	No significant Impact There are no ecologically significant locations (breeding, feeding nesting or resting) identified within the proposed clearing areas for the construction of this pipeline.
MNES – modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline	No significant Impact The habitats that will be cleared are very unlikely to support a significant population of this species. The habitat quality is low being mainly regrowth communities that have recently reached remnant status. Th availability of refuge sites and prey species is limited. The loss of this habitat is unlikely to cause a measurable decline in this species.

Significant residual impact assessment for Common Death Adder *Acanthophis antarcticus* (NCA Vulnerable; EPBC Not Listed)	
MSES Significant Residual Impact Guideline Criteria.	Response
MSES – a long-term decrease in the size of a local population. MNES – lead to a long-term decrease in the size of an important population of a species	**SRI unlikely** The impact area is comprised of 2.4 ha of habitat spread over 11 km of pipeline within a clearing width of no more than 42m. Habitat clearing is largely confined to the edges of larger patches of habitat. The largest remnant patch of habitat that will be cleared is a 0.87 ha linear strip less than 13m wide. The cane toad is a known threat and is common throughout the alignment and there are no contemporary records for Common Death Adder within the vicinity. Rehabilitation following pipe installation will restore much of the potential feeding habitat lost during the construction phase (refer condition I3 of EA EPPG04323316). There are no areas with high micro-habitat values for this species within the alignment.
MSES – a reduced extent of occurrence of the species MNES – reduce the area of occupancy of an important population	No significant Impact The species is sparsely and patchily distributed snake that is thought unlikely to occur on the alignment. Patches of potential habitat to be cleared do no support abundant shelter/ambush micro-habitat features such as low shrubs, rocks, logs and dense leaf litter The clearing of 3.82ha of potential habitat across a 42m wide strip spread over 11 km combine with the rehabilitation of most of the alignment will not reduce the extent of occurrence of this species.
MSES – fragmentation of an existing population MNES – fragment an existing important population into two or more populations	No significant Impact The clearing extent is never more than 42m wide and most of this width will be rehabilitated and no physical barriers to movement will be created. This species will be able to disperse across the post-construction landscape. This clearing will not create a barrier that will fragment an existing population.
MSES – result in genetically distinct populations forming as a result of habitat isolation MNES – adversely affect habitat critical to the survival of a species	No significant Impact The clearing extent is never more than 42m wide and most of this width will be rehabilitated and no physical barriers to movement will be created. This species will be able to disperse across the post-construction landscape. This clearing will not create a barrier to genetic exchange and will not result in genetically distinct

Significant residual impact assessment for Common Death Adder *Acanthophis antarcticus* (NCA Vulnerable; EPBC Not Listed)	
MSES Significant Residual Impact Guideline Criteria.	Response
	populations forming.
MSES – Result in invasive species that are harmful to an endangered or vulnerable species becoming established in the endangered or vulnerable species' habitat. MNES – result in invasive species that are harmful to a vulnerable species becoming established in the vulnerable species' habitat	No significant Impact Clearing will not result in introduction of any invasive species known to predate the Painted Honeyeater not already present in the local environment.
MSES – Introduce disease that may cause the population to decline MNES – introduce disease that may cause the species to decline	No significant Impact There are no known diseases, that impact this species, that could be introduced through construction of the pipelines
MSES – Interfere with the recovery of the species. MNES – interfere substantially with the recovery of the species	No significant Impact The rehabilitation of most of the alignment width will mean that the long-term recovery of this species will not be impacted by the narrow width of habitat clearing proposed. The proposed clearing will not interfere with the recovery of this species.
MSES – disruption to ecologically significant locations (breeding, feeding or nesting sites) of a species MNES – Disrupt the breeding cycle of an important population.	No significant Impact There are no ecologically significant areas or areas of high habitat values identified for this species within or close to the proposed alignment. The small amount of proposed clearing will not disrupt any ecological significant areas for this species.
MNES – modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline	No significant Impact The habitats that will be cleared are very unlikely to support a significant population of this species. The habitat quality is low being mainly regrowth communities that have recently reached remnant status. Th availability of refuge sites and prey species is limited. The loss of this habitat is unlikely to cause a measurable decline in this species.

Significant residual impact assessment for Woma *Aspidites ramsayi* (NCA Near Threatened; EPBC Not Listed)	
MSES Significant Residual Impact Guideline Criteria.	Response
MSES – a long-term decrease in the size of a local population. MNES – lead to a long-term decrease in the size of an important population of a species	**SRI unlikely** The impact area is comprised of 3.3 ha of habitat spread over 11 km of pipeline within a clearing width of no more than 42m. Habitat clearing is largely confined to the edges of larger patches of habitat. The largest remnant patch of habitat that will be cleared is a 0.87 ha linear strip less than 13m wide. Rehabilitation following pipe installation will restore much of the potential feeding habitat lost during the construction phase (refer condition I3 of EA EPPG04323316). There are no areas with high micro-habitat values for this species within the alignment.
MSES – a reduced extent of occurrence of the species MNES – reduce the area of occupancy of an important population	No significant Impact The combination of a narrow band of clearing of habitat containing poor micro-habitat features, rehabilitation requirements of most of the alignment width and small areas of clearing will result in minimal impacts on this species and will not reduce its extent of occurrence.
MSES – fragmentation of an existing population MNES – fragment an existing important population into two or more populations	No significant Impact The combination of a narrow band of clearing of habitat containing poor micro-habitat features, rehabilitation requirements of most of the alignment width and small areas of clearing will result in minimal impacts on this species. The snake will not be prevented from moving between retained patches of potential habitat and no existing populations have been found to occur within the alignment.
MSES – result in genetically distinct populations forming as a result of habitat isolation MNES – adversely affect habitat critical to the survival of a species	No significant Impact The combination of a narrow band of clearing of habitat containing poor micro-habitat features, rehabilitation requirements of most of the alignment width and small areas of clearing will result in minimal impacts on this species. The snake will not be prevented from moving between retained patches of potential habitat and will therefore not result in habitat isolation that would lead to the formation of genetically distinct populations.
MSES – Result in invasive species that are harmful to an endangered or vulnerable	No significant Impact There are no known invasive species, not already known from the

Significant residual impact assessment for Woma *Aspidites ramsayi* (NCA Near Threatened; EPBC Not Listed)	
MSES Significant Residual Impact Guideline Criteria.	Response
species becoming established in the endangered or vulnerable species' habitat. MNES – result in invasive species that are harmful to a vulnerable species becoming established in the vulnerable species' habitat	local landscape, that may impact this species.
MSES – Introduce disease that may cause the population to decline MNES – introduce disease that may cause the species to decline	No significant Impact There are no known diseases that could be introduced via the proposed clearing that are known to affect this species.
MSES – Interfere with the recovery of the species. MNES – interfere substantially with the recovery of the species	No significant Impact Habitat loss is the main threat to this species. The clearing of small patches in narrow bands combined with post-construction rehabilitation requirements will result in minimal impacts to the recovery of this species.
MSES – disruption to ecologically significant locations (breeding, feeding or nesting sites) of a species MNES – Disrupt the breeding cycle of an important population.	No significant Impact Micro-habitat features for this species are poor with only very minor occurrences of deep cracking clays, low fallen woody material and leaf litter cover. The proposed clearing will not interfere with the recovery of this species.
MNES – modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline	No significant Impact The habitats that will be cleared are very unlikely to support a significant population of this species. The habitat quality is low. The availability of refuge sites and prey species is limited. The loss of this habitat is unlikely to cause a measurable decline in this species.

Significant residual impact assessment for Collared Delma *Delma torquata* (NCA Vulnerable; EPBC Vulnerable)	
Significant Residual Impact Guideline Criteria.	Response
MSES – a long-term decrease in the size of a local population. MNES – lead to a long-term decrease in the size of an important population of a species	**SRI unlikely** The impact area is comprised of 3.3 ha remnant and 0.6ha functional regrowth habitat spread over 11 km of pipeline, within a clearing footprint no more than 42m wide. Habitat clearing is largely confined to the edges of larger patches of habitat. The largest remnant patch of habitat that will be cleared is a 0.87 ha linear strip less than 13m wide. Habitat quality for this species is low along the alignment with few to no rocky environments, alluvium or vine thickets. Rehabilitation following pipe installation will restore much of the potential feeding habitat lost during the construction phase (refer condition I3 of EA EPPG04323316). Micro-habitat values for this species are low throughout the alignment.
MSES – a reduced extent of occurrence of the species MNES – reduce the area of occupancy of an important population	No significant Impact The combination of a narrow band of clearing of habitat containing poor micro-habitat features, rehabilitation requirements of most of the alignment width and small areas of clearing will result in minimal impacts on this species and will not reduce its extent of occurrence.
MSES – fragmentation of an existing population MNES – fragment an existing important population into two or more populations	No significant Impact The combination of a narrow band of clearing of habitat containing poor micro-habitat features, rehabilitation requirements of most of the alignment width and small areas of clearing will result in minimal impacts on this species. The lizard will not be prevented from moving between retained patches of potential habitat and no existing populations have been found to occur within the alignment.
MSES – result in genetically distinct populations forming as a result of habitat isolation MNES – adversely affect habitat critical to the survival of a species	No significant Impact The combination of a narrow band of clearing of habitat containing poor micro-habitat features, rehabilitation requirements of most of the alignment width and small areas of clearing will result in minimal impacts on this species. The lizard will not be prevented from moving between retained patches of potential habitat and will therefore not result in habitat isolation that would lead to the formation of genetically distinct populations.

Significant residual impact assessment for Collared Delma *Delma torquata* (NCA Vulnerable; EPBC Vulnerable)	
Significant Residual Impact Guideline Criteria.	Response
MSES – Result in invasive species that are harmful to an endangered or vulnerable species becoming established in the endangered or vulnerable species' habitat. MNES – result in invasive species that are harmful to a vulnerable species becoming established in the vulnerable species' habitat	No significant Impact There are no known invasive species, not already known from the local landscape, that may impact this species.
MSES – Introduce disease that may cause the population to decline MNES – introduce disease that may cause the species to decline	No significant Impact There are no known diseases that could be introduced via the proposed clearing that are known to affect this species.
MSES – Interfere with the recovery of the species. MNES – interfere substantially with the recovery of the species	No significant Impact Habitat loss is the main threat to this species. The clearing of small patches in narrow bands combined with post-construction rehabilitation requirements will result in minimal impacts to the recovery of this species.
MSES – disruption to ecologically significant locations (breeding, feeding or nesting sites) of a species MNES – Disrupt the breeding cycle of an important population.	No significant Impact Micro-habitat features for this species are poor with almost no rocky environments, alluvium or SEVT. None of the areas to be cleared are within or adjacent to an ecological significant location for this species.
MNES – modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline	No significant Impact The habitats that will be cleared are very unlikely to support a significant population of this species. The habitat quality is low, the availability of refuge sites and prey species is limited. The loss of this habitat is unlikely to cause a measurable decline in this species.

Significant residual impact assessment for Yakka Skink *Egernia rugosa* (NCA Vulnerable; EPBC Vulnerable)	
Significant Residual Impact Guideline Criteria.	Response
MSES – a long-term decrease in the size of a local population. MNES – lead to a long-term decrease in the size of an important population of a species	**SRI unlikely** The impact area is comprised of 1.6 ha (Essential Habitat) and 1.6 ha (General Habitat) spread over 11 km of pipeline within a clearing footprint no more than 42m wide. Habitat clearing is largely confined to the edges of larger patches of habitat. The largest remnant patch of habitat that will be cleared is a 0.87 ha linear strip less than 13m wide. The quality of habitat for this species is generally very low within the alignment with low amounts of fallen woody material. There is a general lack of dense lower shrub and ground layers and the buffel dominated grassy understorey provides little in the way of food resources such as soft plant materials and fruits and a wide variety of invertebrates (beetles, grasshoppers and spiders). Rehabilitation following pipe installation will restore much of the potential feeding habitat lost during the construction phase (refer condition I3 of EA EPPG04323316).
MSES – a reduced extent of occurrence of the species MNES – reduce the area of occupancy of an important population	No significant Impact This species is widely distributed throughout central and coastal Queensland. The clearing of small relatively narrow areas of low-quality habitat is unlikely to reduce the range of this species or impact an important population.
MSES – fragmentation of an existing population MNES – fragment an existing important population into two or more populations	No significant Impact This species is a gregarious communal burrower with a limited capacity to disperse. The clearing areas are relatively narrow located on the edges of large patches of native woodland or associated with highly disturbed (tracks and pastures) areas. It is unlikely that the removal of this vegetation will introduce more significant barriers to the dispersal of this species than already exist.
MSES – result in genetically distinct populations forming as a result of habitat isolation MNES – adversely affect habitat critical to the survival of a species	No significant Impact This species is a gregarious communal burrower with a limited capacity to disperse. It is unlikely that the removal of these small narrow patches of low-quality habitat will genetically isolate existing populations.

Significant residual impact assessment for Yakka Skink *Egernia rugosa* (NCA Vulnerable; EPBC Vulnerable)	
Significant Residual Impact Guideline Criteria.	Response
MSES – Result in invasive species that are harmful to an endangered or vulnerable species becoming established in the endangered or vulnerable species' habitat. MNES – result in invasive species that are harmful to a vulnerable species becoming established in the vulnerable species' habitat	No significant Impact Clearing will not result in introduction of any invasive species known to predate this species not already present in the local environment.
MSES – Introduce disease that may cause the population to decline MNES – introduce disease that may cause the species to decline	No significant Impact The proposed clearing will not introduce any diseases known to impact on extant populations of this species.
MSES – Interfere with the recovery of the species. MNES – interfere substantially with the recovery of the species	No significant Impact The loss of shelter sites and food resources are the most significant factors affecting the recovery of this species. Shelter site micro-habitat features on which this species is dependant include fallen woody material, partially buried rocks and dense lower shrub and ground layers whilst food resources on which this species depends include soft plant materials and fruits and a wide variety of invertebrates (beetles, grasshoppers and spiders). These features are generally absent from within the areas to be cleared. It is also unlikely that mortality through factors other than habitat loss will be introduced. It is unlikely that the construction of the pipeline and associated facilities will significantly hamper the recovery of this species.
MSES – disruption to ecologically significant locations (breeding, feeding or nesting sites) of a species MNES – Disrupt the breeding cycle of an important population.	No significant Impact This is a communal burrowing species that relies on micro-habitat features such fallen woody material, partially buried rocks or sometime dense shrub cover for denning resources and the availability of soft plant materials and fruits and a wide variety of invertebrates (beetles, grasshoppers and spiders) for feeding resources. These micro-habitat features are virtually absent from the impact areas and it is unlikely that a colony of this species

Significant residual impact assessment for Yakka Skink *Egernia rugosa* (NCA Vulnerable; EPBC Vulnerable)	
Significant Residual Impact Guideline Criteria.	Response
	occurs within the clearing areas. The proposed clearing will not interfere with the recovery of this species.
MNES – modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline	No significant Impact The quality of micro-habitat features such as shelter sites (Fallen woody material and partially buried rocks) and feeding resources (soft plant materials and fruits and a wide variety of invertebrates (beetles, grasshoppers and spiders) are very low and it is unlikely that the loss of this habitat will cause a decline in this species.

Significant residual impact assessment for Dunmall's Snake *Furina dunmalli* (NCA Vulnerable; EPBC Vulnerable)	
Significant Residual Impact Guideline Criteria.	Response
MSES – a long-term decrease in the size of a local population. MNES – lead to a long-term decrease in the size of an important population of a species	**SRI unlikely** The impact area is comprised of 3.2 ha remnant spread over 11 km of pipeline within a clearing footprint no more than 42m wide. Habitat clearing is largely confined to the edges of larger patches of habitat. The largest remnant patch of habitat that will be cleared is a 0.87 ha linear strip less than 13m wide. Rehabilitation following pipe installation will restore much of the potential feeding habitat lost during the construction phase (refer condition I3 of EA EPPG04323316). There are no areas with high micro-habitat values for this species within the alignment.
MSES – a reduced extent of occurrence of the species MNES – reduce the area of occupancy of an important population	No significant Impact The clearing areas support low quality habitat for this species. The impacted communities lack old growth trees and significant fallen woody material and provide few micro-habitat features that would support this species. This species is widely but sparsely distributed across South East and Central Queensland. The small amount of clearing that will occur represents potential foraging habitat for a very limited number of individuals. The clearing does not occur at the extent of this species' range.
MSES – fragmentation of an existing population MNES – fragment an existing important population into two or more populations	No significant Impact The combination of a narrow band of clearing of habitat containing poor micro-habitat features, rehabilitation requirements of most of the alignment width and small areas of clearing will result in minimal impacts on this species. The snake will not be prevented from moving between retained patches of potential habitat and no existing populations have been found to occur within the alignment.
MSES – result in genetically distinct populations forming as a result of habitat isolation MNES – adversely affect habitat critical to the survival of a species	No significant Impact The combination of a narrow band of clearing of habitat containing poor micro-habitat features, rehabilitation requirements of most of the alignment width and small areas of clearing will result in minimal impacts on this species. The snake will not be prevented from moving between retained

Significant residual impact assessment for Dunmall's Snake *Furina dunmalli* (NCA Vulnerable; EPBC Vulnerable)	
Significant Residual Impact Guideline Criteria.	Response
	patches of potential habitat and will therefore not result in habitat isolation that would lead to the formation of genetically distinct populations.
MSES – Result in invasive species that are harmful to an endangered or vulnerable species becoming established in the endangered or vulnerable species' habitat. MNES – result in invasive species that are harmful to a vulnerable species becoming established in the vulnerable species' habitat	No significant Impact There are no known invasive species, not already known from the local landscape, that may impact this species.
MSES – Introduce disease that may cause the population to decline. MNES – introduce disease that may cause the species to decline	No significant Impact There are no known diseases that could be introduced via the proposed clearing that are known to affect this species.
MSES – Interfere with the recovery of the species. MNES – interfere substantially with the recovery of the species	No significant Impact Habitat loss is the main threat to this species. The clearing of small patches in narrow bands combined with post-construction rehabilitation requirements will result in minimal impacts to the recovery of this species. The loss of micro-habitat features on which this species is dependant (e.g. fallen woody material) is very low and the loss of prey species (skinks and geckos) on which this species depends will also be low. The proposed clearing will not interfere with the recovery of this species.
MSES – disruption to ecologically significant locations (breeding, feeding or nesting sites) of a species MNES – Disrupt the breeding cycle of an important population.	No significant Impact Micro-habitat features for this species are poor with only very minor occurrences of deep cracking clays, low fallen woody material and leaf litter cover or prey species (skinks and geckos). The proposed activity will not cause disruption to ecologically significant locations.
MNES – modify, destroy,	No significant Impact

Significant residual impact assessment for Dunmall's Snake *Furina dunmalli* (NCA Vulnerable; EPBC Vulnerable)	
Significant Residual Impact Guideline Criteria.	Response
remove or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline	The habitats that will be cleared are very unlikely to support a significant population of this species. The habitat quality is low being mainly regrowth communities that have recently reached remnant status. Th availability of refuge sites and prey species is limited. The loss of this habitat is unlikely to cause a measurable decline in this species.

Significant residual impact assessment for Grey Snake *Hemiaspis damelii* (NCA Endangered; EPBC Endangered)	
Significant Residual Impact Guideline Criteria.	Response
MSES – a long-term decrease in the size of a local population. MNES – lead to a long-term decrease in the size of an important population of a species	**SRI unlikely** The impact area is comprised of 0.1 ha remnant over 11 km of pipeline within a clearing footprint no more than 42m wide. Habitat clearing is largely confined to the edges of larger patches of habitat. The largest remnant patch of habitat that will be cleared is a 0.87 ha linear strip less than 13m wide. Rehabilitation following pipe installation will restore much of the potential feeding habitat lost during the construction phase (refer condition I3 of EA EPPG04323316). There are no areas with micro-habitat values for this species within the alignment.
MSES – a reduced extent of occurrence of the species MNES – reduce the area of occupancy of an important population	No significant Impact The combination of a narrow band of clearing of habitat containing poor micro-habitat features, rehabilitation requirements of most of the alignment width and small areas of clearing will result in minimal impacts on this species and will not reduce its extent of occurrence.
MSES – fragmentation of an existing population MNES – fragment an existing important population into two or more populations	No significant Impact The combination of a narrow band of clearing of habitat containing poor micro-habitat features, rehabilitation requirements of most of the alignment width and small areas of clearing will result in minimal impacts on this species. The snake will not be prevented from moving between retained patches of potential habitat and no existing populations have been found to occur within the alignment.
MSES – result in genetically distinct populations forming as a result of habitat isolation MNES – adversely affect habitat critical to the survival of a species	No significant Impact The combination of a narrow band of clearing of habitat containing poor micro-habitat features, rehabilitation requirements of most of the alignment width and small areas of clearing will result in minimal impacts on this species. The snake will not be prevented from moving between retained patches of potential habitat and will therefore not result in habitat isolation that would lead to the formation of genetically distinct populations.
MSES – Result in invasive species that are harmful to an endangered or vulnerable	No significant Impact There are no known invasive species, not already known from the local landscape, that may impact this species. The cane toad is

Significant residual impact assessment for Grey Snake *Hemiaspis damelii* (NCA Endangered; EPBC Endangered)	
Significant Residual Impact Guideline Criteria.	Response
species becoming established in the endangered or vulnerable species' habitat. MNES – result in invasive species that are harmful to a vulnerable species becoming established in the vulnerable species' habitat	already throughout the alignment.
MSES – Introduce disease that may cause the population to decline MNES – introduce disease that may cause the species to decline	No significant Impact There are no known diseases that could be introduced via the proposed clearing that are known to affect this species.
MSES – Interfere with the recovery of the species. MNES – interfere substantially with the recovery of the species	No significant Impact Habitat loss is the main threat to this species. The clearing of small patches in narrow bands combined with post-construction rehabilitation requirements will result in minimal impacts to the recovery of this species.
MSES – disruption to ecologically significant locations (breeding, feeding or nesting sites) of a species MNES – Disrupt the breeding cycle of an important population.	No significant Impact Micro-habitat features for this species are poor with only very minor occurrences of deep cracking clays, low fallen woody material and leaf litter cover. The proposed clearing will not disrupt an ecologically significant location for this species.
MNES – modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline	No significant Impact The habitats that will be cleared are very unlikely to support a significant population of this species. The habitat quality is low being mainly regrowth communities that have recently reached remnant status. Th availability of refuge sites and prey species is limited. The loss of this habitat is unlikely to cause a measurable decline in this species.

Significant residual impact assessment for Golden-tailed Gecko *Strophurus taenicauda* (NCA Near Threatened; EPBC Not Listed)	
MSES Significant Residual Impact Guideline Criteria.	Response
MSES – a long-term decrease in the size of a local population. MNES – lead to a long-term decrease in the size of an important population of a species	SRI unlikely The impact area is comprised of 3.3 ha remnant spread over 11 km of pipeline within clearing no more than 42m wide. Habitat clearing is largely confined to the edges of larger patches of habitat. The largest remnant patch of habitat that will be cleared is a 0.87 ha linear strip less than 13m wide. Rehabilitation following pipe installation will restore much of the potential feeding habitat lost during the construction phase (refer condition I3 of EA EPPG04323316). There are no areas with high micro-habitat values for this species within the alignment. *Callitris glaucophylla* is generally absent from areas that will be cleared.
MSES – a reduced extent of occurrence of the species MNES – reduce the area of occupancy of an important population	No significant Impact The combination of a narrow band of clearing of habitat containing poor micro-habitat features, requirements to rehabilitate most of the alignment width and small areas of clearing will result in minimal impacts on this species and will not reduce its extent of occurrence.
MSES – fragmentation of an existing population MNES – fragment an existing important population into two or more populations	No significant Impact The narrow linear clearing for a pipeline will not hinder the movement of this species within the local landscape and will not result in the fragmentation of an existing population.
MSES – result in genetically distinct populations forming as a result of habitat isolation MNES – adversely affect habitat critical to the survival of a species	No significant Impact The narrow linear clearing for a pipeline will not hinder the movement of this species within the local landscape and will not result in genetically distinct populations forming.
MSES – Result in invasive species that are harmful to an endangered or vulnerable species becoming established in the endangered or vulnerable species' habitat. MNES – result in invasive	No significant Impact There are no known invasive predators that would be introduced because of the proposed clearing that would preferentially predate this species.

Significant residual impact assessment for Golden-tailed Gecko *Strophurus taenicauda* (NCA Near Threatened; EPBC Not Listed)	
MSES Significant Residual Impact Guideline Criteria.	Response
species that are harmful to a vulnerable species becoming established in the vulnerable species' habitat	
MSES – Introduce disease that may cause the population to decline MNES – introduce disease that may cause the species to decline	No significant Impact There are known diseases that could be introduced by the proposed clearing that are known to affect this species.
MSES – Interfere with the recovery of the species. MNES – interfere substantially with the recovery of the species	No significant Impact The combination of the small amount of clearing along a narrow band dispersed along the alignment combined with requirements to rehabilitate most of the alignment width means that the long-term recovery of this species will not be impaired by the proposed pipeline. The proposed clearing will not interfere with the recovery of this species.
MSES – disruption to ecologically significant locations (breeding, feeding or nesting sites) of a species MNES – Disrupt the breeding cycle of an important population.	No significant Impact The combination of a narrow band of clearing of habitat containing poor micro-habitat features, requirements to rehabilitate of most of the alignment width and small areas of clearing will result in minimal impacts on this species and will not cause disruption to any identified ecologically significant location for this species.
MNES – modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline	No significant Impact The habitats that will be cleared are very unlikely to support a significant population of this species. The habitat quality is low being mainly regrowth communities that have recently reached remnant status. Th availability of refuge sites and prey species is limited. The loss of this habitat is unlikely to cause a measurable decline in this species.

Significant residual impact assessment for Dulacca Woodland Snail *Adclarkia dulacca* (NCA Endangered; EPBC Endangered)	
Significant Residual Impact Guideline Criteria.	Response
MSES – a long-term decrease in the size of a local population. MNES – lead to a long-term decrease in the size of an important population of a species	SRI unlikely The impact area is comprised of 0.3 ha remnant spread over 11 km of pipeline within clearing no more than 42m wide. The largest patch of habitat that will be cleared is a linear strip less than 10m wide resulting in the clearing of 0.17 ha from the edge of a 6.5 ha patch. Rehabilitation following pipe installation will restore much of the potential feeding habitat lost during the construction phase (refer condition I3 of EA EPPG04323316). There are no areas with high micro-habitat values for this species within the alignment.
MSES – a reduced extent of occurrence of the species MNES – reduce the area of occupancy of an important population	No significant Impact The combination of a narrow band of clearing of habitat containing poor micro-habitat features, requirements to rehabilitate most of the alignment width and small areas of clearing will result in minimal impacts on this species and will not reduce its extent of occurrence.
MSES – fragmentation of an existing population MNES – fragment an existing important population into two or more populations	No significant Impact The narrow linear clearing along the edge of larger remnant patches of habitat will not hinder the movement of this species within the local landscape and will not result in the fragmentation of an existing population.
MSES – result in genetically distinct populations forming as a result of habitat isolation MNES – adversely affect habitat critical to the survival of a species	No significant Impact The narrow linear clearing along the edge of larger remnant patches of habitat will not hinder the movement of this species within the local landscape and will not result in genetically distinct populations forming.
MSES – Result in invasive species that are harmful to an endangered or vulnerable species becoming established in the endangered or vulnerable species' habitat. MNES – result in invasive species that are harmful to a	No significant Impact There are no known invasive predators that would be introduced because of the proposed clearing that would preferentially predate this species.

Significant residual impact assessment for Dulacca Woodland Snail *Adclarkia dulacca* (NCA Endangered; EPBC Endangered)	
Significant Residual Impact Guideline Criteria.	Response
vulnerable species becoming established in the vulnerable species' habitat	
MSES – Introduce disease that may cause the population to decline MNES – introduce disease that may cause the species to decline	No significant Impact There are known diseases that could be introduced by the proposed clearing that are known to affect this species.
MSES – Interfere with the recovery of the species. MNES – interfere substantially with the recovery of the species	No significant Impact The combination of the small amount of clearing along a narrow band dispersed along the alignment combined with requirements to rehabilitate most of the alignment width means that the long-term recovery of this species will not be impaired by the proposed pipeline.
MSES – disruption to ecologically significant locations (breeding, feeding or nesting sites) of a species MNES – Disrupt the breeding cycle of an important population.	No significant Impact The combination of a narrow band of clearing of habitat containing poor micro-habitat features, requirements to rehabilitate of most of the alignment width and small areas of clearing will result in minimal impacts on this species and will not cause disruption to any identified ecologically significant location for this species.
MNES – modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline	No significant Impact The habitats that will be cleared are very unlikely to support a significant population of this species. The habitat quality is low being mainly regrowth communities that have recently reached remnant status. Th availability of refuge sites and prey species is limited. The loss of this habitat is unlikely to cause a measurable decline in this species.

Significant residual impact assessment for Pale Imperial Hairstreak butterfly *Jalmenus eubulus* (NCA Vulnerable; EPBC Not Listed)	
MSES Significant Residual Impact Guideline Criteria.	Response
MSES – a long-term decrease in the size of a local population. MNES – lead to a long-term decrease in the size of an important population of a species	**SRI unlikely** The impact area is comprised of 1.4 ha remnant spread over 11 km of pipeline within clearing no more than 42m wide. The largest patch of habitat that will be cleared is a 0.75 ha of low quality habitat for this species. Rehabilitation following pipe installation will restore much of the potential feeding habitat lost during the construction phase (refer condition I3 of EA EPPG04323316). There are no areas with high micro-habitat values for this species within the alignment. The area of Poplar box – brigalow open forest is not old growth and is narrow and linear.
MSES – a reduced extent of occurrence of the species MNES – reduce the area of occupancy of an important population	No significant Impact The combination of a narrow band of clearing of habitat containing poor micro-habitat features, and the small areas of clearing will result in minimal impacts on this species and will not reduce its extent of occurrence.
MSES – fragmentation of an existing population MNES – fragment an existing important population into two or more populations	No significant Impact This species moves readily across open areas. The narrow linear clearing for a pipeline will not hinder the movement of this species within the local landscape and will not result in the fragmentation of an existing population.
MSES – result in genetically distinct populations forming as a result of habitat isolation MNES – adversely affect habitat critical to the survival of a species	No significant Impact This species moves readily across open areas. The narrow linear clearing for a pipeline will not hinder the movement of this species within the local landscape and will not result in genetically distinct populations forming.
MSES – Result in invasive species that are harmful to an endangered or vulnerable species becoming established in the endangered or vulnerable species' habitat.	No significant Impact This species is threatened by loss of brigalow habitat and the associated ant species that tend its larvae. There are no known invasive predators that would be introduced because of the proposed clearing that would preferentially predate this species.

Significant residual impact assessment for Pale Imperial Hairstreak butterfly *Jalmenus eubulus* (NCA Vulnerable; EPBC Not Listed)	
MSES Significant Residual Impact Guideline Criteria.	Response
MNES – result in invasive species that are harmful to a vulnerable species becoming established in the vulnerable species' habitat	
MSES – Introduce disease that may cause the population to decline MNES – introduce disease that may cause the species to decline	No significant Impact There are known diseases that could be introduced by the proposed clearing that are known to affect this species.
MSES – Interfere with the recovery of the species. MNES – interfere substantially with the recovery of the species	No significant Impact The combination of the small amount of clearing along a narrow band dispersed along the alignment combined with requirements to rehabilitate most of the alignment width means that the long-term recovery of this species will not be impaired by the proposed pipeline.
MSES – disruption to ecologically significant locations (breeding, feeding or nesting sites) of a species MNES – Disrupt the breeding cycle of an important population.	No significant Impact The combination of a narrow band of clearing of habitat containing poor micro-habitat features, requirements to rehabilitate of most of the alignment width and small areas of clearing will result in minimal impacts on this species and will not cause disruption to any identified ecologically significant location for this species.
MNES – modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline	No significant Impact The habitats that will be cleared are very unlikely to support a significant population of this species. The habitat quality is low being mainly regrowth communities that have recently reached remnant status. Th availability of refuge sites and prey species is limited. The loss of this habitat is unlikely to cause a measurable decline in this species.

Queensland Government

Department of Environment and Science

Environmental Reports

Matters of State Environmental Significance

For the selected area of interest
Longitude: 149.270184 Latitude: -26.563446 with 2 kilometre radius

Environmental Reports - General Information

The Environmental Reports portal provides for the assessment of selected matters of interest relevant to a user specified location, or area of interest (AOI). All area and derivative figures are relevant to the extent of matters of interest contained within the AOI unless otherwise stated. Please note, if a user selects an AOI via the "central coordinates" option, the resulting assessment area encompasses an area extending for a 2km radius from the point of interest.

All area and area derived figures included in this report have been calculated via reprojecting relevant spatial features to Albers equal-area conic projection (central meridian = 146, datum Geocentric Datum of Australia 1994). As a result, area figures may differ slightly if calculated for the same features using a different co-ordinate system.

Figures in tables may be affected by rounding.

The matters of interest reported on in this document are based upon available state mapped datasets. Where the report indicates that a matter of interest is not present within the AOI (e.g. where area related calculations are equal to zero, or no values are listed), this may be due either to the fact that state mapping has not been undertaken for the AOI, that state mapping is incomplete for the AOI, or that no values have been identified within the site.

The information presented in this report should be considered as a guide only and field survey may be required to validate values on the ground.

Please direct queries about these reports to: Planning.Support@des.qld.gov.au

Disclaimer

Whilst every care is taken to ensure the accuracy of the information provided in this report, the Queensland Government makes no representations or warranties about its accuracy, reliability, completeness, or suitability, for any particular purpose and disclaims all responsibility and all liability (including without limitation, liability in negligence) for all expenses, losses, damages (including indirect or consequential damage) and costs which the user may incur as a consequence of the information being inaccurate or incomplete in any way and for any reason.

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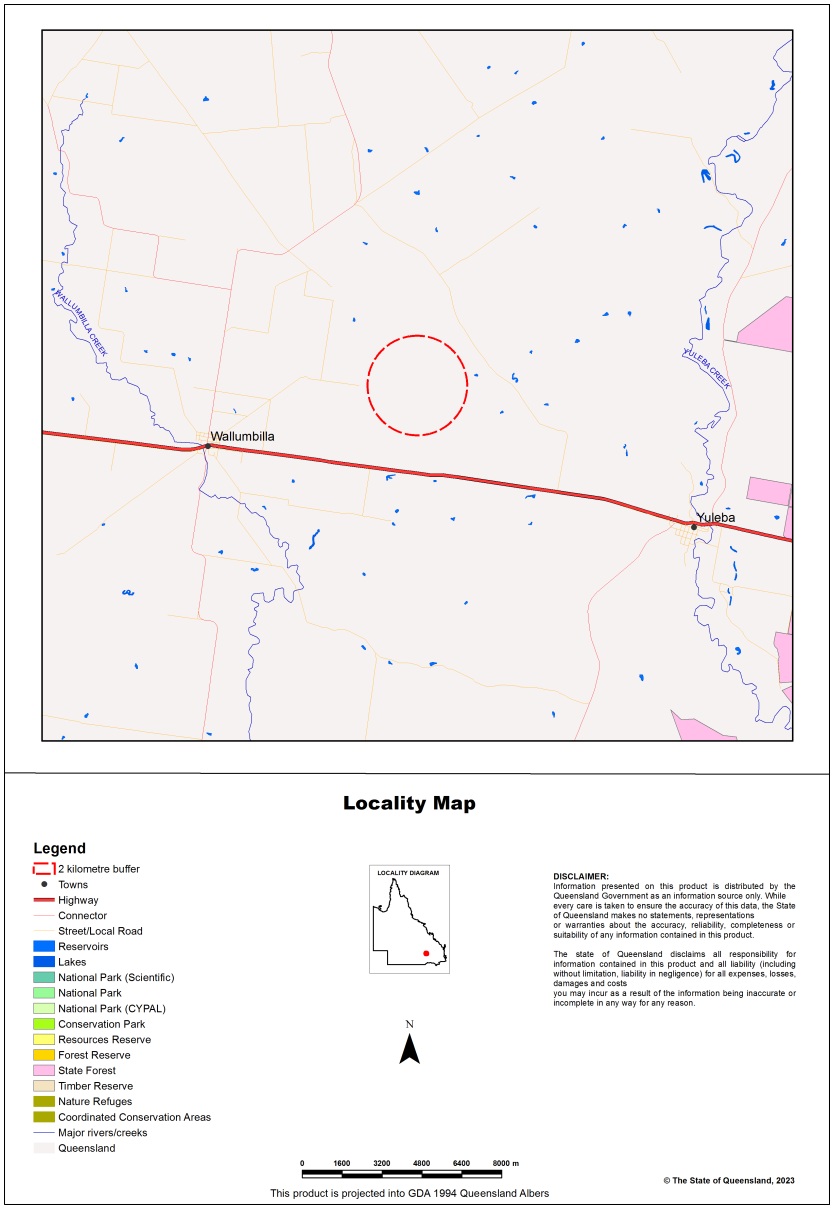
Assessment Area Details

The following table provides an overview of the area of interest (AOI) with respect to selected topographic and environmental values.

Table 1: Summary table, details for AOI Longitude: 149.270184 Latitude: -26.563446

Size (ha)	1,256.55
Local Government(s)	Maranoa Regional
Bioregion(s)	Brigalow Belt
Subregion(s)	Southern Downs
Catchment(s)	Balonne-Condamine



Matters of State Environmental Significance (MSES)

MSES Categories

Queensland's State Planning Policy (SPP) includes a biodiversity State interest that states:

'The sustainable, long-term conservation of biodiversity is supported. Significant impacts on matters of national or state environmental significance are avoided, or where this cannot be reasonably achieved; impacts are minimised and residual impacts offset.'

The MSES mapping product is a guide to assist planning and development assessment decision-making. Its primary purpose is to support implementation of the SPP biodiversity policy. While it supports the SPP, the mapping does not replace the regulatory mapping or environmental values specifically called up under other laws or regulations. Similarly, the SPP biodiversity policy does not override or replace specific requirements of other Acts or regulations.

The SPP defines matters of state environmental significance as:

- Protected areas (including all classes of protected area except coordinated conservation areas) under the *Nature Conservation Act 1992* ;

- Marine parks and land within a 'marine national park', 'conservation park', 'scientific research', 'preservation' or 'buffer' zone under the *Marine Parks Act 2004* ;

- Areas within declared fish habitat areas that are management A areas or management B areas under the Fisheries Regulation 2008;

- Threatened wildlife under the *Nature Conservation Act 1992* and special least concern animals under the Nature Conservation (Wildlife) Regulation 2006;

- Regulated vegetation under the *Vegetation Management Act 1999* that is:

    • Category B areas on the regulated vegetation management map, that are 'endangered' or 'of concern' regional ecosystems;

    • Category C areas on the regulated vegetation management map that are 'endangered' or 'of concern' regional ecosystems;

    • Category R areas on the regulated vegetation management map;

    • Regional ecosystems that intersect with watercourses identified on the vegetation management watercourse and drainage feature map;

    • Regional ecosystems that intersect with wetlands identified on the vegetation management wetlands map;

- Strategic Environmental Areas under the *Regional Planning Interests Act 2014* ;

- Wetlands in a wetland protection area of wetlands of high ecological significance shown on the Map of Queensland Wetland Environmental Values under the Environment Protection Regulation 2019;

- Wetlands and watercourses in high ecological value waters defined in the Environmental Protection (Water) Policy 2009, schedule 2;

- Legally secured offset areas.

MSES Values Present

The MSES values that are present in the area of interest are summarised in the table below:

Table 2: Summary of MSES present within the AOI

1a Protected Areas- estates	0.0 ha	0.0 %
1b Protected Areas- nature refuges	0.0 ha	0.0 %
1c Protected Areas- special wildlife reserves	0.0 ha	0.0 %
2 State Marine Parks- highly protected zones	0.0 ha	0.0 %
3 Fish habitat areas (A and B areas)	0.0 ha	0.0 %
4 Strategic Environmental Areas (SEA)	0.0 ha	0.0 %
5 High Ecological Significance wetlands on the map of Referable Wetlands	0.0 ha	0.0 %
6a High Ecological Value (HEV) wetlands	0.0 ha	0.0 %
6b High Ecological Value (HEV) waterways	0.0 km	Not applicable
7a Threatened (endangered or vulnerable) wildlife	0.0 ha	0.0 %
7b Special least concern animals	0.0 ha	0.0 %
7c i Koala habitat area - core (SEQ)	0.0 ha	0.0 %
7c ii Koala habitat area - locally refined (SEQ)	0.0 ha	0.0 %
7d Sea turtle nesting areas	0.0 km	Not applicable
8a Regulated Vegetation - Endangered/Of concern in Category B (remnant)	56.17 ha	4.5%
8b Regulated Vegetation - Endangered/Of concern in Category C (regrowth)	0.0 ha	0.0 %
8c Regulated Vegetation - Category R (GBR riverine regrowth)	0.0 ha	0.0 %
8d Regulated Vegetation - Essential habitat	0.0 ha	0.0 %
8e Regulated Vegetation - intersecting a watercourse	6.0 km	Not applicable
8f Regulated Vegetation - within 100m of a Vegetation Management Wetland	0.0 ha	0.0 %
9a Legally secured offset areas- offset register areas	0.0 ha	0.0 %
9b Legally secured offset areas- vegetation offsets through a Property Map of Assessable Vegetation	0.0 ha	0.0 %

Additional Information with Respect to MSES Values Present

MSES - State Conservation Areas

1a. Protected Areas - estates

(no results)

1b. Protected Areas - nature refuges

(no results)

1c. Protected Areas - special wildlife reserves

(no results)

2. State Marine Parks - highly protected zones

(no results)

3. Fish habitat areas (A and B areas)

(no results)

Refer to **Map 1 - MSES - State Conservation Areas** for an overview of the relevant MSES.

MSES - Wetlands and Waterways

4. Strategic Environmental Areas (SEA)

(no results)

5. High Ecological Significance wetlands on the Map of Queensland Wetland Environmental Values

(no results)

6a. Wetlands in High Ecological Value (HEV) waters

(no results)

6b. Waterways in High Ecological Value (HEV) waters

(no results)

Refer to **Map 2 - MSES - Wetlands and Waterways** for an overview of the relevant MSES.

MSES - Species

7a. Threatened (endangered or vulnerable) wildlife

Not applicable

7b. Special least concern animals

Not applicable

7c i. Koala habitat area - core (SEQ)

Not applicable

7c ii. Koala habitat area - locally refined (SEQ)

Not applicable

7d. Wildlife habitat (sea turtle nesting areas)

Not applicable

Threatened (endangered or vulnerable) wildlife habitat suitability models

Species	Common name	NCA status	Presence
Boronia keysii		V	None
Calyptorhynchus lathami	Glossy black cockatoo	V	None
Casuarius casuarius johnsonii	Sthn population cassowary	E	None
Crinia tinnula	Wallum froglet	V	None
Denisonia maculata	Ornamental snake	V	None
Litoria freycineti	Wallum rocketfrog	V	None
Litoria olongburensis	Wallum sedgefrog	V	None
Macadamia integrifolia		V	None
Macadamia ternifolia		V	None
Macadamia tetraphylla		V	None
Melaleuca irbyana		E	None
Petaurus gracilis	Mahogany Glider	E	None
Petrogale persephone	Proserpine rock-wallaby	E	None
Pezoporus wallicus wallicus	Eastern ground parrot	V	None
Phascolarctos cinereus	Koala - outside SEQ*	E	None
Taudactylus pleione	Kroombit tinkerfrog	E	None
Xeromys myoides	Water Mouse	V	None

**For koala model, this includes areas outside SEQ. Check 7c SEQ koala habitat for presence/absence.*

Threatened (endangered or vulnerable) wildlife species records

(no results)

Special least concern animal species records

(no results)

Shorebird habitat (critically endangered/endangered/vulnerable)

Not applicable

Shorebird habitat (special least concern)

Not applicable

**Nature Conservation Act 1992 (NCA) Status- Endangered (E), Vulnerable (V) or Special Least Concern Animal (SL). Environment Protection and Biodiversity Conservation Act 1999 (EPBC) status: Critically Endangered (CE) Endangered (E), Vulnerable (V)*

Migratory status (M) - China and Australia Migratory Bird Agreement (C), Japan and Australia Migratory Bird Agreement (J), Republic of Korea and Australia Migratory Bird Agreement (R), Bonn Migratory Convention (B), Eastern Flyway (E)

To request a species list for an area, or search for a species profile, access Wildlife Online at:

https://www.qld.gov.au/environment/plants-animals/species-list/

Refer to **Map 3a - MSES - Species - Threatened (endangered or vulnerable) wildlife and special least concern animals, Map 3b - MSES - Species - Koala habitat area (SEQ)** and **Map 3c - MSES - Wildlife habitat (sea turtle nesting areas)** for an overview of the relevant MSES.

MSES - Regulated Vegetation

For further information relating to regional ecosystems in general, go to:

https://www.qld.gov.au/environment/plants-animals/plants/ecosystems/

For a more detailed description of a particular regional ecosystem, access the regional ecosystem search page at:

https://environment.ehp.qld.gov.au/regional-ecosystems/

8a. Regulated Vegetation - Endangered/Of concern in Category B (remnant)

Regional ecosystem	Vegetation management polygon	Vegetation management status
11.9.10	O-dom	rem_oc
11.9.5/11.9.10	E-dom	rem_end

8b. Regulated Vegetation - Endangered/Of concern in Category C (regrowth)

Not applicable

8c. Regulated Vegetation - Category R (GBR riverine regrowth)

Not applicable

8d. Regulated Vegetation - Essential habitat

Not applicable

8e. Regulated Vegetation - intersecting a watercourse**

A vegetation management watercourse is mapped as present

8f. Regulated Vegetation - within 100m of a Vegetation Management wetland

Not applicable

Refer to **Map 4 - MSES - Regulated Vegetation** for an overview of the relevant MSES.

MSES - Offsets

9a. Legally secured offset areas - offset register areas

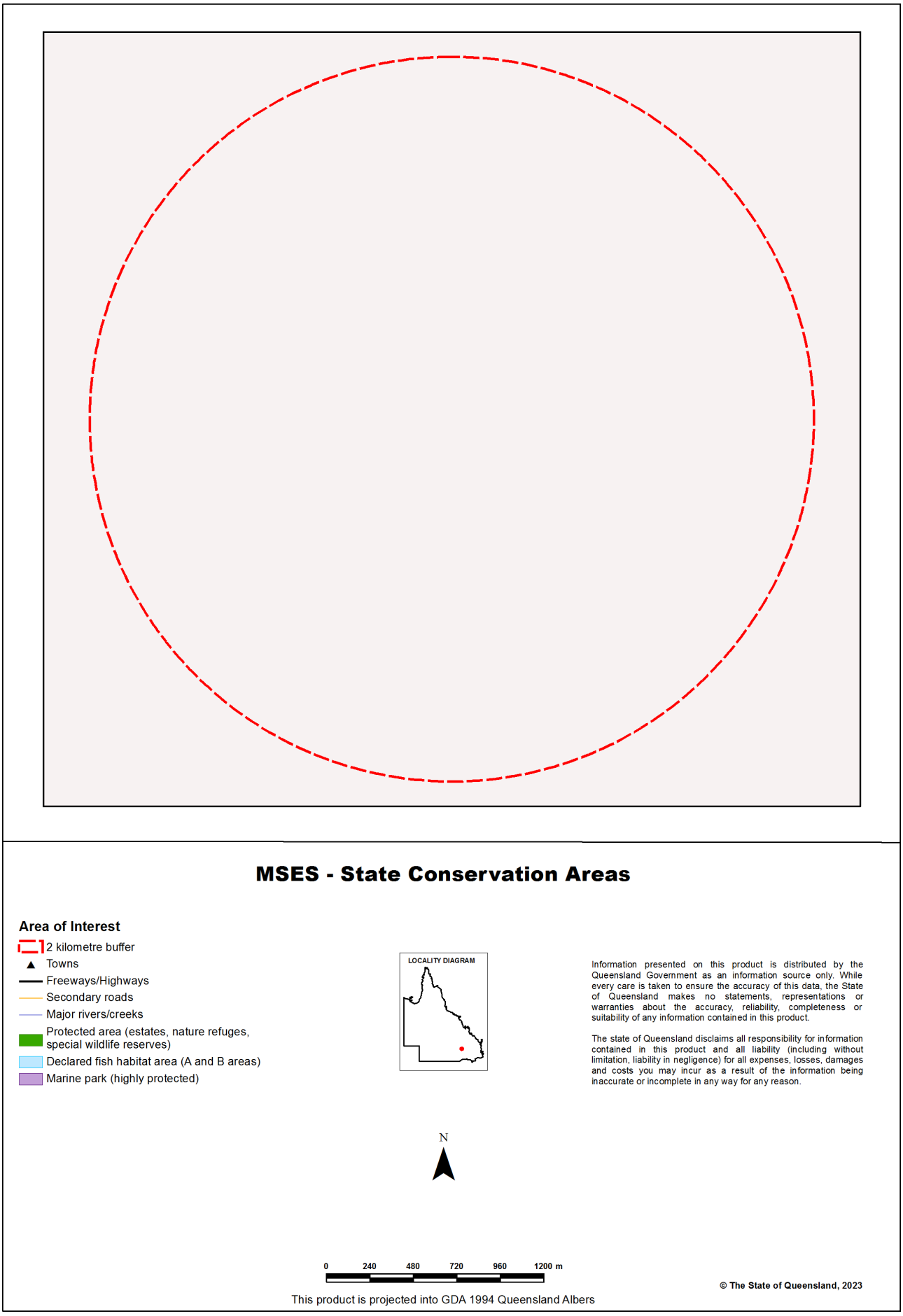
(no results)

9b. Legally secured offset areas - vegetation offsets through a Property Map of Assessable Vegetation

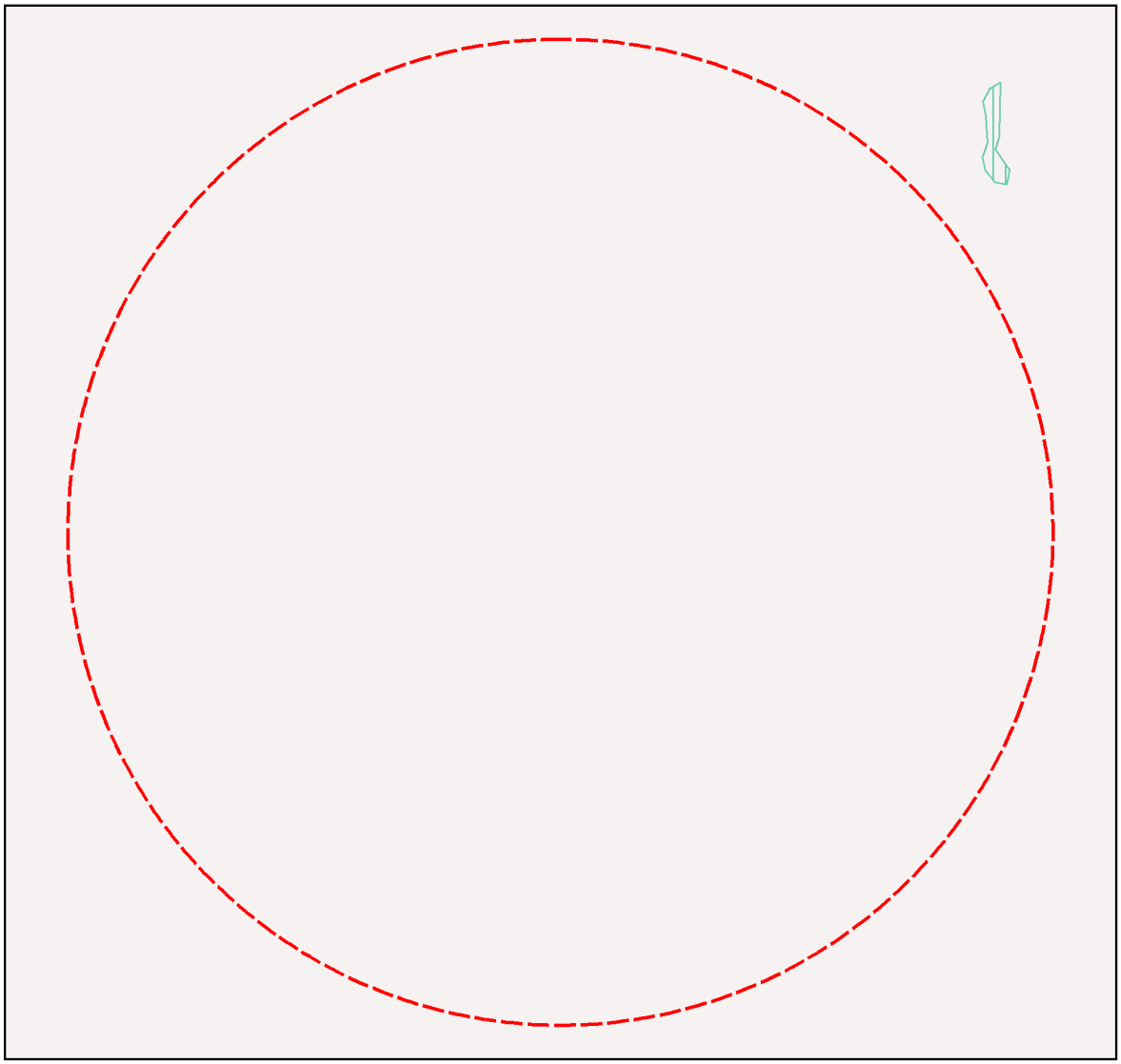
(no results)

Refer to **Map 5 - MSES - Offset Areas** for an overview of the relevant MSES.

Map 1 - MSES - State Conservation Areas



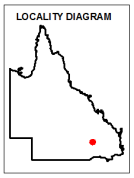
Map 2 - MSES - Wetlands and Waterways



MSES - Wetlands and Waterways

Area of Interest

- 2 kilometre buffer
- Towns
- Freeways/Highways
- Secondary roads
- Major rivers/creeks
- Declared high ecological value waters (watercourse)
- Strategic environmental area (designated precinct)
- Declared high ecological value waters (wetland)
- High ecological significance wetlands



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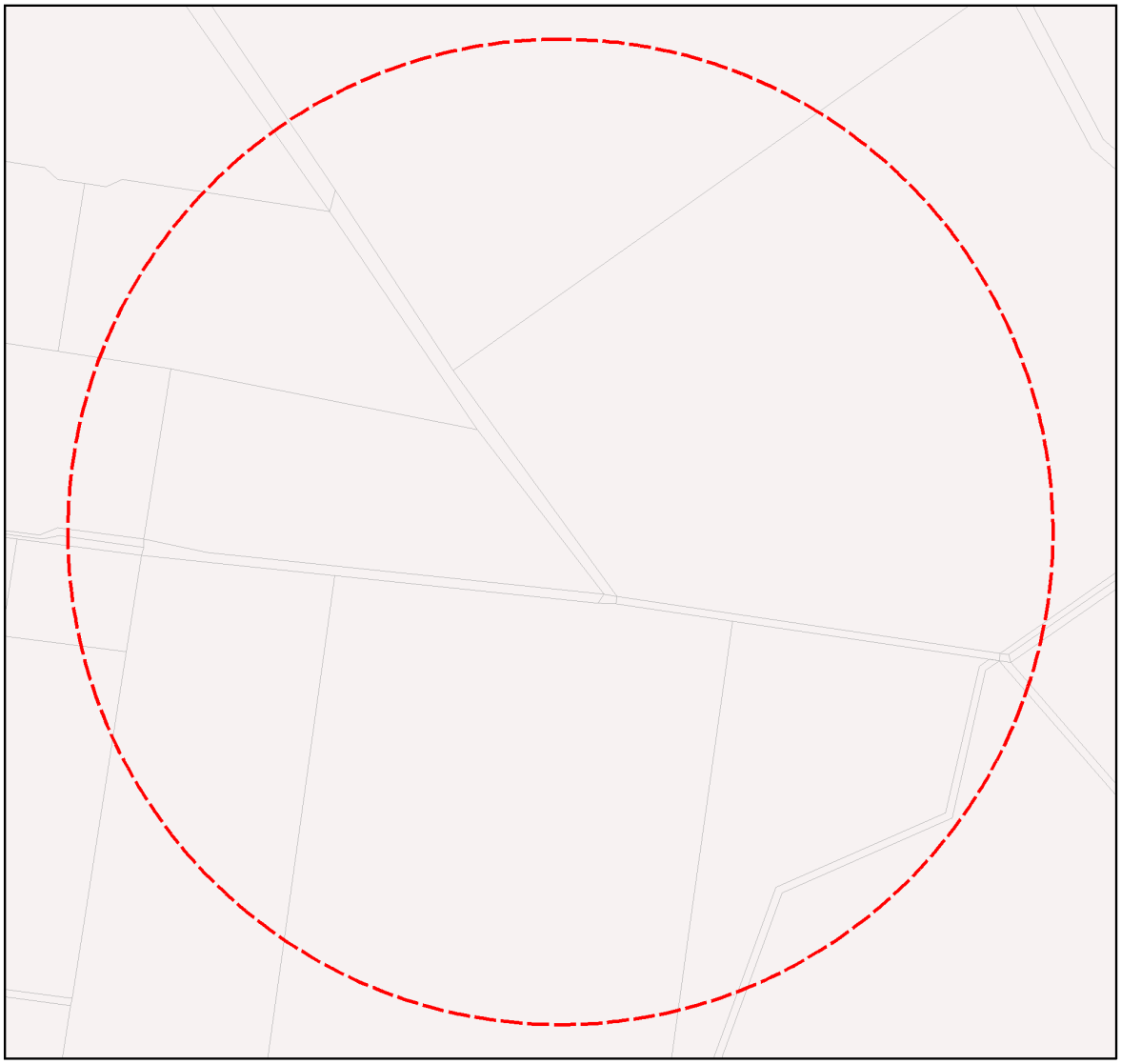
Map 3a - MSES - Species - Threatened (endangered or vulnerable) wildlife and special least concern animals

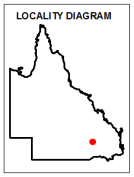


MSES - Species
Threatened (endangered or vulnerable) wildlife and special least concern animals

Area of Interest

- 2 kilometre buffer
- Towns
- Freeways/Highways
- Secondary roads
- Major rivers/creeks
- Wildlife habitat (special least concern)
- Wildlife habitat (endangered or vulnerable)

LOCALITY DIAGRAM



N

0 240 480 720 960 1200 m

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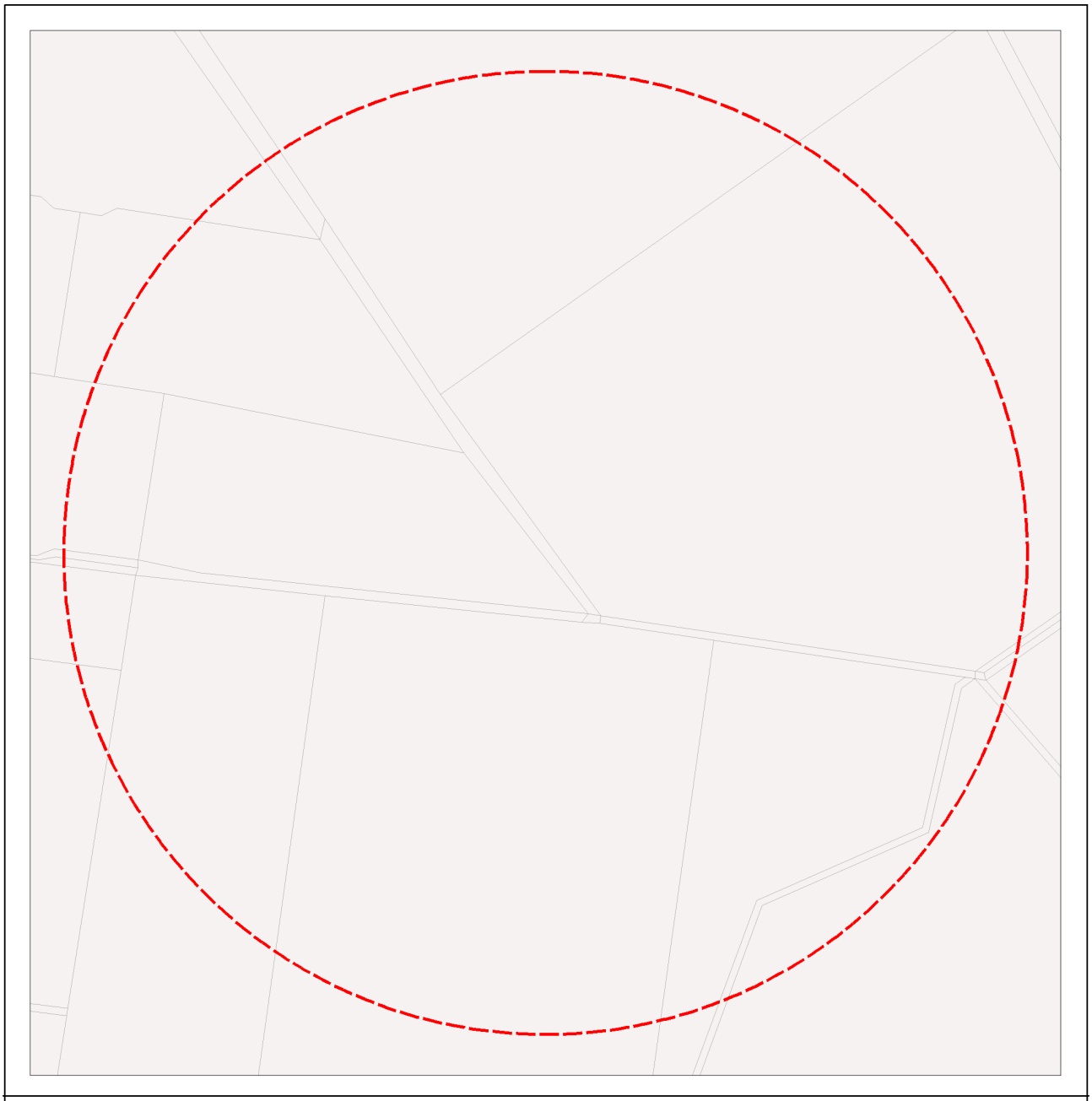
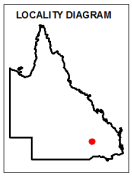
Map 3b - MSES - Species - Koala habitat area (SEQ)



MSES - Species
Koala habitat area (SEQ)

Area of Interest
- 2 kilometre buffer
- Towns
- Freeways/Highways
- Secondary roads
- Major rivers/creeks
- Koala habitat area (core)
- Koala habitat area (locally refined)

LOCALITY DIAGRAM



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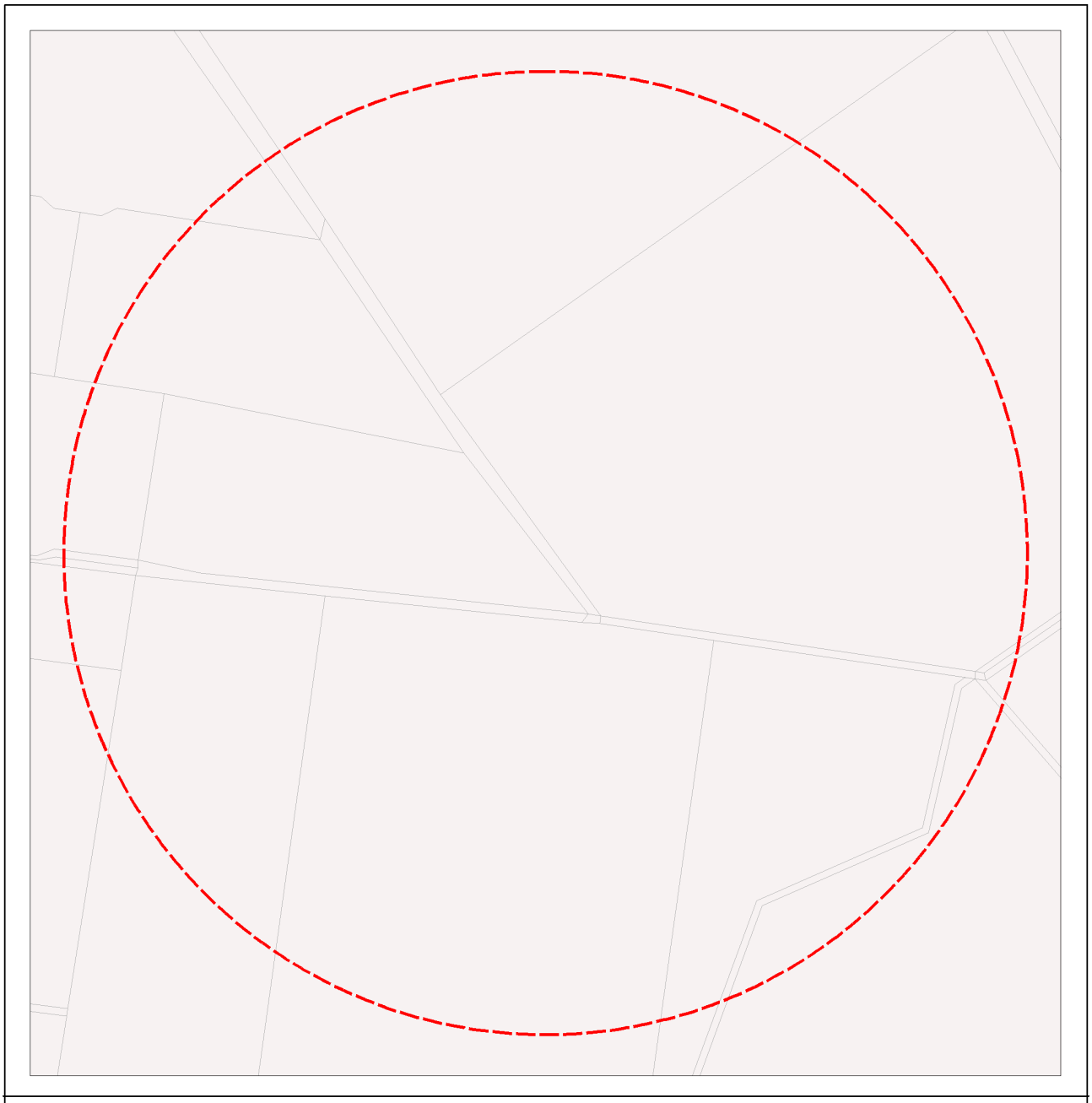
The represented layers for SEQ 'koala habitat area-core' and 'koala habitat area- locally refined' in MSES are sourced directly from the regulatory mapping under the Nature Conservation (Koala) Conservation Plan 2017. Whilst every effort is made to ensure the information remains current, there may be delays between updating versions. Please refer to the original mapping for the most recent version. See https://environment.des.qld.gov.au/wildlife/animals/living-with/koalas/mapping

The koala habitat mapping within South East Queensland uses regional ecosystem linework compiled at a scale varying from 1:25,000 to 1:100,000. Linework should be used as a guide only. The positional accuracy of regional ecosystem data mapped at a scale of 1:100,000 is +/- 100 metres.

0 220 440 660 880 1,100 m

This product is projected into GDA 1994 Queensland Albers

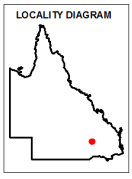
Map 3c - MSES - Wildlife habitat (sea turtle nesting areas)



MSES - Wildlife habitat (sea turtle nesting areas)

Area of Interest
- 2 kilometre buffer
- Towns
- Freeways/Highways
- Secondary roads
- Major rivers/creeks
- Wildlife habitat (sea turtle nesting areas)

LOCALITY DIAGRAM



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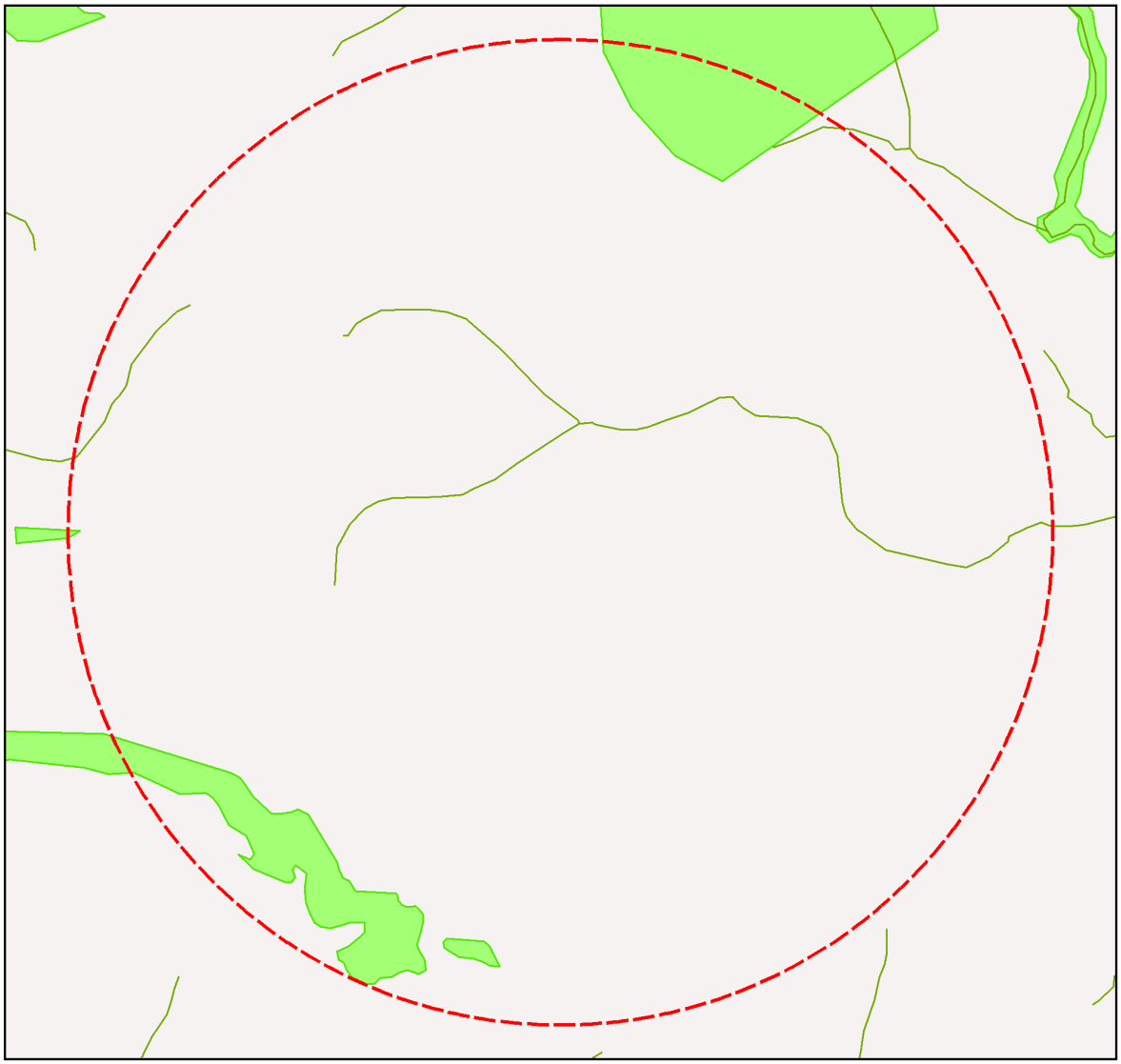
MSES mapping of sea turtle nesting areas identifies beaches where the recorded number of turtle nests are over 1% of the turtle species or genetic stock. The linework is also deliberately extended along nearby rocky coastlines and headlands to recognise that significant numbers of nesting adults and hatchlings can become disoriented by light pollution from development on rocky coastlines and headlands while navigating offshore from nesting beaches.

0 220 440 660 880 1,100 m

This product is projected into GDA 1994 Queensland Albers

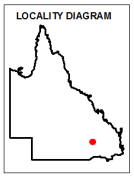
Map 4 - MSES - Regulated Vegetation



MSES - Regulated Vegetation

Area of Interest

- 2 kilometre buffer
- Towns
- Freeways/Highways
- Secondary roads
- Major rivers/creeks
- Regulated vegetation (intersecting a watercourse)
- Regulated vegetation (100m from wetland)
- Regulated vegetation (category B - endangered or of concern)
- Regulated vegetation (category C - endangered or of concern)
- Regulated vegetation (category R - GBR riverine)
- Regulated vegetation (essential habitat)



N

0 240 480 720 960 1200 m

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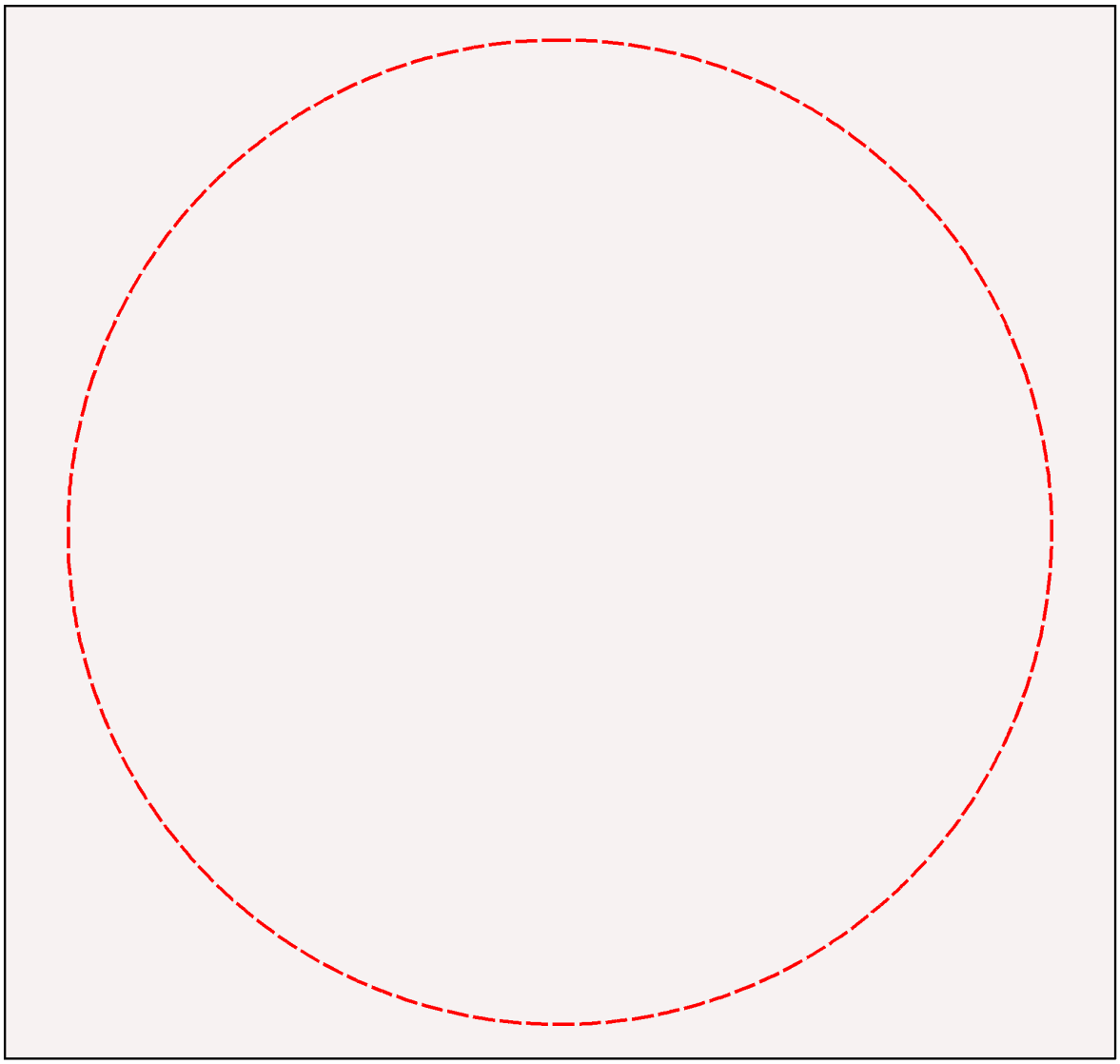
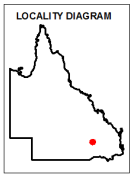
Map 5 - MSES - Offset Areas



MSES - Offsets

Area of Interest

- 2 kilometre buffer
- Towns
- Freeways/Highways
- Secondary roads
- Major rivers/creeks
- Legally secured offset area (offset register)
- Legally secured offset area (vegetation offsets)



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0 240 480 720 960 1200 m

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Appendices

Appendix 1 - Matters of State Environmental Significance (MSES) methodology

MSES mapping is a regional-scale representation of the definition for MSES under the State Planning Policy (SPP). The compiled MSES mapping product is a guide to assist planning and development assessment decision-making. Its primary purpose is to support implementation of the SPP biodiversity policy. While it supports the SPP, the mapping does not replace the regulatory mapping or environmental values specifically called up under other laws or regulations. Similarly, the SPP biodiversity policy does not override or replace specific requirements of other Acts or regulations.

The Queensland Government's "Method for mapping - matters of state environmental significance for use in land use planning and development assessment" can be downloaded from:

http://www.ehp.qld.gov.au/land/natural-resource/method-mapping-mses.html .

Appendix 2 - Source Data

The datasets listed below are available on request from:

http://qldspatial.information.qld.gov.au/catalogue/custom/index.page

- Matters of State environmental significance

Note: MSES mapping is not based on new or unique data. The primary mapping product draws data from a number of underlying environment databases and geo-referenced information sources. MSES mapping is a versioned product that is updated generally on a twice-yearly basis to incorporate the changes to underlying data sources. Several components of MSES mapping made for the current version may differ from the current underlying data sources. To ensure accuracy, or proper representation of MSES values, it is strongly recommended that users refer to the underlying data sources and review the current definition of MSES in the State Planning Policy, before applying the MSES mapping.

Individual MSES layers can be attributed to the following source data available at QSpatial:

MSES layers	**current QSpatial data (http://qspatial.information.qld.gov.au)**
Protected Areas-Estates, Nature Refuges, Special Wildlife Reserves	- Protected areas of Queensland - Nature Refuges - Queensland - Special Wildlife Reserves- Queensland
Marine Park-Highly Protected Zones	Moreton Bay marine park zoning 2008
Fish Habitat Areas	Queensland fish habitat areas
Strategic Environmental Areas-designated	Regional Planning Interests Act - Strategic Environmental Areas
HES wetlands	Map of Queensland Wetland Environmental Values
Wetlands in HEV waters	HEV waters: - EPP Water intent for waters Source Wetlands: - Queensland Wetland Mapping (Current version 5) Source Watercourses: - Vegetation management watercourse and drainage feature map (1:100000 and 1:250000)
Wildlife habitat (threatened and special least concern)	- WildNet database species records - habitat suitability models (various) - SEQ koala habitat areas under the Koala Conservation Plan 2019 - Sea Turtle Nesting Areas records
VMA regulated regional ecosystems	Vegetation management regional ecosystem and remnant map
VMA Essential Habitat	Vegetation management - essential habitat map
VMA Wetlands	Vegetation management wetlands map
Legally secured offsets	Vegetation Management Act property maps of assessable vegetation. For offset register data-contact DES
Regulated Vegetation Map	Vegetation management - regulated vegetation management map

Appendix 3 - Acronyms and Abbreviations

AOI	- Area of Interest
DES	- Department of Environment and Science
EP Act	- *Environmental Protection Act 1994*
EPP	- Environmental Protection Policy
GDA94	- Geocentric Datum of Australia 1994
GEM	- General Environmental Matters
GIS	- Geographic Information System
MSES	- Matters of State Environmental Significance
NCA	- *Nature Conservation Act 1992*
RE	- Regional Ecosystem
SPP	- State Planning Policy
VMA	- *Vegetation Management Act 1999*

Appendix B: Santos Risk Assessment Process

The environmental risk assessment contained in Section 6.0 was undertaken in accordance with the Santos Management System (SMS) Risk Management Standard. The SMS Risk Management Standard is based on accepted principles and applicable Australian standards. The risk assessment process involves:

- identifying the potential hazards or threats posed by the proposed activities;
- categorising the potential consequences and their likelihood of occurring; and
- using a risk matrix to characterise the level of risk.

Environmental risk assessment is used to differentiate minor acceptable risks from major risks, and to provide a basis for further evaluation and management of major risks. Risks are generally considered acceptable if they fall into the low category without any further mitigation measures, and 'tolerable' if they fall into the medium risk category and are managed to reduce the risk to a level 'So Far As Is Reasonably Practicable' (SFAIRP). Risk reduction measures must be applied to reduce high risks to tolerable levels (see Operational Risk Requirements in Figure 7).

SFAIRP essentially involves making a judgement about whether all reasonably practicable measures are in place to control a potential risk or impact considering the level of consequence and cost, time and resources involved to mitigate it.

Control Measure Identification

Based on identified potential impacts, and the ranking of their unmitigated risk, 'Management Practices' ('Control Strategies') were identified to eliminate, prevent, reduce or mitigate consequences associated with each of the identified potential impacts. Appropriate control strategies were identified from previous activities, current Santos management practices, and through review of best practice techniques across the industry.

Determination of Severity of Consequence

The potential level of impact (consequence) was assessed and assigned in line with potential hazards and receptors, using the 'Santos Environmental Consequence Classification' (see Figure 7) from the Santos Risk Matrix. The consequence level for each risk source is documented in the risk assessment tables in Section 6.0. To describe the severity, scale and duration of potential impacts, six categories of consequence are used (as displayed in Figure 7).

Determination of Likelihood

Likelihood relates to the potential for a consequence to occur. This includes the likelihood of an event occurring and the subsequent potential consequence. This is defined using the Santos Risk Matrix (See Figure 7). To describe the likelihood of a potential environmental consequence occurring, six categories of likelihood are used. The Santos Risk Matrix is then used to characterise the resultant risk into one of five levels.

Determination of Residual Risk

Risk is expressed in terms of a combination of the consequence of an impact and the likelihood of the impact occurring. Santos uses a risk matrix (see Figure 7) to plot the consequence and likelihood to determine the level of risk.

Santos Risk Matrix

Santos

Consequence							
Safety		**Negligible Harm** + No bodily damage or minimal harm or impairment (hours to days)	**Minor Harm** + Short term impairment (days to weeks)	**Moderate Harm** + Temporary disablement or medium term impairment (weeks to months)	**Severe Harm** + Long term/life altering disablement or impairment	**Single Fatality OR Critical Life Threatening Injuries**	**Multiple Fatalities**
Environment		+ No impact to Environmental Value (EV).	+ Small-scale impact to EV(s) of conservation significance + Potential surface or groundwater impact.	+ Moderate-scale impact to EV(s) of conservation significance + Localised surface or groundwater impact.	+ Large-scale impact to EV(s) of conservation significance + Moderate-scale surface water impact; + Localised impact to groundwater with potential or known beneficial use.	+ Extensive population or community scale impact to EV(s) of conservation significance + Extensive impact to other EV(s).	+ Irreversible impact to EV(s).
Community & Reputation		+ No actual or potential community criticism + Details remain within Santos sites and/or offices	+ Minor level local community criticism (< week) + No reputation impact	+ Local community criticism (> week) or one-day community protest + Local company reputation impacted	+ State-level community criticism or protest over multiple days/locations + State-based company reputation impacted + Very short-term share price impact (< week)	+ National community criticism or large scale protest + Company reputation and approvals impacted + Shareholder intervention or short-term share price impact (< month)	+ Sustained national community criticism or widespread protest + Industry reputation and approvals impacted + Changes at executive/board level or long-term share price impact (> month)
Financial (A$)		< $30k	$30k to $300k	$300k to $3m	$3m to $30m	$30m to $300m	> $300m
Workforce		+ Will require some staff attention over several days. + No actual or potential impact to culture	+ Will require several days local management time. + Minor impact to employee engagement and limited staff turnover	+ Will require head office staff and take several weeks of site management time. + Moderate impact to employee engagement and staff turnover above industry average with some key roles	+ Will require several weeks of senior management time + Impact to employee engagement (< 6 months), moderate turnover of key roles and no succession	+ Will require several months of senior management time + Impact to employee engagement (< 18 months), high staff turnover and attraction issues	+ Will require more than a year of senior management involvement and operations severely disrupted + Impact to employee engagement (> 18 months), significant key role turnover and attraction issues
Compliance		+ Non-conformance with legislation, instruments (e.g. tenure licence) or contract + No regulatory or punitive action	+ Minor breach of legislation, instruments or contract + Notification/report to; request for information by; and/or administrative/ warning notice from the regulator + LOCI Tier 3 or non-hydrocarbon releases notifiable to the regulator	+ Limited number of minor breaches of legislation, instruments or contract + Statutory notice from the regulator + LOCI Tier 2 or non-hydrocarbon releases immediately reportable to the regulator	+ Systemic minor breaches (or one moderate breach) of legislation, instruments or contract + Company charged with an offence with minor penalty/fine + LOCI Tier 1 or cumulative regulator notification of non-hydrocarbon releases	+ Systemic moderate breaches (OR single material breach) of legislation, instruments or contract + Company charged with an offence with moderate penalty/fine	+ Material breaches of legislation, instruments or contract + Company or officers charged with an offence with material penalty/fine, or loss of tenure/operatorship
		I	II	III	IV	V	VI
Likelihood							
ALMOST CERTAIN (< 4 monthly) Occurs in almost all circumstances OR could occur *within days to weeks*	f	Low	Medium	High	Very High	Very High	Very High
LIKELY (4 monthly - 1 yearly) Occurs in most circumstances OR could occur *within weeks to months*	e	Low	Medium	High	High	Very High	Very High
OCCASIONAL (1 - 3 yearly) Has occurred before in Santos OR could occur *within months to years*	d	Low	Low	Medium	High	High	Very High
POSSIBLE (3 - 10 yearly) Has occurred before in the industry OR could occur *within the next few years*	c	Very Low	Low	Low	Medium	High	Very High
UNLIKELY (10 - 30 yearly) Has occurred elsewhere OR could occur *within decades*	b	Very Low	Very Low	Low	Low	Medium	High
REMOTE (30 - 100 yearly) Requires exceptional circumstances and is unlikely even in the long term OR only occurs as a *"one in 100 year event"*	a	Very Low	Very Low	Very Low	Low	Medium	Medium

Operational Risk Assessment Requirements

Risk Level	Action	Governance Mechanism	Authority for Continued Tolerance of Risk	Control Development and Timeframe	Control Ownership
Very High	+ Following verification of the risk at 'Very High' activity must stop + Activity cannot recommence until controls are implemented to reduce risk to 'High' or lower + For incidents, a dedicated multi-disciplinary incident investigation team will be formed + Level 3 Manager or Excom member will be included in the investigation team	+ Controls will be governed at the Operations Committee meeting or equivalent forum + Sponsorship of incident investigation by EVP or Level 2 Manager	+ CEO	+ Intolerable Risk Level + Develop and implement controls urgently to reduce risk to 'High' or lower as soon as practicable	+ Level 2 Manager (e.g. Executive Vice President)
High	+ Assess risk to determine if it is reduced So Far As Is Reasonably Practicable (SFAIRP) + If SFAIRP, activities related to maintenance of controls will be prioritised and managed + If not SFAIRP, improve existing controls and/or implement new control(s) + For incidents, a dedicated multi-disciplinary incident investigation team will be formed	+ Controls will be governed at Divisional level meeting or equivalent forum + Sponsorship of incident investigation by Level 3 Manager	+ EVP or Level 2 Manager	+ Action to reduce risk level to 'Medium' or below	+ Level 3 Manager (e.g. General Manager)
Medium	+ Assess risk to determine if SFAIRP + If SFAIRP, activities related to maintenance of controls will be prioritised and managed + If not SFAIRP, improve existing controls and/or implement new control(s) + Incidents are assessed using Mining the Diamond and investigated relative to the incident potential	+ Controls will be governed at Area level meeting or equivalent forum + Sponsorship of incident investigation at Level 4 Manager	+ General Manager or Level 3 Manager	+ Manage and monitor risk efficiently in accordance with business management plans	+ Level 4 Manager (e.g. Asset or Functional Manager)
Low	+ Assess risk to determine if SFAIRP + If SFAIRP, activities related to maintenance of controls will be prioritised and managed + If not SFAIRP, improve existing controls and/or implement new control(s) + Incidents are assessed using Mining the Diamond and investigated relative to the incident potential	+ Controls will be governed at site level meeting or equivalent forum + Sponsorship for incident investigation at Level 5 Manager	+ Level 4 Manager	+ Manage and monitor risk efficiently in accordance with business management plans	+ Level 5 Manager (e.g. Area Manager, Team Leader, Superintendent or equivalent)
Very Low	+ Risk to be managed as stipulated by the related work processes	+ Governed if required	+ Level 5 Manager	+ Manage and monitor risk efficiently in accordance with business management plans	+ Any individual contributor

Figure 7: Santos Risk Matrix