Application form

Environmental Protection Act 1994

Site-specific application for an environmental authority

This approved form is to be used to make a site-specific application for an environmental authority under sections 124 and 125 of the Environmental Protection Act 1994 *(EP Act) for an environmentally relevant activity (ERA).*

It is recommended that applicants read the technical information requirement on what to provide with an ERA application, prior to making an application. This information is located on the business and industry website **www.business.qld.gov.au**.

All applicants must be a registered suitable operator before carrying out an ERA. If you are not already registered as a suitable operator, fill in the application form in Attachment 2 and submit it with this environmental authority application.

This form also contains questions relating the *Strategic Cropping Land Act 2011*. If you are proposing to undertake resource activities on strategic cropping land (SCL) or potential SCL, you may need to apply for a SCL compliance certificate (under section 117 of the *Strategic Cropping Land Act 2011*) or a SCL protection decision under sections 96 and 97 of the *Strategic Cropping Land Act 2011*).

An environmental authority for a resource activity that will be located on SCL or potential SCL cannot be issued until a SCL compliance certificate has been given or a protection decision has been made, where applicable.

If you would like to have a pre-lodgement meeting:

- For prescribed ERAs 2, 3 and 4—contact the Department of Agriculture, Fisheries and Forestry by email at **livestockregulator@daff.qld.gov.au**.
- For any other ERA—please fill out and lodge the form Application for a Pre-Design/Pre-Lodgement Meeting (EM1125[1]), prior to lodging this application form.

Checklist for making a site-specific application

You must complete this checklist before you continue with the application form.

If your application is for:

☐ a prescribed ERA → fill in section 1 and section 2 of the checklist below

☒ a resource activity → fill in section 2 and section 3 of the checklist below

☐ both a prescribed ERA and a resource activity → fill in sections 1, 2 and 3 of the checklist below

Depending on the results of your answers to the checklist questions, you may not be able to use this application form.

[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**.

Checklist questions		Result
Section 1		
Where a material change of use is triggered for the activity under the *Sustainable Planning Act 2009*, answer the following (otherwise select not applicable—N/A): Has a development application for the development been made under the *Sustainable Planning Act 2009*?	☐ YES ☐ NO ☐ N/A	If no, you cannot make an environmental authority application until you have made a development application for the material change of use.
Is this application to dredge or extract more than 10,000 tonnes of material a year in the North Stradbroke Island region?	☐ YES ☐ NO	The dredging or extraction of more than 10,000 tonnes of material in the North Stradbroke Island region is prohibited.
Where any of the ERAs that form part of this application are to be carried out on a parcel of land within a state development area and a particular use for the parcel of land is not stated in the approved development scheme, answer the following (otherwise select not applicable—N/A): Do you have, or have you applied for, an approval for the use under section 84(4)(b) of the *State Development and Public Works Organisation Act 1971*? You must select no if your approval has lapsed and you have not applied for a replacement.	☐ YES ☐ NO ☐ N/A	If no, you cannot make an environmental authority application until you have applied for an approval for the use under *the State Development and Public Works Organisation Act 1971*.
Section 2		
Will the proposed ERAs be carried out under the day to day management of a single responsible person (e.g. a site manager or operations manager)	☒ YES ☐ NO	If no, you cannot make a single environmental authority application as you do not meet the definition of a single integrated operation. All ERAs must be carried out under the day to day management of a single responsible person. Separate applications will need to be made for the ERAs that cannot be carried out as a single integrated operation.
Are the places where the proposed ERAs will be carried out close enough to make the integrated day to day management of the activities feasible?	☒ YES ☐ NO	If no, you cannot make a single environmental authority application as you do not meet the definition of a single integrated operation. All

		ERAs must be separated by distances small enough so that the integrated day to day management is feasible. Separate applications will need to be made for the ERAs that cannot be carried out as a single integrated operation.
Are all aspects of the proposed ERAs operationally interrelated?	☒ YES ☐ NO	If no, you cannot make a single environmental authority application as you do not meet the definition of a single integrated operation. All ERAs must be operationally interrelated. For example if a water treatment ERA and a chemical storage ERA is applied for, 1 ERA must be dependent on the other i.e. the operation of 1 cannot function without the operation of the other. Separate applications will need to be made for the ERAs that cannot be carried out as a single integrated operation.
Is this application for a new ERA which will form part of an ERA project under existing environmental authority?	☐ YES ☒ NO	If yes, you cannot make an environmental authority application for additional ERAs proposed to be carried out as a part of a project. You can apply to amend the existing environmental authority to add a new ERA to the ERA project.
Section 3		
Is this application for a resource activity where an application for relevant resource tenure has not yet been made?	☐ YES ☒ NO	If yes, an application for relevant resource tenure must be made before, or at the same time as, the application for an environmental authority.
Is this application for a resource activity where the applicants will not be exactly the same as the applicants for the relevant resource tenure application?	☐ YES ☒ NO	If yes, you cannot make an environmental authority application. To make an environmental authority application, the applicants must be exactly the same between the environmental authority application and the application for resource tenure.
Is this application for a CSG activity where the water management system contains an evaporation dam and a feasible alternative for managing waster is possible?	☐ YES ☒ NO	You cannot make an environmental authority application unless an evaluation of the water management system demonstrates that there is no feasible alterative to a CSG evaporation dam.

Definitions of terms used in this form

Where there is inconsistency between the definition of terms here and the terms used in the EP Act or the SCL Act, the terms in the EP Act and the SCL Act apply.

Environmentally relevant activity (ERA)	A resource activity or a prescribed ERA
ERA project	A prescribed ERA project or a resource project.
Management area	The management area for SCL is what is left of the combined area of all zones, after taking from the combined area, all protection areas. The protection and management area map is available on the Department of Natural Resources and Mines (DNRM) website at **www.dnrm.qld.gov.au**.
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 1 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.
Protection area	A protection area for SCL is an area shown as a protection area on the protection area map. Protection area maps are available on the DNRM website at **www.dnrm.qld.gov.au**.
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.
Registry record (SCL)	A record kept by the land registrar of land that is SCL or decided non-SCL. A search of the land registry the registrar keeps will show the record.

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.
SCL compliance certificate	The certificate given by the chief executive (Department of Agriculture, Fisheries and Forestry (DAFF)) to applicants who comply with the application requirements for a SCL compliance certificate. Recipients of a compliance certificate must comply with the relevant part of the SCL standard conditions code for resource activities. The conditions under the standard conditions code are taken to be conditions of the environmental authority or resource authority.
SCL protection decision	The decision made by the chief executive (DAFF) in relation to a SCL protection decision application. It provides for the chief executive (DAFF) to decide the impact of the resource activity on the land; and whether or not to impose conditions on either or both of the environmental authority or resource authority for the resource activity.
Significant project	A project declared under section 26 of the *State Development and Public Works Act 1971* to be a significant project.
Single integrated operation	Occurs when all the below criteria is 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 1 or more places (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.
Standard conditions code	The code made by regulation about how resource activities may be carried out on SCL or potential SCL.
Validation information notice	An information notice for SCL provided to an applicant for a validation decision or any other eligible person for the land about the validation decision (cropping history and/or zonal criteria applications).

GUIDE

Take particular care in filling out the applicant details as these are legally required for the issuing of any environmental authority. Applicant details, including the name and the address should reflect the details of the person or registered legal entity.

If more space is required for any responses, please attach additional information as a separate page.

A sole applicant is an applicant where there is only 1 person or business applying to obtain an environmental authority.

A principal applicant is the individual or business nominated to act on behalf of joint applicants.

It is particularly important to enter the correct Australian business number (ABN); Australian company number (ACN) of the incorporated company; association number (AN) of the incorporated association; or the title and section of the legislation that gives the statutory corporation its legal status.

If there is an agent acting on behalf of the sole or principal applicant provide details in this section. An agent could be a consultant or a contact for the environmental authority holder.

As statutory documents need to be sent to all applicants, this section can also be used when there are multiple environmental authority holders to nominate an address for statutory documentation to be sent 'care of' to.

Application details

1. Applicant details

SOLE OR PRINCIPAL APPLICANT DETAILS	
INDIVIDUAL OR BUSINESS NAME (INCLUDE TRADING NAME IF RELEVANT) ADANI MINING PTY LTD	
ABN/ACN/AN (IF RELEVANT) CAN 145 455 205	
RESIDENTIAL ADDRESS OR REGISTERED BUSINESS ADDRESS (NOT A POST OFFICE BOX ADDRESS) Level 25, 10 Eagle Street, Brisbane Qld 400	
POSTAL ADDRESS (IF DIFFERENT FROM ABOVE) PO BOX 2569, BRISBANE QLD 4001	
CONTACT PERSON WILLIAM HASELER	
PHONE 07 3223 4800	FACSIMILE N/A
EMAIL WILLIAM.HASELER@ADANI.IN ☒ CROSS IF YOU **DO NOT** WANT TO RECEIVE CORRESPONDENCE VIA EMAIL	

When there is more than 1 applicant complete Attachment 1—Appointment of principal applicant by all joint applicants.

Agent for principal applicant / address for service

The address supplied here will also be used as a service address for sending statutory documents. If blank, statutory documents will be sent to the sole or principal applicant.

INDIVIDUAL OR BUSINESS NAME (INCLUDE TRADING NAME IF RELEVANT)
RESIDENTIAL ADDRESS OR REGISTERED BUSINESS ADDRESS (NOT A POST OFFICE BOX ADDRESS)
POSTAL ADDRESS (IF DIFFERENT FROM ABOVE)

CONTACT PERSON	
PHONE	FACSIMILE
EMAIL ☐ CROSS IF YOU **DO NOT** WANT TO RECEIVE CORRESPONDENCE VIA EMAIL	

All applicants, including joint applicants must include their details in this section.

Once a person or corporation has been registered as a suitable operator for the carrying out of an ERA, no further suitable operator applications need to be made as long as the applicant for the environmental authority matches the name (including ABN/ACN etc, if applicable) recorded on the suitable operator register.

A person who holds a valid registration certificate given under the former section 73F of the EP Act or a valid environmental authority given under the former chapter 5 or 5A of the EP Act is taken to be a registered suitable operator under section 705 of the EP Act.

If you have previously been approved as a registered suitable operator, you can find the suitable operator registration number on the decision notice advising you of your approved application or, if you have a valid existing registration certificate, the approval number listed on the registration certificate.

2. Registered suitable operator

Have all applicants been registered as a suitable operator? Tick the box that applies and provide any further requested detail.

APPLICANT NAME	SUITABLE OPERATOR REGISTRATION STATUS	SUITABLE OPERATOR REGISTRATION NUMBER
ADANI MINING PTY LTD	☒ I am a registered suitable operator. You must provide your suitable operator registration number in the adjacent column. ☐ I have lodged an application to be registered suitable operator and am waiting for it to be decided ☐ I am not an existing registered suitable operator and I have not yet lodged an application to become a registered suitable operator. You must complete the application form in Attachment 2 and submit it with this site-specific application for an environmental authority. Attachment 2 must be completed in full, otherwise this site-specific application for an environmental authority may be rejected as incomplete.	649121

Note: If you will be lodging the suitable operator application form in Attachment 2,

please lodge it concurrently with this application and to the same lodgement location i.e. Department of Environment and Heritage Protection, Department of Natural Resources and Mines or the Department of Agriculture, Fisheries and Forestry.

3. Location where the ERA will be carried out

For an ERA that will be carried out at a fixed location, fill in the table below.

STREET NUMBER	STREET NAME	SUBURB/TOWN
POSTCODE	LOT/PLAN(S) LOT 1 SP164918, LOT 5091 PH1882, LOT 662, PH1491, LOT 1, AY35, LOT 633 SP228220	
PORT		

For a mobile and temporary prescribed ERA, provide details of the area of operation in the table below.

AREA OF OPERATION E.G. PARTICULAR LOCAL GOVERNMENTS OR ACROSS THE STATE OF QLD
ISAAC REGIONAL COUNCIL
CHARTERS TOWERS REGIONAL COUNCIL

4. Matters of national environmental significance

Is the proposed ERA/ERA project likely to have a significant impact on a matter of national environmental significance?

☒ Yes → please select 1 of the following:

- ☒ the proposed amendment has been referred to the Federal Government Environment Minister or delegate
- ☐ the proposed amendment has not yet been referred to the Federal Government Environment Minister or delegate.

☐ No

There are currently 8 matters of national environmental significance (MNES) which have been defined in the *Environmental Protection and Biodiversity Conservation Act 1999*. These are:

- world heritage properties
- national heritage places
- wetlands of international importance (listed under the Ramsar Convention)
- listed threatened species and ecological communities
- migratory species protected under international agreements
- Commonwealth marine areas
- the Great Barrier Reef Marine Park
- nuclear actions (including uranium mines)

To determine whether the

proposed ERA will have a significant impact on MNES and for referral requirements, please refer to the guidance provided by the Federal Department of Sustainability, Environment, Water, Population and Communities on **www.australia.gov.au**

For information on the type of ERAs, please refer to the business and industry website: **www.business.qld.gov.au**

If a prescribed ERA is required that is directly relates to the operation of the resource activity, and is on the same tenure(s) as the resource activity, then only tick the resource activity box. However if a prescribed ERA is not directly related to the operation of the resource activity, then separate applications for the prescribed ERA and the resource activity must be made.

5. What is the ERA type you are applying for?

☐ Prescribed ERA—this application involves only prescribed ERA activities → go to question 6

☒ Resource activity—this application involves resource activities → go to question 10

Prescribed ERA information

6. Details of the prescribed ERA project

LIST ALL PRESCRIBED ERAS FORMING PART OF THIS APPLICATION		
ERA NUMBER	NAME OF ERA	THRESHOLD

Do any of the above ERAs have eligibility criteria developed that you can comply with?

☐ Yes→ attach details of these ERAs and identify the standard conditions that you can comply with.

☐ No

7. Related approvals

Describe:

- all development permits required, and applied for, under the *Sustainable Planning Act 2009* for the carrying out of the activity

- all approvals required from the Coordinator General under section 84(4)(b) of the *State Development and Public Works Act 1971* for a particular use of land in a State Development Area.

APPROVAL NAME	LEGISLATION	DATE APPLICATION LODGED	APPLICATION NUMBER	APPROVAL STATUS

8. Is your prescribed ERA for regulated waste transport—ERA 57(2)(a), ERA 57(2)(b) or ERA 57(2)(c)?

☐ Yes → you must fill out table below with details of the vehicles used for the regulated waste transport

☐ No → go to question 9

TYPE OF VEHICLE E.G. TANKER, TRUCK	MAKE OF VEHICLE	YEAR OF MANUFACTURE	VEHICLE REGISTRATION NUMBER

9. Take effect date

Do you want the environmental authority to take effect on a nominated date or event?

☐ Yes → nominate the date or event below and then go to question 20

NOMINATED TAKE EFFECT DATE OR EVENT

☐ No → go to question 20

You may choose to nominate a date or event for when the environmental authority will take effect. An event can include a phase of your project you know will occur before you commence operation (for example commissioning of equipment). This take effect date or event will be the date or event from which your annual fees will commence to be charged (your anniversary date).

Where you have nominated a take effect date, you must not commence any activities approved under the environmental authority until the take effect date stated on the environmental authority occurs. If

you nominated an event, you will need to give written notice to the administering authority that the stated event has occurred before you commence your operation.

Resource activity information

You can only include a prescribed ERA if it is integral to the operation of the resource activity.

10. Details of resource activities

LIST ALL RESOURCE ACTIVITIES ASSOCIATED WITH THIS APPLICATION E.G GEMSTONE MINING, GEOTHERMAL ACTIVITIES

MINING BLACK COAL IN ACCORDANCE WITH SCHEDULE 2A, ENVIRONMENTAL PROTECTION REGULATION 2008.

THE CARMICHAEL COAL MINE COMPRISES OF A GREENFIELD COAL MINE WHICH INCLUDES BOTH OPEN CUT AND UNDERGROUND MINING, ON MINE INFRASTRUCTURE AND ASSOCIATED MINE PROCESSING FACILITIES.

SPECIFIC ACTIVITIES INCLUDE STOCKPILING COAL / OVERBURDEN; TAILINGS / SETTLING DAMS; PROCESSING PLANT; TRANSPORT - VEHICULAR HAUL ROAD; TRANSPORT – CONVEYOR; LOADING FACILITIES / RAILWAY; WORKSHOPS / MACHINERY/STORAGE; POWERLINES / AERIALS; WATERWAY DIVERSION; WATER SUPPLY; WATER MANAGEMENT & FLOOD MITIGATION WORKS.

LIST ALL ASSOCIATED PRESCRIBED ERAS INCLUDED WITH THIS RESOURCE ACTIVITY

ERA NUMBER	NAME	THRESHOLD
	SEE ATTACHMENT	

Do any of the resource activities or ancillary prescribed ERAs have eligibility criteria developed that you can comply with?

☐ Yes→ attach details of these ERAs and identify the standard conditions that you can comply with.

☒ No

11. Tenure details

TENURE TYPE	TENURE NUMBER	DATE OF APPLICATION
Mining Lease	70441	November 2010

Mining Lease	70505	July 2013
Mining Lease	70506	July 2013

The Australian and New Zealand Industrial Classification (ANZSIC) is used by the Australian Bureau of Statistics.

The ANZSIC code is required to be displayed in the public register

12. What is the ANZSIC code for the activity?

☒	1101	Black coal mining	☐	1313	Copper ore mining
☐	1102	Brown coal mining	☐	1314	Gold ore mining
☐	1311	Iron ore mining	☐	1315	Mineral sand mining
☐	1312	Bauxite mining	☐	1316	Nickel ore
☐	1317	Silver-lead-zinc ore mining	☐	1200	Oil and Gas extraction
☐	1319	Metal ore mining (other metallic mineral ores)	☐		Other, please specify below

CODE	DESCRIPTION

The SCL trigger map is a statutory map under the *Strategic Cropping Land Act 2011* that identifies the location and extent of SCL and potential SCL. It can be found of the Department of Natural Resources and Mines website at **www.dnrm.qld.gov.au**. The Interactive Resource Tenure Mapping software also includes an SCL map layer.

13. Is there strategic cropping land (SCL) or potential SCL anywhere within the project area covered by the environmental authority?

☐ Yes → go to question 14

☒ No → you do not need to consider SCL any further and can go to question 16

Resource activities include entry on land that is SCL or potential SCL.

If you declare that you will not locate resource activities on SCL or potential SCL and fail to comply with this declaration, compliance action under the *Strategic Cropping Land Act 2011* may result.

Any future applications to amend the environmental authority that results in resource activities being located on SCL or potential SCL will need to meet the requirements of the *Strategic Cropping Land Act 2011*. This may include the need to make an

14. Will any resource activities proposed under this environmental authority application, be located on SCL or potential SCL?

☐ Yes→ go to question 15

☐ No→ by ticking this box I declare that:

(i) this application does not include any resource activities proposed to be conducted directly on SCL or potential SCL, and

(ii) I will not allow the conduct of any resource activities, proposed under this application, directly on SCL or

application under the *Strategic Cropping Land Act 2011* for a SCL assessment.

potential SCL.

You do not need to consider SCL any further.

Go to question 16

Application forms for a SCL compliance certificate and SCL protection decision are available on the Department of Natural Resources and Mines website at **www.dnrm.qld.gov.au**.

You may only apply for a SCL compliance certificate if you can comply with the SCL standard conditions for resource activities (SCL code). The SCL code is available on the Department of Natural Resources and Mines website at **www.dnrm.qld.gov.au**.If you cannot comply with the SCL code, you must apply for a SCL protection decision.

You are required to make a SCL application (compliance certificate or protection decision) for each environmental authority (or amendment to an environmental authority) application that proposes to locate resource activities on SCL or potential SCL. This is the case even where a compliance certificate or protection decision already exists as a result of a previous environmental authority (or amendment to an environmental authority) application.

If you are not required to make a SCL application because you are eligible for exclusion from the *Strategic Cropping Land Act 2011*, you must attach evidence to your application that demonstrates your eligibility. Refer to sections 283 and 284 of the *Strategic Cropping Land Act 2011* for full details.

15. Which SCL assessment process do you choose to undertake?

☐ SCL compliance certificate application→ complete the relevant application form, or provide the application reference if a relevant application has already been lodged.

Application reference:

☐ SCL protection decision application→ complete the relevant application form, or provide the application reference if a relevant application has already been lodged

Application reference:

☐ No SCL application→ I am eligible for exclusion from all of the *Strategic Cropping Land Act 2011* under Chapter 9, Division 2. Supporting evidence has been attached.

A biodiversity offset is required where an applicant has demonstrated they have made all practical and reasonable efforts to avoid and minimise impacts on state significant biodiversity values, but there is a residual development impact on 1 or more of these values

The Queensland Biodiversity Offsets Policy can be accessed at **www.ehp.qld.gov.au**.

16. Biodiversity offsets

Do the activities involve a negative impact to a state significant biodiversity value?

☒ Yes→ attach supporting information that:

- ☒ demonstrates that all practical and reasonable efforts to avoid and minimise impacts on state significant biodiversity values has been undertaken.
- ☒ describes how the requirements of the Queensland Biodiversity Offsets Policy will be met.

☐ No→ go to question 17

☐ Don't know/uncertain→ go to question 17

17. Coal seam gas activities

Does the application relate to coal seam gas (CSG) activities?

☒ No → go to question 19

☐ Yes → additional information covering the matters outlined must be provided and attached:

- ☐ 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 the water including, for example, the use, treatment, storage or disposal of the water
- ☐ the measurable criteria (the 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
  - (iii) the disposal of waste, including, for example, salt, generated from the management of the water
- ☐ the action proposed to be taken if any of the management criteria are not complied with. This will also need to include actions to make sure that the management criteria will be able to be complied with in the future.

18. Coal seam gas evaporation dam

Under section 126(2) of the EP Act the proposed management of the water cannot provide for using a CSG evaporation dam unless the evaluation shows there is no feasible alternative to a CSG evaporation dam for managing the water.

Does the activity propose to use a CSG evaporation dam?

☐ No → go to question 19

☐ Yes → an evaluation of the following must be provided and attached.

- ☐ best practice environmental management for managing

the CSG water

☐ alternative ways for managing the water.

Both the administering authority and the applicant have responsibilities to make the application notice and application documents available on a website during the public notification period. The administering authority will simply link to the location where the applicant will store these documents on their website. Therefore the website details and any access permissions must be provided with this application.

19. Publication of application notice and documents

Provide details of the website where copies of the application notice and application documents will be made available during public notification stage.

Website address:	http://www.adanimining.com/Australia_Mining_Lease_and_Environmental_Authority.aspx

Will the administering authority require any permissions to provide a link to this website from its website?

☐ Yes → provide the contact details of the person who will be able to assist the administering authority in providing a link to this location from its own website

☒ No → go to question 20

Name:	
Contact telephone:	
Email:	

General ERA information

Completion of an EIS process is defined in section 60 of the EP Act.

20. Has an environmental impact statement (EIS) process under Chapter 3 of the EP Act previously been completed for all the proposed ERAs the subject of this application?

☐ Yes → complete the rest of this question

☒ No → go to question 22

Do you consider that the environmental risk for each ERA is the same as the assessment in the EIS?

☐ Yes → provide the title and project name of the EIS and then go to question 21

☐ No → go to question 22

TITLE AND PROJECT NAME OF THE COMPLETED EIS

21. Will this application result in a change to the way any of the ERAs, as described in the EIS, will be carried out?

☐ Yes → attach details of how the this application results in a change to

the way the EIS described the ERAs as being carried out—go to question 26

☐ No → go to question 26

The information provided here will assist the administering authority in deciding whether an EIS is required.

For further information refer to section 142 and 143 of the EP Act as well as the Guideline: Triggers for Environmental Impact Statements under the *Environmental Protection Act 1994* for mining, petroleum and gas activities (EM942). This guideline is available at **www.qld.gov.au**

22. EIS triggers

Tick the relevant boxes below. If yes is ticked, you must describe or attach details of how the criterion is triggered including details of the impact.

Only tick yes to this particular question, if the answer to all three criteria below, is yes. 1. The proposed ERA project is for a mining activity, other than a mining activity carried out for specified works[2]: • below the surface of a wild river high preservation area or wild river special floodplain management area, or • under a nominated waterway in a wild river preservation area. 2. The proposed ERA project is not related to a significant project. 3. An EIS relating has not been submitted under the EP Act for the ERA project.	☐ YES ☒ NO ☐ N/A	
Is the ERA project for a mining activity which involves the removal of two million tonnes/year or more of run-of-mine (ROM)[3] ore or coal?	☒ YES ☐ NO ☐ N/A	
Is the ERA project for a mining activity that involves the removal of 1 million tonnes per year or more of run-of-mine (ROM) ore or coal on or under a floodplain or a	☐ YES ☒ NO ☐ N/A	

[2] Specified works has the meaning as listed in section 48(2) of the *Wild Rivers Act 2005*
[3] ROM ore or coal means the material excavated but prior to washing or chemical concentration. It does not include overburden.

coastal hazard area?		
Is the ERA project for a mining activity that involves the introduction of a novel or unproven resource extraction process, technology or activity[4]?	☐ YES ☒ NO ☐ N/A	
Is the ERA project for a petroleum and gas activity that is likely to have a total disturbance area of greater than 2000 hectares at any 1 time during the life of the proposed project? This includes areas occupied by well pads (single or multi-directional), access tracks and roads, water storages, and process plants?	☐ YES ☒ NO ☐ N/A	
Is the ERA project for a petroleum and gas activity that is likely to involve the construction of a high pressure pipeline over a distance of 300 kilometres or greater?	☐ YES ☒ NO ☐ N/A	
Is the ERA project for a petroleum and gas activity that is likely to involve the construction of a liquefied natural gas plant?	☐ YES ☒ NO ☐ N/A	

For further information on technical information to provide with your application, please refer to the business and industry website **www.business.qld.gov.au**

23. Assessment of the environmental impact and provision of specific supporting information

You must provide an assessment of the likely impact of each ERA on environmental values, including:

- a description of the environmental values likely to be affected by each relevant activity
- details of any emissions or releases likely to be generated by each relevant activity
- a description of the risk and likely magnitude of impacts on the environmental values
- details of the management practices proposed to be implemented to prevent or minimise adverse impacts

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

- details of how the land the subject of the application will be rehabilitated after each relevant activity ceases.

☒ Tick to indicate that an assessment of the environmental impact and provision of specific supporting information has been attached.

For further information on technical information to provide with your application, please refer to the business and industry website **www.business.qld.gov.au**

24. Details of waste management

A description of the proposed measures for minimising and managing waste generated by the ERAs must be attached.

☒ Tick to indicate attachment

25. Details of contaminated land

Is there a site management plan in effect for contaminated land that relates to the land that is the subject of this application.

☐ Yes → attach details of the site management plan

☒ No

The first step towards payment is to calculate the fees payable. Information on these fees can be located in the information sheets Fees for Permits for Environmentally Relevant Activities (ERAs) (EM33) and Summary of Annual Fees for Environmentally Relevant Activities (ERAs) (EM389), available at **www.qld.gov.au**.

The highest annual fee of any activity associated with the ERA project will be the relevant annual fee for this application.

To pay by credit card you will need to provide contact details so you can be contacted for your credit card payment to be made over the phone.

26. Payment of fees

The application fee is:	**$ 551**

If your application is approved the first annual fee must be paid within 20 business days of the environmental authority taking effect. Operation of the ERA cannot commence until the annual fee is paid.

You may pay your fee via cheque, money order or credit card.

Select the payment method below:

☒ Payment by cheque or money order made payable to the Department of Environment and Heritage Protection (attached).

☐ Payment by cheque or money order made payable to the Department of Agriculture, Fisheries and Forestry (attached).

☐ Please contact me (the applicant) for credit card payment:

Phone number:	

Where there is more than 1 applicant, this declaration is to be signed by all applicants, unless a principal applicant has been nominated in Attachment 1, in which case the principal applicant can sign on behalf of all the joint applicants.

Where the sole or principal applicant is a company, this form is to be signed by an authorised person for that company.

Privacy statement

The Departments of Environment and Heritage Protection (EHP) and Agriculture, Fisheries and Forestry (DAFF) are collecting the information on this form to process your application for an environmental authority. This collection is authorised under sections 122 to 126 of the *Environmental Protection Act 1994*. Some information may be given to the Department of Natural Resources and Mines (DNRM) for the purposes of processing this application and/or the administration of the *Strategic Cropping Land Act 2011*. Your personal information will only be accessed by authorised employees within these departments and will not be disclosed to any other parties unless authorised or required by law. For queries about privacy matters please email **privacy@ehp.qld.gov.au** or telephone: (07) 3330 5436.

27. Declaration

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

I declare that:

- I am the applicant or an authorised signatory for the applicant.
- I have identified in questions 6 or 10, any ERAs that I can comply with the eligibility criteria and standard conditions.
- The information provided is true and correct to the best of my knowledge. I understand that it is an offence under section 480 of the *Environmental Protection Act 1994* to give to 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 failure to provide sufficient information may result in the application being refused
- I understand that all information supplied on or with this application form may be disclosed publicly in accordance with the *Right to Information Act 2009* and the *Evidence Act 1977*.
- 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.
- I give permission for the administering authority to provide a link to public notification documents on a website, the location and access requirements of which were provided in question 14.
- I understand that it is an offence under section 227 of the *Strategic Cropping Land Act 2011* to give to an authorised person a document containing information that is false or misleading in a material particular. I consent to and acknowledge that the information provided on this form will be given to authorised persons under the *Strategic Cropping Land Act 2011* in appropriate circumstances in relation to the administration of that Act.

APPLICANT'S NAME ADANI MINING PTY LTD	
SIGNATURE	
POSITION OF SIGNATORY GENERAL COUNSEL	DATE 11 APRIL 2014
JOINT APPLICANT'S NAME (IF APPLICABLE)	JOINT APPLICANT'S SIGNATURE (IF APPLICABLE)

JOINT APPLICANT'S NAME (IF APPLICABLE)	JOINT APPLICANT'S SIGNATURE (IF APPLICABLE)

Applicant checklist

- ☒ Application form has been signed and completed.
- ☐ Attachment 1: Appointment of principal applicant by all joint applicants has been signed and completed (if applicable).
- ☐ Attachment 2: Application to be registered as a suitable operator signed and completed (if applicable).
- ☐ Question 3: Additional details have been attached with a description of land where ERA will be carried out (if required).
- ☐ Question 6: identification of the prescribed ERAs where eligibility criteria and standard conditions can be met, have been attached (if applicable).
- ☒ Question 10: identification of the resource activities and ancillary prescribed ERAs where eligibility criteria and standard conditions can be met, have been attached (if applicable)
- ☐ Question 15: Supporting evidence of exclusion from meeting the requirements of the *Strategic Cropping Land Act 2011* has been attached (if applicable).
- ☒ Question 16: Supporting information for biodiversity offsets (if applicable).
- ☐ Question 17: Details of CSG water management attached (if applicable).
- ☐ Question 18: Evaluation of CSG evaporation dam attached (if applicable).
- ☐ Question 21: Details of how this application results in a change to the way the EIS described the ERAs as being carried out (if applicable).
- ☐ Question 22: Information provided on EIS triggers and details of impact attached (if applicable).
- ☒ Question 23: Information for assessment of environmental impacts attached (if applicable).
- ☒ Question 24: Details of waste management attached (if applicable).
- ☐ Question 25: Details of contaminated land attached (if applicable).
- ☒ Fees paid or enclosed.

All requested information must be provided with this application, otherwise it will not be considered properly made under section 127 of the EP Act and assessment cannot commence.

Please include a word searchable electronic PDF copy of the application documents when you lodge your application.

Further information

The latest version of this publication and other publications referenced in this document can be found at **www.qld.gov.au** using the publication number (EM755 for this document) as a search term.

Please submit your completed application kit to:

For a mining ERA

Mining Registrar
Department of Natural Resources and Mines
DNRM have a list of office locations for mining registrars on their website
www.dnrm.qld.gov.au

For ERA 2, ERA 3 or ERA 4

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

Enquiries:
Phone: (07) 4688 1374
Fax: (07) 4688 1192
Email:
livestockregulator@daff.qld.gov.au

For all other ERAs

Post:
Department of Environment and Heritage Protection
GPO Box 2454
BRISBANE QLD 4001

Courier or hand delivery:
Permit and Licence Management
Department of Environment and Heritage Protection
Level 3, 400 George Street
BRISBANE QLD 4000
Business hours: 8:30am–4:30pm business days

Enquiries:
Permit and Licence Management
Phone: 13 QGOV (13 74 68)
Fax: (07) 3330 5875
Email: **palm@ehp.qld.gov.au**

Attachment 1

Appointment of principal applicant by all joint applicants

We, being joint applicants for this environmental authority, hereby nominate the following as principal applicant:

Printed name of principal applicant

Name / Company		ABN/ACN/AN
Signatory name and position	Signature	Date

Name / Company		ABN/ACN/AN
Signatory name and position	Signature	Date

Name / Company		ABN/ACN/AN
Signatory name and position	Signature	Date

Name / Company		ABN/ACN/AN
Signatory name and position	Signature	Date

Name / Company		ABN/ACN/AN
Signatory name and position	Signature	Date

Name / Company		ABN/ACN/AN
Signatory name and position	Signature	Date

Attachment 2

Application form—application to be a registered suitable operator

THIS PAGE IS INTENTIONALLY LEFT BLANK

Application form

Environmental Protection Act 1994

Application to be a registered suitable operator

This approved form is to be used to apply to become a suitable operator under section 318F of the Environmental Protection Act 1994 *(EP Act) for the carrying out of an environmentally relevant activity (ERA).*

To obtain an environmental authority for an ERA you must first apply to be a registered suitable operator. To obtain registration you will need to apply either:

- At the same time as applying for an environmental authority, or
- In advance, at any time before applying for an environmental authority.

Applicant details

INDIVIDUAL OR BUSINESS NAME (INCLUDE TRADING NAME IF RELEVANT)	
ABN/ACN/AN (IF RELEVANT)	
RESIDENTIAL ADDRESS OR REGISTERED BUSINESS ADDRESS (NOT A POST OFFICE BOX ADDRESS)	
POSTAL ADDRESS (IF DIFFERENT FROM ABOVE)	
PHONE	FACSIMILE
EMAIL	
CONTACT PERSON FOR APPLICANT (IF APPLICANT IS A BUSINESS)	

Applicant suitability criteria

Applicants must complete Table 1.

When completing Part A of Table 1:

- If the applicant is a corporation, the questions must be answered for all of the corporation's executive officers and any other corporations of which the executive officers are, or have been, an executive officer.

- If the applicant is not a corporation, the questions must be answered for the applicant as well as any other person with whom the applicant is a partner e.g. business partners[1] of an environmental authority.

When completing Part A and Part B of Table 1, the applicant must indicate if the event occurred either to them individually or to a company or business in which they currently hold, or have held a position of management or control, when the event occurred.

Table 1: Suitability criteria

Applicant suitability criteria		**Detail[2]**
PART A		
Have you ever been **convicted of an environmental offence** under the *Environment Protection Act 1994* or a corresponding law (whether in Queensland or elsewhere)?	☐ YES ☐ NO	
Have you ever had an environmental authority, instrument, licence or permit, however called, **cancelled or suspended** (whether in Queensland or elsewhere)?	☐ YES ☐ NO	
Have you ever had a suitable operator registration or similar registration, however called, **cancelled or suspended** under the *Environment Protection Act 1994* or a corresponding law (whether in Queensland or elsewhere)?	☐ YES ☐ NO	

[1] If an application for an environmental authority is made and both partners are named as applicants for the environmental authority, both must make separate applications to become a suitable operator.

[2] If yes is ticked, you must provide complete details (including the state/territory/country in which the event occurred, the relevant legislation, location of offence or incident, date of offence or incident, amount of fine, facts and circumstances surrounding the offence or incident, details of relevant persons involved including name and positions, name of court, court reference number etc) in an attachment. You may also attach any submission you want the chief executive to consider in assessing this information, which will be used in deciding whether you are a suitable operator.
A 'relevant person' is either the applicant or any person with whom the applicant is a partner or, if a corporation, any of the corporation's executive officers.

Applicant suitability criteria	**Detail**[2]	
PART B		
Have you ever received any of the following under the *Environment Protection Act 1994*: • a penalty infringement notice • an environmental protection order • an enforcement order • a notice requiring a transitional environmental program • a notice to conduct or commission an environmental audit • a notice to conduct or commission an environmental investigation • a direction notice • a clean up notice • a cost recovery notice • a restraint order • another compliance action which is not stated above?	☐ YES ☐ NO	
Have you ever had a suitable operator registration or similar registration, however called, **refused** under the *Environment Protection Act 1994* or a corresponding law (in Queensland or elsewhere)?	☐ YES ☐ NO	

If additional space is needed to provide the required detail, please attach the information as an attachment to this application form.

If any of the 'yes' boxes in Table 1 are ticked, the chief executive may decide to obtain a suitability report from an administering authority of another state under a corresponding law or the commissioner of the police service.

Your application will be decided within 10 business days of the chief executive receiving the application unless any of the 'yes' boxes in Table 1 are ticked and the chief executive has decided to obtain a suitability report under section 318R of the *Environmental Protection Act 1994*. If a suitability report is required, your application will be decided within 20 business days after the chief executive has received the application.

Applicant's certification

- I declare that the information provided is true and correct to the best of my knowledge. I understand that it is an offence under section 480 of the *Environmental Protection Act 1994* to give to the chief executive or an authorised person, a document containing information that I know is false, misleading or incomplete in a material particular.
- I understand that all information supplied on or with this application form may be disclosed publicly in accordance with the *Right to Information Act 2009* and the *Evidence Act 1977*.
- I will comply with all conditions on any environmental authority obtained as well as any relevant provision in the *Environmental Protection Act 1994.*
- I understand that an incomplete application may be invalid. Invalid applications will be returned without processing and will only be processed if resubmitted with all invalidating issues addressed.
- I understand that the register of suitable operators will be publicly available.

APPLICANT'S NAME	
SIGNATURE	
POSITION OF SIGNATORY	DATE

Applicant checklist

☐ Application form for a registered suitable operator has been signed and completed

☐ Additional details to support applicant's suitability criteria have been attached (if applicable)

Please return your completed application kit to:

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

Courier or hand delivery:
Permit and Licence Management
Department of Environment and Heritage Protection
Level 3, 400 George Street
BRISBANE QLD 4000
Hours: 8.30am–4.30pm business days

Enquiries:
Permit and Licence Management
Phone: 13 QGOV (13 74 68)
Fax: (07) 3330 5875
Email: **palm@ehp.qld.gov.au**

Note: If you are making this application at the same time as another environmentally relevant activity application process (e.g. an application for an environmental authority or a transfer application), please lodge this form to the same location as you are required to lodge the application form for that process. This may either be to the Department of Environmental and Heritage Protection, the Department of Natural Resources and Mines or the Department of Agriculture, Fisheries and Forestry.

Privacy statement

The Department of Environment and Heritage Protection (the department) is committed to protecting the privacy, accuracy and security of your personal information in accordance with the *Information Privacy Act 2009*. The department is collecting your personal information to determine your suitability as a registered operator under section 318F of the *Environmental Protection Act 1994*. Some of this information may be given to the Department of Natural Resources and Mines for the purpose of the joint regulation of mining activities. If your application is approved your name, address and ABN/ACN/AN will be disclosed on the Register of Suitable Operators which will be publicly available on the department's website. This disclosure is authorised by section 318I(1)(b) of the *Environmental Protection Act 1994*. All other information will not be given to any other person or agency unless you have given us permission or we are authorised or required by law. All information supplied on this form may be disclosed publicly in accordance with the *Right to Information Act 2009* and *Evidence Act 1977*. For queries about privacy matters email: **privacy@ehp.qld.gov.au** or telephone: (07) 3330 5436.

ATTACHMENT

QUESTION 10 – ASSOCIATED PRESCRIBED ERAS INCLUDED WITH THIS RESOURCE ACTIVITY

ERA NUMBER	NAME	THRESHOLD
Schedule 2A, *Environmental Protection Regulation 2008*	Mining black coal	In accordance with schedule 2A, *Environmental Protection Regulation 2008*
8(1)(d)(i)	Chemical storage	Storing the following total quantity of other chemicals in containers of at least $10m^3$— 200 tonnes or more, if they are solids or gases.
8(1)(d)(ii)	Chemical storage	Storing the following total quantity of other chemicals in containers of at least $10m^3$— $200m^3$ or more, if they are liquids.
16(1)(b)	Extractive and Screening Activities	Extracting, other than by dredging, a total of 5000t or more of material, in a year, from an area.
31(2)(b)	Mineral Processing	Mineral processing consists of processing, in a year, more than 100,000t of mineral products.
56(1)	Regulated waste storage	Operating a facility for receiving and storing regulated waste for more than 24 hours.
63(1)(a)	Sewage Treatment	Operating 1 or more sewage treatment works at a site that have a total daily peak design capacity of at least 21EP

QUESTION 16 – BIODIVERSITY OFFSETS

Please find attached the *Environmental Offset Package for the Carmichael Coal Mine and Rail Project*, from page 3 onwards of this attachment.

QUESTION 23 – ASSESSMENT OF THE ENVRIONEMTNAL IMPACT AND SPECIFIC SUPPORTING INFORMATION

The environmental authority application is supported by information contained in the following statements provided to the Department of Environment and Heritage Protection:

- Carmichael Coal Mine and Rail Project – Environmental Impact Statement (December 2012); and
- Carmichael Coal Mine and Rail Project – Additional information to the Environmental Impact Statement (November 2013).

These documents have been made available on Adani's website since lodgement (http://www.adanimining.com/environment_eis).

QUESTION 24 – DETAILS OF WASTE MANAGEMENT

See Carmichael Coal Mine and Rail Project Supplementary Environmental Impact Statement (November 2013) documents:

- Volume 4, Appendix O1 (Mine Waste Characterisation Report) located at

  http://www.adanimining.com/SEIS_PDFDocs_Details.aspx?SecId=61&RepId=165

- Volume 4, Appendix O2 (Mine Waste Management Strategy) located at

  http://www.adanimining.com/SEIS_PDFDocs_Details.aspx?SecId=62&RepId=166

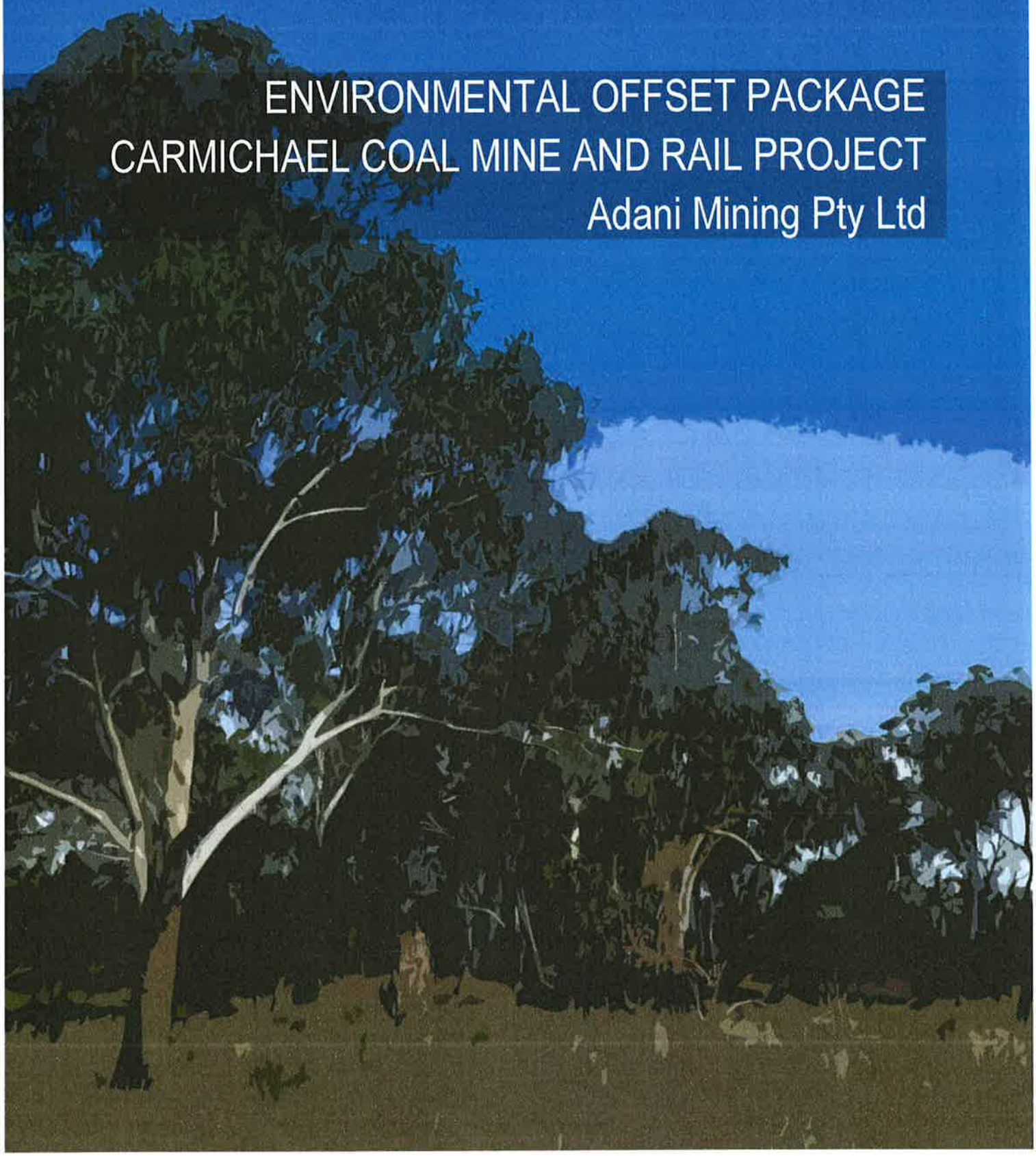
See also the Carmichael Coal Mine and Rail Project Environmental Impact Statement (December 2012) document:

- Volume 2, Chapter 10 (Mine Waste) located at

  http://www.adanimining.com/EIS_PDFDocs_Details.aspx?SecId=5&RepId=36

ecofund
Part of the CO2 Group

ENVIRONMENTAL OFFSET PACKAGE
CARMICHAEL COAL MINE AND RAIL PROJECT
Adani Mining Pty Ltd



ecofund
Part of the CO2 Group

REPORT TITLE:	Environmental Offset Package for the Carmichael Coal Mine and Rail Project
PREPARED FOR:	Adani Mining Pty Ltd
PREPRARED BY:	Tara D'arcy-Evans Christopher Ewing Kate McBean
APPROVED BY:	Rebecca Enright, Senior Manager Environmental Services
VERSION:	Revision 9 - 21 March 2014

ecofund
Part of the CO2 Group

IMPORTANT NOTICE

COMMERCIAL IN CONFIDENCE

This document has been prepared by CO2 Australia Limited ABN 81 102 990 803 (CO2) in conjunction with, and based on information provided by, Adani Mining Pty Ltd (Adani or the Client).

This document is provided expressly subject to the terms of the Service Order (Ref: 5700070667) between CO2 and the Client dated 6 July 2012 ('Engagement Agreement').

This advice is for the sole benefit of the Client. The information and opinions contained in this document are strictly confidential. Accordingly, the contents of this document or opinions subsequently supplied will constitute confidential information and may not, without the written consent of CO2, be published, reproduced, copied or disclosed to any person (other than your advisors having a need to know and who are aware that it is confidential), nor used for any purpose other than in connection with its intended use.

DISCLAIMER

The information in this document has not been independently verified as to its accuracy or completeness. This document is based on the information available at the time of preparation as well as certain assumptions.

No representation or warranty, express or implied, is given by CO2 or any of its directors, officers, affiliates, employees, advisers or agents (and any warranty expressed or implied by statute is hereby excluded (to the extent permitted by law)) as to the accuracy or completeness of the contents of this document or any other information supplied, or which may be supplied at any time or any opinions or projections expressed herein or therein, nor is any such party under any obligation to update this document or correct any inaccuracies or omissions in it which may exist or become apparent.

To the extent permitted by law, CO2 limits its liability in accordance with the terms of the Engagement Agreement.

Subject to the terms of the Engagement Agreement, no responsibility or liability is accepted for any loss or damage howsoever arising that you may suffer as a result of this document or reliance on the contents of this document and any and all responsibility and liability is expressly disclaimed (to the extent permitted by law) by CO2 and any of its respective directors, partners, officers, affiliates, employees, advisers or agents.

FORWARD LOOKING STATEMENTS

This document contains forward looking statements. Forward looking statements are statements that do not represent historical facts and may be based on underlying assumptions. These forward looking statements should not be relied upon as representing CO2's views as of any subsequent date, and CO2 is under no obligation to, and expressly disclaims any responsibility to, alter its forward-looking statements, whether as a result of new information, future events or otherwise.

MARKETING

If, in any document or other communication to be made public or disclosed to a government agency, the Client wishes to make reference to the use of CO2's services, CO2's consent must first be obtained, and this will not unreasonably be withheld.

MAPS

The maps in this document are based on or contain data that has been provided by the State which gives no warranty in relation to the data (including accuracy, reliability, completeness or suitability) and accepts no liability (including without limitation, liability in negligence) for any loss, damage or costs (including consequential damage) relating to any use of the data.

ecofund
Part of the CO2 Group

TABLE OF CONTENTS

ecofund
Part of the CO2 Group

LIST OF FIGURES

ecofund
Part of the CO2 Group

LIST OF TABLES

EXECUTIVE SUMMARY

Adani Mining Pty Ltd (Adani) is the proponent for the Carmichael Coal Mine and Rail project (the project). The project is an integrated, thermal coal mine located in the northern Galilee Basin approximately 160 kilometres north-west of Clermont, Queensland. Sixty million tonnes of product coal per annum will be transported by rail from the mine to the existing Goonyella and Newlands rail systems, operated by Aurizon Operations Limited. The coal will be exported via the Port of Hay Point and the Port of Abbot Point over the 60 year mine life[1]. Project components are as follows:

- Mine: a greenfield coal mine over EPC 1690 and the eastern portion of EPC 1080, which includes both open cut and underground mining, onsite mine infrastructure, associated mine processing facilities and offsite mine infrastructure including a workers accommodation village with associated facilities, a permanent airport site, an industrial area and water supply infrastructure
- Rail: a 95 m wide and 189 km long greenfield rail line connecting the mine to the existing Goonyella and Newlands rail systems. Temporary infrastructure areas and a construction camp are also required during the rail construction phase. The rail component includes:
    - Rail (west): a 120 km dual gauge portion running west from the mine site east to Diamond Creek
    - Rail (east): a 69 km narrow gauge portion running east from Diamond Creek connecting to the Goonyella rail system south of Moranbah.
- Quarries: five local quarries to extract quarry materials for construction and operational purposes.

The project was declared a 'significant project' under the *State Development and Public Works Organisation Act 1971* (Qld; SDPWO Act), which triggered the requirement for an environmental impact statement (EIS). The EIS process was accredited by the Australian Government, under its bilateral agreement with the Queensland Government, to be conducted under the SDPWO Act. The project was also designated as a 'controlled action' under the *Environment Protection and Biodiversity Conservation Act 1999* (Cwlth; EPBC Act), requiring assessment and approval under the EPBC Act.

Adani subsequently prepared an EIS (submitted in December 2012) in accordance with the terms of reference issued by the Queensland Coordinator-General in May 2011 (Queensland Government, 2011). The EIS process is managed under section 26(1) (a) of the SDPWO Act, which is administered by the Queensland Government's Department of State Development, Infrastructure and Planning (DSDIP). The EIS assessed the environmental, social and economic impacts associated with the development and operation of the project and identified strategies to avoid and mitigate potentially adverse impacts. Environmental impacts that cannot be reasonably avoided or mitigated (i.e. residual impacts) are required to be offset in accordance with Australian and Queensland Government offset policies.

An Environmental Offset Strategy for the Carmichael Coal Mine and Rail project (the offset strategy), prepared by Ecofund Queensland Pty Ltd (Ecofund), was submitted as a component of the EIS (Ecofund, 2012). The offset strategy:

- reviewed and confirmed the initial residual impacts on environmental values
- identified offset requirements under relevant Australian and Queensland Government policies
- provided an overview of potential offset areas and delivery methods.

In August 2013 Adani submitted the project's supplementary EIS (SEIS), which included a comprehensive Environmental Offset Package for the Carmichael Coal and Rail Project (the offset package), to the Queensland and Australian Governments. The offset package was based on updated project information and addressed stakeholder submissions raised with reference to the EIS. Specifically, the offset package:

- presented the legislative framework for offsets applicable to the project

[1] Listed as 90 years in the EIS (GHD, 2012)

- refined and confirmed the residual impacts of the project that will require offsets
- provided specific solutions for acquitting the project's offset requirements through a combination of direct offsets, indirect offsets (or compensatory measures) and offset payments (as applicable)
- identified the preferred offset package for acquitting the project's offset requirements

Following a review of the SEIS, the Queensland Government requested Adani to revise project impact calculations due to the uncertainty of how subsidence associated with underground mining activities will impact state significant biodiversity values (SSBV). In addition, the Queensland Government advised Adani that vegetation identified as remnant, as defined by the *Vegetation Management Act 1999* (Qld), is acceptable to acquit project offset requirements for SSBV. The Australian Government has also requested that Adani provide additional information about the potential to deliver offsets for impacts on matters of national environmental significance (MNES), including providing greater certainty that commensurate offsets are available and can be delivered, particularly for the black-throated finch (*Poephila cincta cincta)*.

This Environmental Offset Package for the Carmichael Coal Mine and Rail Project (the offset package) addresses the Australian Government and the Queensland Government advice and request for information. Based on data provided by GHD Pty Ltd (GHD), Ecofund identified 48 environmental values that will be affected by the project's residual impacts, including 27 threatened fauna species, one threatened flora species, one threatened ecological community, listed regional ecosystems as well as habitat connectivity, watercourses and wetlands. Three environmental values listed as MNES are expected to be significantly[2] affected by residual project impacts (i.e. Brigalow TEC, black-throated finch and waxy cabbage palm).

The preferred offset package was identified through a process that included a strategic desktop assessment, spatial analysis and consultation with Adani. The preferred offset package consists of five properties that together are expected to acquit the offset requirements for 47 of the 48 environmental values impacted by residual project impacts. While Adani's preference is to offset impacts using direct offsets, one value may not be offset through direct offsets – wetland protection areas (WPA). The lack of suitable direct offsets for WPA is likely a result of limitations of the desktop analysis. Adani will conduct detailed surveys of the proposed offset properties to ascertain if suitable offset areas for WPA exist.

As part of the implementation of the offset package, Adani will conduct landholder engagement and ecological surveys to confirm the suitability of the preferred offset package. Subsequently, Adani will refine the offset package to reflect landholder participation and the results of the ecological surveys. Should the preferred offset package no longer acquit Adani's offset requirements, the refined offset package will further evalute offset payments and/or indirect offsets. Offset payments and indirect offsets are likely to contribute to species-specific management plans and targeted recovery actions.

Adani proposes to offset MNES significantly affected by residual project actions as well as SSBV that will be adversely impacted by on-site vegetation clearing, off-site vegetation clearing and high impact subsidence. In order to identify areas of high impact subsidence, Adani has undertaken a comprehensive assessment that involved modelling the cumulative impacts of a combination of subsidence, cracking and ponding.

Once the Australian and Queensland Governments endorse this offset package, it will be implemented in a staged approach to correspond with the sequential development of coal extraction over the production life of the mine.

[2] Based on GHD's application of the *Environment Protection and Biodiversity Conservation Act 1999* Matters of National Environmental Significance Significant Impact Guidelines 1.1

ABBREVIATIONS AND ACRONYMS

BRB	Brigalow Belt Bioregion
BVG	broad vegetation group
CAMBA	Agreement Between the Government of Australia and the Government of the People's Republic of China for the Protection of Migratory Birds and their Environment
DEHP	Department of Environment and Heritage Protection (Qld)
DERM	former Department of Environment and Resource Management (Qld)
DoTE	Department of the Environment (Cwlth)
DSDIP	Department of State Development, Infrastructure and Planning (Qld)
DUB	Desert Uplands Bioregion
EEM guideline	Ecological Equivalence Methodology Guideline Policy for Vegetation Management Offsets Queensland Biodiversity Offset Policy Version 1 3 October 2011
EIS	environmental impact statement
EMP	environmental management plan
EPBC Act	*Environment Protection and Biodiversity Conservation Act 1999* (Cwlth)
EPBC Act Environmental Offsets Policy	*Environment Protection and Biodiversity Conservation Act 1999* Environmental Offsets Policy October 2012
EPC	permit for exploration of coal
FPC	foliage projective cover
GBOS	Galilee Basin Offset Strategy (Qld)
HVR	high value regrowth
JAMBA	Agreement Between the Government of Australia and the Government of Japan for the Protection of Migratory Birds and Birds in Danger of Extinction and their Environment
MIA	mine infrastructure area
MNES	matters of national environmental significance
NC Act	*Nature Conservation Act 1992* (Qld)

OAMP	offset area management plan
the offsets assessment guide	EPBC Act Offsets Assessment Guide
the offset package	Environmental Offset Package for the Carmichael Coal and Rail Project (this report)
the offset strategy	Environmental Offset Strategy for the Carmichael Coal Mine and Rail Project (Ecofund, 2012)
the project	Carmichael Coal Mine and Rail Project
PVMO	Policy for Vegetation Management Offset Version 3 2011 (Qld)
QBOP	Queensland Biodiversity Offset Policy Version 1 2011
QGEOP	Queensland Government Environmental Offset Policy 2008
RE	regional ecosystem
SDPWO Act	*State Development and Public Works Organisation Act 1971* (Qld)
SEWPaC	former Department of Sustainability, Environment, Water, Population and Communities.
SEIS	supplementary environmental impact statement
Signigicant Impact Guidelines	*Environment Protection and Biodiversity Conservation Act 1999* Matters of National Environmental Significance Significant Impact Guidelines 1.1(DoTE, 2013)
SMP	draft Subsidence Management Plan for the Carmichael Coal and Rail Project (Adani, 2013)
SSBV	state significant biodiversity values
TEC	threatened ecological community
ToR	terms of reference
VM Act	*Vegetation Management Act 1999* (Qld)
WPA	wetland protection areas

1. INTRODUCTION

1.1. PROJECT DESCRIPTION

Adani Mining Pty Ltd (Adani) is the proponent for the Carmichael Coal Mine and Rail project (the project; **Figure 1**). The project is an integrated, thermal coal mine located in the northern Galilee Basin approximately 160 kilometres north west of Clermont, Queensland. Sixty million tonnes of product coal per annum will be transported by rail from the mine to the existing Goonyella and Newlands rail systems, operated by Aurizon Operations Limited. The coal will be exported via the Port of Hay Point and the Port of Abbot Point over the 60 year mine life[3]. Project components are as follows:

- Mine: a greenfield coal mine over EPC 1690 and the eastern portion of EPC 1080, which includes open cut and underground mining, onsite mine infrastructure, associated mine processing facilities and the mine offsite infrastructure which includes a workers accommodation village and associated facilities, a permanent airport site, an industrial area and water supply infrastructure.
- Rail: a 95 m wide and 189 km long greenfield rail line connecting the mine to the existing Goonyella and Newlands rail systems. Temporary infrastructure areas and a construction camp are also required during the rail construction phase. The rail component includes:
    - Rail (west): a 120 km dual gauge portion running west from the mine site east to Diamond Creek
    - Rail (east): a 69 km narrow gauge portion running east from Diamond Creek connecting to the Goonyella rail system south of Moranbah.
- Quarries: five local quarries to extract quarry materials for construction and operational purposes.

The development of the open cut, underground and overburden disposal areas will begin during construction and continue through the operation phase following the establishment of the mine infrastructure area (MIA) and off-site infrastructure. The proposed project area spans the boundary between the Desert Uplands and Brigalow Belt Bioregions and currently supports stock grazing and agriculture (GHD, 2010).

1.2. APPROVAL PROCESS

In November 2010, the project was declared a 'significant project' under the *State Development and Public Works Organisation Act 1971* (Qld; SDPWO Act), which triggered the requirement for an environmental impact statement (EIS). In January 2011, the project was also designated a 'controlled action' under the *Environment Protection and Biodiversity Conservation Act 1999* (Cwlth; EPBC Act), requiring assessment and approval under the EPBC Act. The EIS process was accredited by the Australian Government, under its bilateral agreement with the Queensland Government, to be conducted under the SDPWO Act.

Adani subsequently prepared an EIS in accordance with the terms of reference (ToR) issued by the Queensland Coordinator-General in May 2011 (DSDIP, 2011). The EIS process is managed under section 26(1) (a) of SDPWO Act, which is administered by the Queensland Government's Department of State Development, Infrastructure and Planning (DSDIP).

The EIS, submitted in December 2012, assessed the environmental, social and economic impacts associated with the development and operation of the project and identified strategies to avoid and mitigate potentially adverse impacts. Environmental offsets are required in accordance with Australian and Queensland Government offset policies to counterbalance the project impacts that cannot be reasonably avoided or mitigated (i.e. residual impacts).

The Environmental Offset Strategy for the Carmichael Coal Mine and Rail Project (the offset strategy; Ecofund, 2012) was submitted as a component of the EIS. The offset strategy identified the residual impacts on environmental values,

[3] Listed as 90 years in the EIS (GHD, 2012)

the offset requirements under relevant Queensland and Australian Government policies and provided an overview of potential offset areas and delivery methods. Moray Downs, an 116,528 ha Adani-owned property was assessed as part of the offset strategy as a priority offset area to acquit the project's offset requirements. The strategy identified sufficient availability of potential offset areas, including Moray Downs, to fulfil the majority of the Queensland and Australian Government offset requirements. The strategy also advised that the delivery of direct offsets would require securing land across multiple lots to compensate for the environmental values affected by the project.

Subsequently, Ecofund prepared the initial Environmental Offset Package for the Carmichael Coal Mine and Rail Project (the offset package; Ecofund, 2013), which detailed Adani's preferred approach to acquitting the offset requirements of the project. In August 2013, Adani submitted the supplementary environmental impact assessment (SEIS) for the project, including the offset package, to the Queensland and Australian Governments. Following its review the Queensland Government requested Adani revise project impact calculations due to the uncertainty of how subsidence associated with underground mining activities will impact state significant biodiversity values (SSBV). In addition, the Queensland Government advised Adani that vegetation identified as remnant, as defined by the *Vegetation Management Act 1999* (Qld; VM Act), is acceptable to acquit project offset requirements for SSBV. The Australian Government has also requested that Adani provide additional information about the potential to deliver offsets for impacts on matters of national environmental significance (MNES), including providing greater certainty that commensurate offsets are available and can be delivered, particularly for the black-throated finch (*Poephila cincta cincta*).

1.3. HISTORY OF CHANGES TO RESIDUAL IMPACTS

This section outlines the progression in the residual impact calculation process from the offset strategy (Ecofund, 2012; submitted as part of the EIS) through to the previous version of the offset package (submitted as part of the SEIS) and finally, this current version of the offset package.

The offset strategy identified 42 environmental values expected to be affected by the project's residual impacts, including 15 threatened fauna species, one threatened flora species, one threatened ecological community, listed regional ecosystems as well as habitat connectivity, watercourses and wetlands.

The offset package (Ecofund, 2013) submitted as part of the SEIS was based on revised and updated information about the project's impacts. This included updated technical reports detailing the existing environmental values within the project site and the potential impacts and mitigation measures. The offset package identified 41 environmental values expected to be impacted by residual project impacts, including 15 threatened fauna species, one threatened flora species, listed regional ecosystems as well as habitat connectivity, watercourses and wetlands.

In this version of the offset package, residual impacts are based on a refined project footprint broken down into stages in order to produce a finer scale calculation of impacts. The calculation of residual impacts has also taken into account the revised project impact calculations due to the uncertainty of how subsidence associated with underground mining activities will impact state SSBV. As a result, a total of 48 environmental values are expected to be impacted by residual project impacts.

1.4. REPORT PURPOSE

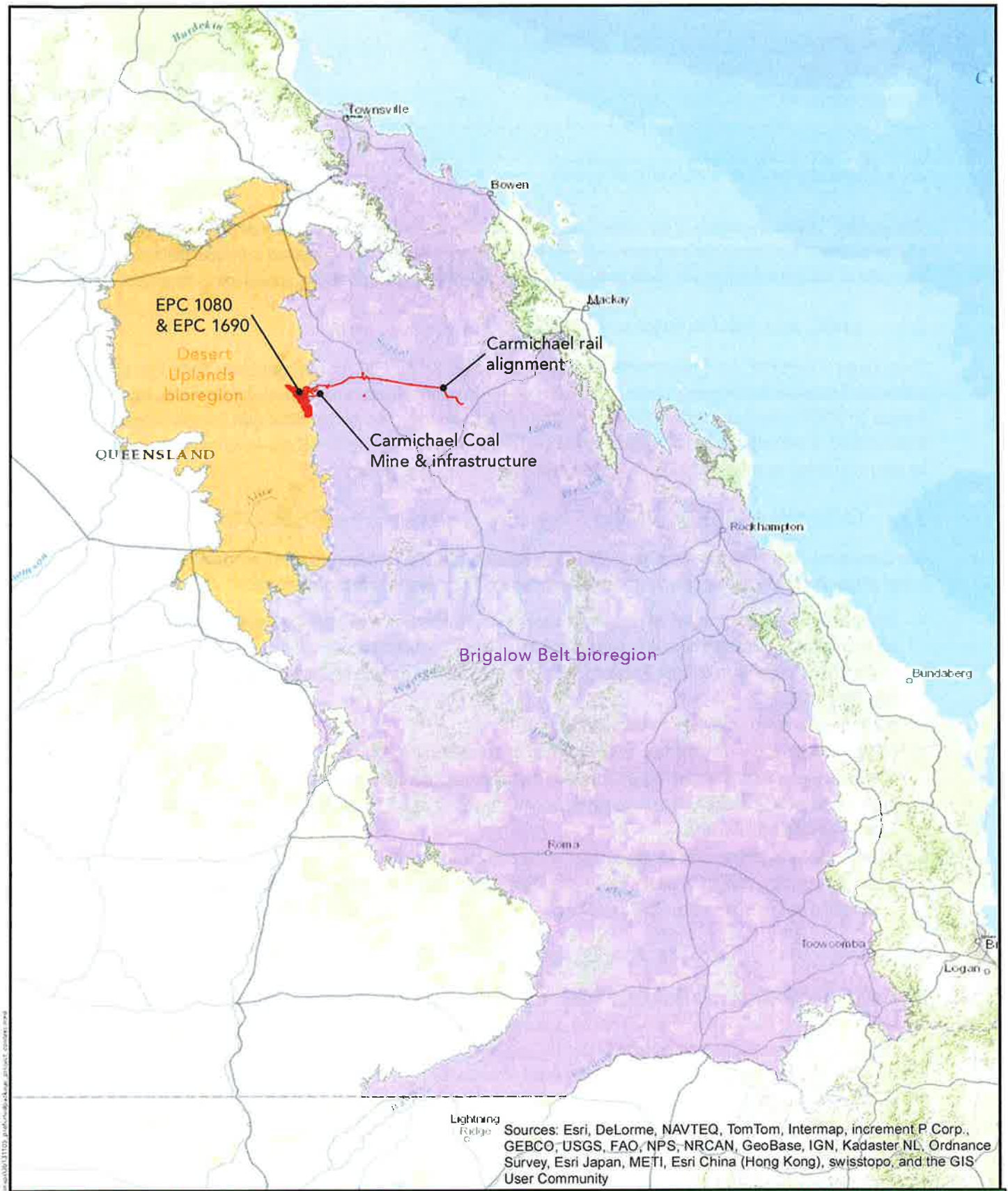
This package is the second stage in the delivery of the project's offset plan and demonstrates that Adani can adequately compensate for the unavoidable, residual impacts of the project. Specifically, this offset package:

- presents the offsets legislative framework applicable to the project
- confirms and identifies the residual impacts of the project which will require offsets, including detailed modelling of subsidence

- provides specific solutions for acquitting the project's offset requirements through a combination of direct offsets, indirect offsets (or compensatory measures) and offset payments (as applicable)
- identifies the preferred offset package for acquitting the project's offset requirements
- outlines the approach for implementation and delivery of the offset package.

As this version of the environmental offsets package is publically available, confidential property information has been excluded. Specifically, information that has been omitted from this version of the offset package includes:

- lot on plan numbers and addresses of offset properties
- general property descriptions such as location adjacent to protected areas and names of watercourses
- property specific desktop assessments
- maps of offset properties.



Adani Mining Pty Ltd - Charmichael Coal Mine and Rail Project

LOCATION DIAGRAM

Figure 1: Carmichael Coal Mine and Rail Project site

Project footprint
Brigalow Belt
Desert Uplands

CO_2

0 50 100 150
Kilometres

1:5,500,000

(A4) GCS GDA 1994

DATA SOURCE:

Project footprint provided by GHD (12/07/2013 and 25/10/2013)
The following datasets are © State of Qld 2013:
- Cadastral Data (2013)
- GBOS Strategic Footprint (2012)

DATE	AUTHOR	REQUESTED BY
06-11-2013	RF	KM

N

2. LEGISLATIVE FRAMEWORK

This section provides a summary of the current legislative and policy framework for environmental offsets. It is important to note; however, that Queensland legislation is currently undergoing revision and is expected to be updated and published in mid-2014. Ecofund will give consideration to the new offset legislation and its application to the project.

2.1. EPBC ACT ENVIRONMENTAL OFFSETS POLICY

The purpose of the EPBC Act Environmental Offsets Policy October 2012 (EPBC Act Environmental Offsets Policy) is to outline the Australian Government's position on the use of environmental offsets to compensate for significant adverse impacts on MNES protected under the EPBC Act. Offsets seek to provide a net environmental gain through targeted actions (direct or indirect) and do not necessarily facilitate onsite impact. Under the EPBC Act, environmental offsets can be used to maintain or enhance the health, diversity and productivity of the environment.

2.2. QUEENSLAND GOVERNMENT ENVIRONMENTAL OFFSETS POLICY

The Queensland Government Environmental Offsets Policy 2008 (QGEOP) is based on seven principles that guide the use of offsets to achieve ecologically sustainable development. The principles are described below:

- offsets will not replace or undermine existing environmental standards or regulatory requirements, or be used to allow development in areas otherwise prohibited through legislation or policy
- environmental impacts must first be avoided, then minimised, before considering the use of offsets for any remaining impact
- offsets must achieve an equivalent or better outcome
- offsets must provide environmental values as similar as possible to those being lost
- offset provision should minimise lag time between the impact and the offset delivery
- offsets must provide additional protection to environmental values at risk, or additional management actions to improve environmental values
- offsets must be legally secured for the duration of the offset requirement
- where possible, the QGEOP supports the development of offset packages that meet the combined requirement of Queensland and Australian Government policies.

2.3. POLICY FOR VEGETATION MANAGEMENT OFFSETS

The Policy for Vegetation Management Offset Version 3 2011 (Qld; PVMO) supports the VM Act, which regulates vegetation clearing in Queensland. The VM Act is not applicable to Level 1 mining activities as Level 1 mining activities are defined as 'not assessable development' under the Sustainable Planning Regulation 2009. As such, the PVMO applies to the rail component of the project but not the project activities that are subject to a mining lease. The PVMO applies to vegetation clearing activities within the rail corridor.

2.4. QUEENSLAND BIODIVERSITY OFFSET POLICY

The Queensland Biodiversity Offset Policy Version 1 2011 (QBOP) does not expressly apply to projects declared as 'significant projects' under the SDPWO Act; however, the Coordinator-General may use discretionary powers to require compliance with the policy for approval. The QBOP's objective is to increase long-term protection and viability of SSBV by offsetting residual impacts from development. Based on the project's residual impacts on SSBV, and recent approvals for projects of a similar scale, Ecofund has assumed that Adani will be subject to the policy.

2.5. OFFSETS

As a condition of project approval, environmental offsets are required in accordance with Queensland Government's offset policies and the EPBC Act Environmental Offsets Policy where significant project-related impacts cannot be avoided or mitigated. Current Queensland and Australian Government offset policies allow the delivery of offsets by means of direct offsets, indirect offsets, offset transfers and offset payments.

2.5.1. Direct Offsets

Direct offsets are an essential part of an offset plan and involve the identification and securing of land to be managed for conservation purposes. To be suitable, an offset area must have similar environmental values, function and habitat. Direct offsets may involve the:

- acquisition of good or better quality land for enduring protection through inclusion in the conservation estate (including covenanting arrangement on private land) (EPBC Act Environmental Offsets Policy)
- maintenance or improvement of land targeted toward the impacted value, including rehabilitation of existing vegetation in poor condition or revegetation of environmentally degraded land (EPBC Act Environmental Offsets Policy)
- acquisition of compliant land included in the protected area estate (QBOP; PVMO)
- rehabilitation and protection of regrowth vegetation (QBOP; PVMO)

2.5.2. Indirect Offsets

Indirect offsets may supplement direct offsets when the direct offset does not acquit a project's offset requirements. Indirect offsets may be land-based as well as financial contributions or involve management and research funding targeting the impacted environmental values.

The delivery of indirect offsets (or compensatory measures) that establish positive social and economic co-benefits are encouraged (EPBC Act Environmental Offsets Policy). Indirect offsets may involve:

- implementing priority actions outlined in relevant recovery plans (EPBC Act Environmental Offsets Policy)
- enhancing habitat quality or reducing threats to the protected matter on a site that is not part of a direct offset (EPBC Act Environmental Offsets Policy)
- contributing to relevant research or education programs (EPBC Act Environmental Offsets Policy)
- an activity that will result in, or improve the spatial capture of vegetation and wildlife information (QBOP; PVMO) including:
    - habitat mapping/modelling for priority species
    - development of regional ecosystem (RE) BioCondition benchmarks
    - finer scale RE mapping
    - fauna surveys in identified strategic areas
- approved 'on-ground' and 'research and monitoring' actions derived from the Back on Track species prioritisation framework Action Plans
- an action addressing a threatening process for a species or ecosystem (within the same bioregion) identified in a Queensland or Australian Government approved conservation or recovery plan.

2.5.3. Offset Payments

Financial offsets payments may be made to an approved trust[4] established for land management or nature conservation purposes. The payment may be used to purchase land containing SSBV or areas located within a mapped strategic area or recognised corridor.

2.5.4. Offset Transfers

Offset transfers involve a contractual agreement with an offset broker for the delivery of an offset area. For an offset transfer to be considered, it must be reasonably evident that a suitable offset is available at the time of the development approval being issued and the offset can be legally secured with 12 months. It is important to note that while the applicant can undertake an offset transfer to an offset broker as a means of securing the applicant's offset requirements, the offset obligation still remains with the applicant (personal communication DERM, 29 March 2012).

[4] QBOP specifies that payments be made to the Balance the Earth trust

3. METHODS

3.1. OFFSET REQUIREMENTS

The legislative offset requirements of the project were identified by reviewing the following policies with regard to their applicability to the project:

- EPBC Act Environmental Offsets Policy
- QGEOP
- PVMO
- QBOP.

3.2. RESIDUAL IMPACT IDENTIFICATION

The impact data presented in this package were provided by GHD as part of the EIS (GHD, 2012) and SEIS (GHD, 2013c) process. Residual impacts of subsidence requiring offsets, as per the draft Subsidence Management Plan (Adani, 2013), include high impact subsidence areas where modelled:

- slope changes by more than 2% (> 5 m); or
- cracking of > 100 mm in width occurs; or
- ponding occurs for more than two days.

3.3. OFFSET IDENTIFICATION

Ecofund identified potential offset areas through a strategic desktop assessment and spatial analysis that incorporated the legislative requirements under the applicable offset policies relevant to the affected environmental values. The package utilised information from the sources listed in **Table 1**.

Table 1. Data Sources for Environmental Values Requiring Offsets

ENVIRONMENTAL VALUE	DATA SOURCE
Threatened flora and fauna	• Essential Habitat Factors V 3.1. VM Act • Species Profile and Threats Database and species recovery plans • Wildlife Online (DEHP) • Protected matters search tool. EPBC Act 1999 • Relevant scientific literature • RE mapping (Version 6.1) • RE description database (Version 6.1) • Pre-clearing Vegetation Communities and Regional Ecosystems of Queensland (2009)
Threated ecological communities	• SPRAT Profile including Recovery Plans and Policy Statements • RE mapping (Version 6.1) • RE description database (Version 6.1) • Pre-clearing Vegetation Communities and Regional Ecosystems of Queensland (2009)
Threatened regional ecosystems and high value regrowth	• RE/remnant vegetation mapping (Version 6.1) • RE description database (Version 6.1) • Regrowth vegetation (RV) mapping (Version 2.1) • Property maps of assessable vegetation (PMAVs) (DEHP, 2013) • Regrowth vegetation code (DEHP, 2011) • Broad vegetation groups (DEHP, 2012)

ENVIRONMENTAL VALUE	DATA SOURCE
	• RE description database (Version 6.1) • Pre-clearing Vegetation Communities and Regional Ecosystems of Queensland (2009)
Wetlands and wetland protected areas	• RE mapping (Version 6.1) • RE description database (Version 6.1); specifically RE associated with a wetland • State Planning Policy 4/11: Protecting Wetlands of High Ecological Significance in Great Barrier Reef Catchments • Pre-clearing Vegetation Communities and Regional Ecosystems of Queensland (2009)
Watercourse vegetation	• RE mapping (Version 6.1) • RE description database (Version 6.1); specifically land zone 3 (quaternary alluvial systems) • Pre-clearing Vegetation Communities and Regional Ecosystems of Queensland (2009) • Ordered Draingage 100K – Queensland (2010)
Connectivity	• Biodiversity Planning Assessment State and Regional corridor mapping • RE mapping (Version 6.1) • RE description database (Version 6.1) • Regrowth vegetation mapping (Version 2.0) • Pre-clearing Vegetation Communities and Regional Ecosystems of Queensland (2009)

Potential direct offsets were considered within areas that:

- are land lease, leasehold or freehold lots[5] as per the Queensland Government's Digital Cadastral Database, which are greater than or equal to 5 ha
- are priority-designated areas within the Galilee Basin Offset Strategy (GBOS; DNRM *et al.* 2012)
- contain suitable environmental values as per the relevant policy criteria
- do not include non-compliant high value regrowth (HVR) that is:
- an endangered RE on freehold or indigenous land
- an endangered or of concern RE on leasehold land (agriculture and grazing)
- essential regrowth habitat
- within a wetland protection area (WPA) (QBOP)
- contain remnant, HVR vegetation and/or non-remnant vegetation (EPBC Act Environmental Offsets Policy)
- contain foliage projective cover (FPC)[6] ≥15% (note this data will not be applied to grassland RE).
- do not include lots mapped as Queensland Estate, state-protected areas (including nature refuges) (DEHP, 2012) or strategic cropping trigger areas (DEHP, 2011)
- do not include parts of lots that contain mining leases (DSDIP, 2012).

The Australian Government offset-to-impact ratios were superseded by the EPBC Act Offsets Assessment Guide (the offsets assessment guide) in October 2012. The offsets assessment guide applies where the impacted environmental value is an MNES species or ecological community. It utilises a balance sheet approach to measure and compare values essential to each MNES (i.e. habitat quality) between the impact area and offset area. The completed guide is used as a tool by the Department of the Environment (Cwlth; DoTE; formerly the Department of Sustainability, Environment, Water, Population and Communities) assessment officers to determine the suitability of the proposed offset. The Queensland Government calculates suitable offset requirements using the application of its ecological equivalence methodology. Ecological equivalence involves site-based ecological surveys combined with spatial analysis

[5] Offset identification is based on lots, not properties (i.e. some properties consist of more than one lot)
[6] The results of the assessment are presented in terms of hectares of potential offset areas with Foliage Projective Cover 2010 (FPC; DERM 2012) ≥15% that are available within each property.

to score both impact and offset areas. For an offset to be accepted in must score the same or higher than the associate impact site.

To manage the risks of uncertainty these two methods introduce when conducting a desktop analysis, Ecofund has prioritised properties that contain large areas of potential offsets. In addition, the results of the desktop and spatial analysis were added to the assessment of several additional properties identified by Adani as potentially suitable offset areas.

3.4. ASSUMPTIONS AND LIMITATIONS

Ecofund has recommended an approach to offset delivery based on the offset requirements identified in this report. Further refinement of project impacts and field work may change the project's offset requirements and potentially alter the approach to offset delivery.

The following limitations apply to the potential offset areas identified in this report:

- This is a desktop assessment only. The offset potential of the identified areas is subject to on-ground verification of environmental values. The extent and suitability of the identified offset areas will be verified following future field work to determine the ecological equivalence of each offset property with respect to the environmental values impacted by the project.
- Landowners who own or lease lots containing the identified potential offset areas may not be interested in using parts of their land as an environmental offset.
- Potential offset areas may include areas that have conflicting land uses, such as agriculture, mining interests not on mining lease title, local government recreational parks or conservation areas, large urban blocks, state-owned freehold land which is not a protected area and lots covered by existing development application approvals.
- Some areas may include non-compliant HVR vegetation which is on a slope greater than 12% (non-compliant for requirements under PVMO only) or within a stream protection zone.
- Some areas may be cleared and therefore may not meet the PVMO and QBOP requirement of containing functional RE. Other areas may be partially cleared and require extensive revegetation; however, this has been minimised by integrating the FPC ≥15% criterion.
- Habitat modelling considered species 'known to occur' or 'likely to occur' in the project area as determined by GHD's likelihood of occurrence assessment. The offset strategy and package do not analyse project impacts on species that 'may occur' or are 'unlikely to occur' in the project area.
- Environmental values expected to be affected by residual project impacts have been provided to Ecofund by GHD. Potential additional impacted values not provided by GHD have not been considered as part of this package.
- Area (ha) of listed RE (i.e. of concern and endangered) within Category A areas were compiled and are presented with all listed RE data affected by residual project impacts.
- Blank cells or cells labelled 'no value' in columns of data values located in spread sheets provided to Ecofund by GHD are assumed to be 0.00 where applicable.

4. AVOIDANCE AND MITIGATION

In accordance with the provisions of the EPBC Act and the SDPWO Act, Adani prepared an EIS to ensure that potentially adverse environmental, social and economic impacts as a result of project construction and operation are identified and avoided or mitigated (GHD, 2012).

Adani conducted a comprehensive investigation to avoid project impacts on environmental values. Potential coal sources able to meet the specific resource quantity and delivery timeframe requirements were investigated; however, Adani did not identify any viable alternatives to the proposed located (GHD, 2012). Similarly, the development of the rail corridor could not be avoided as the Galilee Basin is not currently serviced by rail infrastructure that would enable coal export from the project site. Avoiding all impacts by not developing the mine or the rail (i.e. no action option) will likely lead to Adani's demand for coal being met outside Australia and thus, diverting an approximate $21.5 billion investment.

Technical reports were prepared detailing the existing environmental values within the project site and the potential impacts and mitigation measures. To assist the EIS, a draft environmental management plan (EMP) was developed parallel to the EIS to provide a framework for management and mitigation implementation based on the findings and recommendations of studies undertaken for the EIS. These documents have been further refined through the preparation of the supplementary EIS (SEIS).

As part of the SEIS, Adani has also developed a draft Subsidence Management Plan (SMP), which provides the mitigation measures for subsidence impacts from the underground operations of the mine on SSBV and MNES (Adani, 2013). The SMP has also been developed in response to submissions received from the Department of Environment and Heritage Protection (Qld; DEHP) and DoTE on the SEIS. Adani will update the draft SMP as the project progresses to the detail design phase and prepare a finalised SMP for approval prior to the commencement of underground mining activities.

Mitigation measures outlined in the draft SMP include:

- Design and pre-construction proposed controls:
    - During detailed design of infrastructure, if mining infrastructure is to cross the underground mining footprint, design infrastructure to be resistant to the effects of subsidence.
    - Prior to development of diversions, design creek diversions around the open cut areas to remain functional after subsidence.
- Operations proposed controls:
    - Establish monitoring locations, including one point immediately upstream, one mid-point and one point immediately downstream of underground footprint on waterway diversions.
    - Determine detailed monitoring methodologies for vegetation health, habitat value and characteristics, stream condition and photo monitoring, drawing on established methodologies.
- Monitoring and management:
    - Inspect subsided areas for new and existing tension cracks annually. Document locations and size of cracks and changes in crack size. Grade and/or fill cracks with inert material, cover with topsoil and revegetate. Use small scale equipment to minimize damage to intact vegetation and soils.
    - Monitor extent of ponding in subsidence troughs annually and partially or fully drain ponds if required.
- Rehabilitation:
    - Retain a series of low flow connection channels to provide a continuous path for flows to pass through the areas of predicted subsidence and into a diversion channel and/or existing waterway.
    - Re-profile subsided areas to prevent future ponding of water.

- Reporting:
    - A report will be prepared annually following commencement of underground mining activities. The purpose of the report will be to detail mining activities, management, monitoring and rehabilitation activities undertaken as part of the SMP.

5. SUMMARY OF RESIDUAL PROJECT IMPACTS

Forty-eight environmental values listed under the Australian and Queensland Governments are expected to be affected by residual project impacts. The affected environmental values consist of:

- one threatened ecological community (TEC)
- 20 MNES fauna species
- 27 SSBV fauna species (including 20 species also listed as MNES)
- one MNES flora species
- seven endangered and of concern RE, two threshold RE and one grassland RE
- four HVR broad vegetation groups (BVG)
- three watercourses, one significant wetlands and a WPA
- connectivity.

A summary of the project's residual impacts and the extent of the impacts [represented by area (ha)] are presented in **Table 2.**

Table 2. Summary of Project (Mine and Rail) Impacts on Environmental Values

ENVIRONMENTAL VALUE	EPBC ACT STATUS	NC ACT STATUS[7]	PROPOSED IMPACT AREA (ha)			
			MINE		RAIL	TOTAL
			ON SITE AND SUBSIDENCE	OFF SITE		
THREATENED ECOLOGICAL COMMUNITY						
Brigalow	E	-	249.21	0.01	26.63	275.85
THREATENED FAUNA						
yakka skink	V	V	10,526.39	2.48	0.00	10,528.87
Brigalow scaly-foot	-	V	6,402.57	3.45	355.49	6,761.50
ornamental snake	V	V	951.69	314.06	349.48	1,615.24
cotton pygmy-goose	-	NT	20.45	0.00	299.81	320.26
black-necked stork	-	NT	20.45	0.00	0.00	20.45
square-tailed kite	-	NT	8,746.24	0.00	299.81	9,046.05
squatter pigeon (southern)	V	V	10,912.12	5.02	337.04	11,254.18
black-chinned honeyeater	-	NT	8,746.24	0.00	299.81	9,046.05
black-throated finch (southern)	E	E	9,770.99	2.53	16.24	9,789.75
echidna	-	SLC	10,053.67	2.48	0.00	10,056.15
koala	V[8]	SLC	10,141.02	2.53	176.88	10,320.43

[7] E- endangered, LC- least concern, M- migratory, NT- near threatened, OC- of concern, SLC- special least concern, V- vulnerable.
[8] The koala was listed under the EPBC Act after the project was designated a control action and is only assessed as a state significant biodiversity value in this package (i.e. not assessed as an MNES)

ENVIRONMENTAL VALUE	EPBC ACT STATUS	NC ACT STATUS[7]	PROPOSED IMPACT AREA (ha)			
			MINE		RAIL	TOTAL
			ON SITE AND SUBSIDENCE	OFF SITE		
THREATENED FAUNA						
little pied bat	-	NT	10,656.79	2.50	0.00	10,659.28
MIGRATORY BIRDS						
eastern great egret	M	SLC	20.45	0.00	299.80	320.25
cattle egret	M	SLC	8,612.58	0.14	2,087.92	10,700.64
glossy ibis	M	SLC	20.45	0.00	0.00	20.45
white-bellied sea-eagle	M	SLC	20.45	0.00	61.00	81.45
Latham's snipe	M	SLC	28.84	0.01	143.23	172.08
black-tailed godwit	M	SLC	20.45	0.00	0.00	20.45
common greenshank	M	SLC	20.45	0.00	0.00	20.45
marsh sandpiper	M	SLC	20.45	0.00	0.00	20.45
common sandpiper	M	SLC	20.45	0.00	0.00	20.45
curlew sandpiper	M	SLC	20.45	0.00	0.00	20.45
caspian tern	M	SLC	20.45	0.00	0.00	20.45
fork-tailed swift	M	SLC	10,677.23	285.90	2,703.19	13,666.32
white-throated needletail	M	SLC	10,677.23	285.90	2,703.19	13,666.32
rainbow bee-eater	M	SLC	10,677.23	285.90	2,703.19	13,666.32
satin flycatcher	M	SLC	8.39	0.00	361.37	369.76
THREATENED FLORA						
waxy cabbage palm	V	V	5.47	0.00	0.00	5.47
REGIONAL ECOSYSTEMS						
11.3.1 (BVG 25a)	-	E	49.41	0.00	8.69	58.09
11.4.8 (BVG 25a)	-	E	0.00	0.00	3.68	3.68
11.4.9 (BVG 25a)	-	E	199.78	0.00	14.26	214.05
11.3.3 (BVG 16c)	-	OC	12.45	0.00	66.87	79.31
11.4.5 (BVG 26a)	-	OC	0.00	0.00	1.52	1.52
11.4.6 (BVG 26a)	-	OC	148.01	0.00	41.41	189.42
11.4.11 (BVG 30b)	-	OC	0.00	0.00	145.81	145.81
THRESHOLD REGIONAL ECOSYSTEMS						

ENVIRONMENTAL VALUE	EPBC ACT STATUS	NC ACT STATUS[7]	PROPOSED IMPACT AREA (ha)			
			MINE		RAIL	TOTAL
			ON SITE AND SUBSIDENCE	OFF SITE		
11.3.5	-	LC	56.02	0.00	0.00	56.02
THRESHOLD REGIONAL ECOSYSTEMS						
11.4.11	-	OC	0.00	0.00	145.81	145.81
GRASSLAND REGIONAL ECOSYSTEMS						
11.4.11	-	OC	0.00	0.00	145.81	145.81
HIGH VALUE REGROWTH						
BVG 25a	-	E	0.00	0.00	9.56	9.56
BVG 30b	-	OC	0.00	0.00	1.08	1.08
BVG 26a	-	OC	0.00	0.00	4.20	4.20
BVG 16c	-	OC	0.88	0.00	2.89	3.77
WATERCOURSES						
stream order 2	-	-	404.25	0.01	35.55	439.81
stream order 4	-	-	135.10	0.00	13.03	148.13
stream orders 8	-	-	12.96	0.00	20.91	33.86
WETLANDS						
significant wetland	-	-	4.42	0.00	0.00	4.42
WPA	-	-	6.04	0.00	0.00	6.04
CONNECTIVITY						
connectivity	-	-	17,397.65	5.02	515.03	17,917.70

6. RESIDUAL MINE IMPACTS

6.1. THREATENED ECOLOGICAL COMMUNITY

On-site and off-site vegetation clearing is expected to affect 249.22 ha of endangered Brigalow TEC within the mine footprint.

6.2. THREATENED FAUNA

Field surveys confirmed the presence of 11 fauna species listed under the EPBC Act and/or the *Nature Conservation Act 1992* (Qld; NC Act) within the mine footprint. An additional 16 fauna species, or their habitat, were determined 'likely to occur' through GHD's likelihood of occurrence assessment (GHD, 2012). Of the species likely to occur, ten bird species are listed as migratory under the EPBC Act as well as international acts, including the Agreement Between the Government of Australia and the Government of Japan for the Protection of Migratory Birds and Birds in Danger of Extinction and their Environment (JAMBA) and the Agreement Between the Government of Australia and the Government of the People's Republic of China for the Protection of Migratory Birds and their Environment (CAMBA). Birds designated under JAMBA and CAMBA are also listed as special least concern under the NC Act.

The listed fauna species, and/or their habitat, confirmed or likely to occur within the mine site are listed in **Table 3**.

6.3. THREATENED FLORA

Ecological studies undertaken for the SEIS (GHD, 2013c) confirmed the presence of, and identified likely impacts on, the EPBC Act listed threatened waxy cabbage palm (*Livistona lanuginosa*). On-site clearing is expected to result in the removal of 5.47 ha of waxy cabbage palm habitat.

Avoidance and mitigation activities will be undertaken to prevent and lessen the direct impact on waxy cabbage palm, and its habitat within the Carmichael River channel; however, potential indirect impacts to individual plants may occur as a result of ground and surface water changes.

Table 3. Residual Mine Impacts on Fauna Species

COMMON NAME	SCIENTIFIC NAME	EPBC ACT STATUS	NC ACT STATUS[9]	LIKELIHOOD OF OCCURRENCE[10]	MINE IMPACT (ha)		
					ON SITE AND SUBSIDENCE[11]	OFFSITE	TOTAL
REPTILES							
yakka skink	*Egernia rugosa*	V	V	likely	10,526.39	2.48	10,528.87
Brigalow scaly-foot	*Paradelma orientalis*	-	V	likely	6,402.57	3.45	6,406.02
ornamental snake	*Denisonia maculata*	V	V	likely	951.69	314.06	1,265.76
BIRDS							
cotton pygmy-goose	*Nettapus coromandelianus*	-	NT	confirmed	20.45	0.00	20.45
black-necked stork	*Ephippiorhynchus asiaticus*	-	NT	confirmed	20.45	0.00	20.45
square-tailed kite	*Lophoictinia isura*	-	NT	likely	8,746.24	0.00	8,746.24
squatter pigeon (southern)	*Geophaps scripta scripta*	V	V	confirmed	10,912.12	5.02	10,917.14
black-chinned honeyeater	*Melithreptus gularis*	-	NT	likely	8,746.24	0.00	8,746.24
black-throated finch (southern)	*Poephila cincta cincta*	E	E	confirmed	9,770.99	2.53	9,773.52
MAMMALS							
koala[12]	*Phascolarctos cinereus*	-	SLC	confirmed	10,141.02	2.53	10,143.55
echidna	*Tachyglossus aculeatus*	-	SLC	confirmed	10,053.67	2.48	10,056.15
little pied bat	*Chalinolobus picatus*	-	NT	confirmed	10,656.79	2.5	10,659.28

[9] E- endangered, LC- least concern, M- migratory, NT- near threatened, OC- of concern, SLC- special least concern, V- vulnerable.
[10] Based on the EPBC Act Protected Matters Search Tool database
[11] Only includes high impact subsidence areas as detailed in the SMP
[12] The koala was listed under the EPBC Act after the project was designated a control action and is only assessed as a state significant biodiversity value in this package (i.e. not a MNES)

COMMON NAME	SCIENTIFIC NAME	EPBC ACT STATUS	NC ACT STATUS	LIKELIHOOD OF OCCURRENCE[13]	MINE IMPACT (ha)		
					ON SITE AND SUBSIDENCE	OFFSITE	TOTAL
MIGRATORY BIRDS							
eastern great egret	*Ardea modesta*	M	SLC	confirmed	20.45	0.00	20.45
cattle egret	*Ardea ibis*	M	SLC	likely	8,612.58	0.14	8,612.72
glossy ibis	*Plegadis falcinellus*	M	SLC	likely	20.45	0.00	20.45
white-bellied sea eagle	*Haliaeetus leucogaster*	M	SLC	confirmed	20.45	0.00	20.45
Latham's snipe	*Gallinago hardwickii*	M	SLC	likely	28.84	0.01	28.85
black-tailed godwit	*Limosa limosa*	M	SLC	likely	20.45	0.00	20.45
common greenshank	*Tringa nebularia*	M	SLC	likely	20.45	0.00	20.45
marsh sandpiper	*Tringa stagnatilis*	M	SLC	likely	20.45	0.00	20.45
common sandpiper	*Actitis hypoleucos*	M	SLC	likely	20.45	0.00	20.45
curlew sandpiper	*Calidris ferruginea*	M	SLC	likely	20.45	0.00	20.45
caspian tern	*Hydroprogne caspia*	M	SLC	likely	20.45	0.00	20.45
fork-tailed swift	*Apus pacificus*	M	SLC	likely	10,677.23	285.90	10,963.14
white-throated needletail	*Hirundapus caudacutus*	M	SLC	likely	10,677.23	285.90	10,963.14
satin flycatcher	*Myiagra cyanoleuca*	M	SLC	confirmed	8.39	0.00	8.39
rainbow bee-eater	*Merops ornatus*	M	SLC	confirmed	10,677.23	285.90	10,963.14

[13] Based on the EPBC Act Protected Matters Search Tool

6.4. REGIONAL ECOSYSTEMS

On site vegetation clearing and subsidence affects within the mine site are expected to impact 409.64 ha of remnant vegetation listed as endangered and of concern under the VM Act. Approximately 60% of the remnant vegetation (249.19 ha) is associated with endangered RE (RE 11.3.1 and 11.4.9) (**Table 4**). One threshold RE is also expected to be affected by on site vegetation clearing within the mine site (**Table 5**).

Table 4. Residual Mine Impacts on Endangered and Of Concern Regional Ecosystems

RE	DESCRIPTION	VM ACT STATUS[14]	BVG	MINE IMPACTS (ha)		
				ON SITE AND SUBSIDENCE	OFF SITE	TOTAL
11.3.1	*Acacia harpophylla* and/or *Casuarina cristata* open forest on alluvial plains	E	25a	49.41	0.00	49.41
11.4.9	*Acacia harpophylla* shrubby open forest to woodland with *Terminalia oblongata* on Cainozoic clay plains	E	25a	199.78	0.00	199.78
11.3.3	*Eucalyptus coolabah* woodland on alluvial plains	OC	16c	12.45	0.00	12.45
11.4.6	*Acacia cambagei* woodland on Cainozoic clay plains	OC	26a	148.01	0.00	148.01
TOTAL				409.67	0.00	409.64

Table 5. Residual Mine Impacts on Threshold Regional Ecosystems

THRESHOLD RE	VM ACT STATUS	MINE IMPACTS (ha)		
		ON SITE AND SUBSIDENCE	OFFSITE	TOTAL
11.3.5	LC	56.02	0.00	56.02

6.5. HIGH VALUE REGROWTH

Approximately 0.88 ha of HVR vegetation is predicted to be impacted by on site vegetation clearing within the mine site (**Table 6**).

Table 6. Residual Mine Impacts on High Value Regrowth Vegetation

BVG	VM ACT STATUS[15]	MINE IMPACTS (ha)		
		ON SITE AND SUBSIDENCE	OFF SITE	TOTAL
16c	OC	0.88	0.00	0.88

6.6. CATEGORY A AREAS

A Category A area is a declared area, an offset area, an exchange area or has been unlawfully cleared or subject to a restoration or enforcement notice (VM Act). Due to the illegal land clearing of remnant and endangered vegetation on

[14] E- endangered; OC- of concern
[15] E- endangered; OC- of concern

Moray Downs by a previous landholder, areas within the property are subject to a compliance notice. In accordance with the compliance notice, the cleared area is to be restored until it achieves remnant status or until 2044. Five of concern and endangered RE occur within this Category A area and are compiled with RE data.

6.7. WATERCOURSES

The majority of the watercourses within the mine site are ephemeral consisting of stream order 1 and 2 watercourses that channel runoff to the Carmichael River or Belyando River via Eight Mile Creek during heavy downpour or flooding events (GHD, 2013c).

Project actions are expected to impact approximately 552 ha of remnant watercourse vegetation in the mine site primarily as a result of one site clearing; however, the removal of the ephemeral watercourses will occur gradually throughout the life of the mine (**Table 7**).

The impact to watercourses within the mine site occurs entirely within the Desert Uplands Bioregion.

Table 7. Residual Mine Impacts on Watercourses

STEAM ORDER	MINE IMPACTS (ha)		
	ON SITE AND SUBSIDENCE	OFF SITE	TOTAL
2	404.25	0.01	404.26
4	135.10	0.00	135.10
8	12.96	0.00	12.96
TOTAL	552.31	0.01	552.32

6.8. WETLANDS

Wetland protection areas are mapped by DEHP using the Biodiversity Assessment Mapping Methodology (AquaBAMM) to identify wetlands with high ecological significance and surrounding trigger areas (Clayton et al., 2006). Three areas within the mine area are mapped as WPA (GHD, 2013c). On-site vegetation clearing is expected to impact 4.42 ha of WPA and 6.04 ha of significant wetlands (**Table 8**).

Table 8. Residual Mine Impacts on Wetlands

TYPE	DEFINITION	MINE IMPACTS (ha)		
		ONSITE AND SUBSIDENCE	OFFSITE	TOTAL
WPA	HES wetlands located on the map of referable wetlands in the Great Barrier Reef catchment	6.04	0.00	6.04
significant wetland	A wetland designated under the VM Act	4.42	0.00	4.42
TOTAL		10.46	0.00	10.46

6.9. CONNECTIVITY

All clearing and subsidence impacts on remnant vegetation within the mine footprint are expected to reduce connectivity across the landscape by affecting 17,402.66 ha of vegetation (GHD, 2013c).

7. RESIDUAL RAIL IMPACTS

7.1. THREATENED ECOLOGICAL COMMUNITY

Vegetation clearing within the rail footprint is predicted to affect 26.63 ha of endangered Brigalow (*Acacia harpophylla* dominant and co-dominant) TEC (GHD, 2013c).

7.2. THREATENED FAUNA

Field surveys confirmed the presence of eight fauna species listed under the EPBC Act and/or the NC Act within the rail footprint. An additional eight fauna species, or their habitat, were determined 'likely to occur' through GHD's likelihood of occurrence assessment. The listed fauna species confirmed or likely to occur within the mine site are listed in **Table 9**.

Table 9. Residual Rail Impact on Fauna Species

COMMON NAME	SCIENTIFIC NAME	EPBC ACT STATUS	NC ACT STATUS[16]	LIKELIHOOD OF OCCURRENCE	RAIL IMPACT (ha)
REPTILES					
Brigalow scaly-foot	*Paradelma orientalis*	-	V	likely	355.49
ornamental snake	*Denisonia maculata*	V	V	likely	349.48
BIRDS					
cotton pygmy-goose	*Nettapus coromandelianus*	-	NT	likely	299.81
square-tailed kite	*Lophoictinia isura*	-	NT	likely	299.81
squatter pigeon (southern)	*Geophaps scripta scripta*	V	V	confirmed	337.04
black-chinned honeyeater	*Melithreptus gularis*	-	NT	likely	299.81
black-throated finch (southern)	*Poephila cincta cincta*	E	E	likely	16.24
MAMMALS					
koala	*Phascolarctos cinereus*	V[17]	SLC	likely	176.88
MIGRATORY BIRDS					
eastern great egret	*Ardea modesta*	M	SLC	confirmed	299.80
cattle egret	*Ardea ibis*	M	SLC	likely[18]	2,087.92
white-bellied sea eagle	*Haliaeetus leucogaster*	M	SLC	confirmed	61.00
Latham's snipe	*Gallinago hardwickii*	M	SLC	likely	143.23
fork-tailed swift	*Apus pacificus*	M	SLC	may occur	2,703.19
white-throated needletail	*Hirundapus caudacutus*	M	SLC	may occur	2,703.19

[16] E- endangered, M- migratory, NT- near threatened, SLC- special least concern, V- vulnerable.
[17] The koala was listed under the EPBC Act after the project was designated a control action and is only assessed as a state significant biodiversity value in this package (i.e. not assessed as an MNES)
[18] Based on the EPBC Act Protected Matters Search Tool database

COMMON NAME	SCIENTIFIC NAME	EPBC ACT STATUS	NC ACT STATUS[16]	LIKELIHOOD OF OCCURRENCE	RAIL IMPACT (ha)
MIGRATORY BIRDS					
satin flycatcher	*Myiagra cyanoleuca*	M	SLC	likely	361.37
rainbow bee-eater	*Merops ornatus*	M	SLC	confirmed	2,703.19

7.3. THREATENED FLORA

No threatened flora were detected within the rail footprint.

7.4. REGIONAL ECOSYSTEMS

Vegetation clearing within the rail footprint is expected to impact 282.24 ha of remnant vegetation listed as endangered and of concern under the VM Act (**Table 10**).

Table 10. Residual Rail Impacts on Endangered and Of Concern Regional Ecosystems

RE	DESCRIPTION	VM ACT STATUS[19]	BVG	RAIL IMPACTS (ha)
11.3.1	*Acacia harpophylla* and/or *Casuarina cristata* open forest on alluvial plains	E	25a	8.69
11.4.8	*Eucalyptus cambageana* woodland to open forest with *Acacia harpophylla or A. argyrodendron* on Cainozoic clay plains	E	25a	3.68
11.4.9	*Acacia harpophylla* shrubby open forest to woodland with *Terminalia oblongata* on Cainozoic clay plains	E	25a	14.26
11.3.3	*Eucalyptus coolabah* woodland on alluvial plains	OC	16c	66.87
11.4.5	*Acacia argyrodendron* woodland on Cainozoic clay plains	OC	26a	1.52
11.4.6	*Acacia cambagei* woodland on Cainozoic clay plains	OC	26a	41.41
11.4.11	*Dichanthium sericeum*, *Astrebla spp.* and patchy *Acacia harpophylla*, *Eucalyptus coolabah* on Cainozoic clay plains	OC	30b	145.81
TOTAL				282.24

7.5. GRASSLAND REGIONAL ECOSYSTEM

Vegetation clearing within the rail footprint is expected to impact approximately 146 ha of RE 11.4.11 which is listed as an of concern RE under the VM Act. RE 11.4.11 is described as native grasses, patchy Brigalow and coolabah on Cainozoic clay plains.

7.6. HIGH VALUE REGROWTH

Approximately 18 ha of HVR vegetation is predicted to be impacted by the rail development (**Table 11**).

[19] E- endangered; OC- of concern

Table 11. Residual Rail Impacts on High Value Regrowth Vegetation

BVG	VM ACT STATUS[20]	RAIL IMPACTS (ha)
25a	E	9.56
30b	OC	1.08
26a	OC	4.20
16c	OC	2.89
TOTAL		17.73

7.7. WATERCOURSES

The rail alignment is predicted to impact approximately 70 ha of watercourse vegetation (**Table 12**). The impact to watercourses within the rail footprint occurs entirely within the Brigalow Belt Bioregion.

Table 12. Residual Rail Impacts on Watercourses

STREAM ORDER	RAIL IMPACTS (ha)
2	35.55
4	13.03
8	20.91
TOTAL	69.49

7.8. WETLANDS

No WPA, significant wetlands or wetlands recognised under the VM Act were recorded in the rail footprint.

7.9. CONNECTIVITY

Vegetation clearing within the rail footprint is expected to reduce connectivity across the landscape by affecting 515.03 ha of vegetation (GHD, 2013c).

[20] E- endangered; OC- of concern

8. OFFSET REQUIREMENTS

Project actions are predicted to have a residual impact on 48 environmental values within the mine and the rail footprints. To counterbalance the project's residual impact, environmental offsets are required in accordance with Queensland and Australian Government policies.

8.1. MATTERS OF NATIONAL ENVIRONMENTAL SIGNIFICANCE

The EPBC Act Environmental Offset Policy stipulates that suitable offsets be proportionate to the size and scale of the impact and generally deliver an overall conservation outcome that improves or maintains the viability of MNES (**Section 2.1**). Adani has assessed the residual impacts of the project on MNES against DoTE's *Environment Protection and Biodiversity Conservation Act 1999* Matters of National Environmental Significance Significant Impact Guidelines 1.1 (Significant Impact Guidelines; 2013) to determine which MNES are significantly impacted and consequently require offsets. The project's offset requirements under the EPBC Act are summarised in **Table 13.** All three MNES are confirmed as present within the project site. The offsets assessment guide will be completed to quantify the suitability of the offset package for MNES.

Table 13. EPBC Act Offset Policy Offset Requirements

ENVIRONMENTAL VALUE	EPBC ACT STATUS	OFFSET REQUIREMENTS [MINIMUM IMPACT AREA (ha)]
THREATENED ECOLOGICAL COMMUNITY		
Brigalow	Endangered	275.85
THREATENED FAUNA		
black-throated finch (southern)	Endangered	9,789.75
THREATENED FLORA		
waxy cabbage palm	Vulnerable	5.47

8.2. STATE SIGNIFICANT BIODIVERSITY VALUES

The QBOP specifies that suitable offsets aim to achieve an equivalent or better environmental outcome (**Section 2.4**). The ecological equivalence methodology as set out in the Ecological Equivalence Methodology Guideline (EEM guideline; DERM, 2011) will be completed to quantify the suitability of an offset package for SSBV. The project's offset requirements are summarised in **Table 14.**

Table 14. Queensland Government Offset Policies' Offset Requirements

ENVIRONMENTAL VALUE	EPBC ACT STATUS[21]	NC ACT STATUS[22]	VM ACT STATUS[23]	OFFSET REQUIREMENTS [MINIMUM IMPACT AREA (ha)]
THREATENED FAUNA				
yakka skink	V	V	-	10,528.87
Brigalow scaly-foot	-	V	-	6,761.50
ornamental snake	V	V	-	1,615.24
cotton pygmy-goose	-	NT	-	320.26
eastern great egret	M	SLC	-	320.25
cattle egret	M	SLC	-	10,700.64
glossy ibis	M	SLC	-	20.45
black-necked stork	-	NT	-	20.45
square-tailed kite	-	NT	-	9,046.05
white-bellied sea-eagle	M	SLC	-	81.45
Latham's snipe	M	SLC	-	172.08
black-tailed godwit	M	SLC	-	20.45
common greenshank	M	SLC	-	20.45
marsh sandpiper	M	SLC	-	20.45
common sandpiper	M	SLC	-	20.45
curlew sandpiper	M	SLC	-	20.45
caspian tern	M	SLC	-	20.45
squatter pigeon (southern)	V	V	-	11,254.18
fork-tailed swift	M	SLC	-	13,666.32
white-throated needletail	M	SLC	-	13,666.32
rainbow bee-eater	M	SLC	-	13,666.32
black-chinned honeyeater	-	NT	-	9,046.05
satin flycatcher	M	SLC	-	369.76
black-throated finch (southern)	E	E	-	9,789.75
koala	V[24]	SLC	-	10,320.43
echidna	-	SLC	-	10,056.15
little pied bat	-	NT	-	10,659.28
THREATENED FLORA				
waxy cabbage palm	V	V	-	5.47

[21] E- endangered, V- vulnerable, M- migratory
[22] E- endangered, V- vulnerable, NT- near threatened, SLC- special least concern
[23] E- endangered OC – of concern, LC- least concern
[24] The koala was listed under the EPBC Act after the project was designated a control action and is not included as a MNES in this package

ENVIRONMENTAL VALUE	EPBC ACT STATUS[21]	NC ACT STATUS[22]	VM ACT STATUS[23]	OFFSET REQUIREMENTS [MINIMUM IMPACT AREA (ha)]
REGIONAL ECOSYSTEMS				
BVG 25a (11.3.1, 11.4.8 and 11.4.9)	-	-	E	275.84
BVG 16c (11.3.3)	-	-	OC	79.31
BVG 26a (11.4.5 and 11.4.6)	-	-	OC	190.94
BVG 30b (11.4.11)	-	-	OC	145.81
THRESHOLD REGIONAL ECOSYSTEMS				
11.3.5	-	-	LC	56.02
11.4.11	-	-	OC	145.81
GRASSLAND REGIONAL ECOSYSTEMS				
BVG 30b (11.4.11)	-	-	OC	145.81
HIGH VALUE REGROWTH				
BVG 25a	-	-	E	9.56
BVG 16c	-	-	OC	3.77
BVG 26a	-	-	OC	4.20
BVG 30b	-	-	OC	1.08
WATERCOURSES				
stream order 2	-	-	-	439.81
stream order 4	-	-	-	148.13
stream order 8	-	-	-	33.86
WETLANDS				
significant wetland	-	-	-	4.42
WPA	-	-	-	6.04
CONNECTIVITY				
connectivity	-	-	-	17,917.70

9. DIRECT OFFSET OPTIONS

9.1. OVERVIEW

Ecofund identified potential direct offsets through a strategic desktop assessment and spatial analysis that incorporated the offset policy requirements relevant to the affected environmental values. The preferred offset package, composed of five properties, is expected to acquit the offset requirements for 47 of the 48 environmental values predicted to be affected by residual project impacts. The final suitability of these land-based offsets will be subject to future fieldwork (e.g. ecological equivalence, ground-truthing, target species surveys) as well as landholder consultation.

The offset options have been included as examples of how direct offsets for the project could be delivered. It should also be noted that this report makes no assumptions on the actual availability of the properties under assessment to be used as offsets. Should Adani deem it necessary (e.g. for commercial considerations, landholder willingness to participate), different properties that contain comparable environmental values may be substituted for the priority offset options.

The properties within the preferred offset package have yet to be ground-truthed to determine the actual extent and suitability of environmental values on the ground and the figures represented in this package are based on a desktop assessment and spatial analysis.

The following direct offset properties were identified using the methodology presented in **Section 3** in accordance with the applicable legislation outlined in **Section 2**.

9.2. PREFERRED OFFSET PACKAGE

The preferred offset package consists of five properties designated as Priority 1 and Priority 3 under GBOS (**Figure 2**; **Table 15**).

Table 15. Preferred Offset Package

PROPERTY NAME	GBOS PRIORITY	OFFSET AREA (ha)
Property 1	1	Confidential information removed
Property 2	1	Confidential information removed
Property 3	3	Confidential information removed
Property 4	3	Confidential information removed
Property 5	1	Confidential information removed

The ability of the preferred offset package to acquit the project's offset requirements is detailed in **Table 16** and **Table 17**.

Table 16. EPBC Act Environmental Offset Policy Offset Requirements

ENVIRONMENTAL VALUE	STATUS[25]		MINMUM PROJECT IMPACT (ha)	PROPERTIES IN THE PREFERRED OFFSET PACKAGE					
	EPBC ACT	NC ACT		PROPERTY 1	PROPERTY 2	PROPERTY 3	PROPERTY 4	PROPERTY 5	TOTAL (ha)
THREATENED ECOLOGICAL COMMUNITY									
Brigalow	E	-	275.85						5,077.47
THREATENED FAUNA									
black-throated finch (southern)	E	E	9,789.75						54,082.41
THREATENED FLORA									
waxy cabbage palm	V	V	5.47						6,056.84

[25] E- endangered, V- vulnerable.

Table 17. Queensland Biodiversity Offset Policy Offset Requirements

ENVIRONMENTAL VALUE	STATUS[26]			MINIMUM PROJECT IMPACT (ha)	PROPERTIES IN THE PREFERRED OFFSET PACKAGE					
	EPBC ACT	NC ACT	VM ACT		PROPERTY 1	PROPERTY 2	PROPERTY 3	PROPERTY 4	PROPERTY 5	TOTAL (ha)
THREATENED FAUNA										
yakka skink	V	V	-	10,528.87						125,997.78
Brigalow scaly-foot	-	V	-	6,761.50						125,997.78
ornamental snake	V	V	-	1,615.24						16,028.07
cotton pygmy-goose	-	NT	-	320.26						41,454.54
eastern great egret	M	SLC	-	320.25						41,454.54
cattle egret	M	SLC	-	10,700.64						56,227.62
glossy ibis	M	SLC	-	20.45						56,646.33
black-necked stork	-	NT	-	20.45						56,227.62
square-tailed kite	-	NT	-	9,046.05						154,609.58
white-bellied sea-eagle	M	SLC	-	81.45						56,227.62
Latham's snipe	M	SLC	-	172.08						56,227.62
black-tailed godwit	M	SLC	-	20.45						56,227.62
common greenshank	M	SLC	-	20.45						56,227.62
marsh sandpiper	M	SLC	-	20.45						56,227.62
common sandpiper	M	SLC	-	20.45						56,227.62
curlew sandpiper	M	SLC		20.45						56,227.62

[26] E- endangered, LC- least concern, M- migratory, NT- near threatened, OC- of concern, SLC- special least concern, V- vulnerable.

ENVIRONMENTAL VALUE	STATUS[26]			MINIMUM PROJECT IMPACT (ha)	PROPERTIES IN THE PREFERRED OFFSET PACKAGE					
	EPBC ACT	NC ACT	VM ACT		PROPERTY 1	PROPERTY 2	PROPERTY 3	PROPERTY 4	PROPERTY 5	TOTAL (ha)
caspian tern	M	SLC	-	20.45						41,454.54
squatter pigeon (southern)	V	V	-	11,254.18						127,599.98
fork-tailed swift	M	SLC	-	13,666.32						168,168.65
white-throated needletail	M	SLC		13,666.32						168,168.65
rainbow bee-eater	M	SLC	-	13,666.32						168,168.65
black-chinned honeyeater	-	NT	-	9,046.05						97,658.31
satin flycatcher	M	SLC	-	369.76						97,658.31
black throated finch (southern)	E	E	-	9,789.75						54,082.41
koala	V[27]	SLC	-	10,320.43						57,318.67
echidna	-	SLC	-	10,056.15						168,168.65
little pied bat	-	NT	-	10,659.28						89,941.40
THREATENED FLORA										
waxy cabbage palm	V	V	-	5.47						6,056.84
REGIONAL ECOSYSTEMS										
BVG 25a (RE 11.3.1, RE 11.4.8 and 11.4.9)	-	-	E	275.84						5,084.24
BVG 16c (RE 11.3.3)	-	-	OC	79.31						2,785.94
BVG26a (RE 11.4.5 and	-	OC	-	190.94						1,364.20

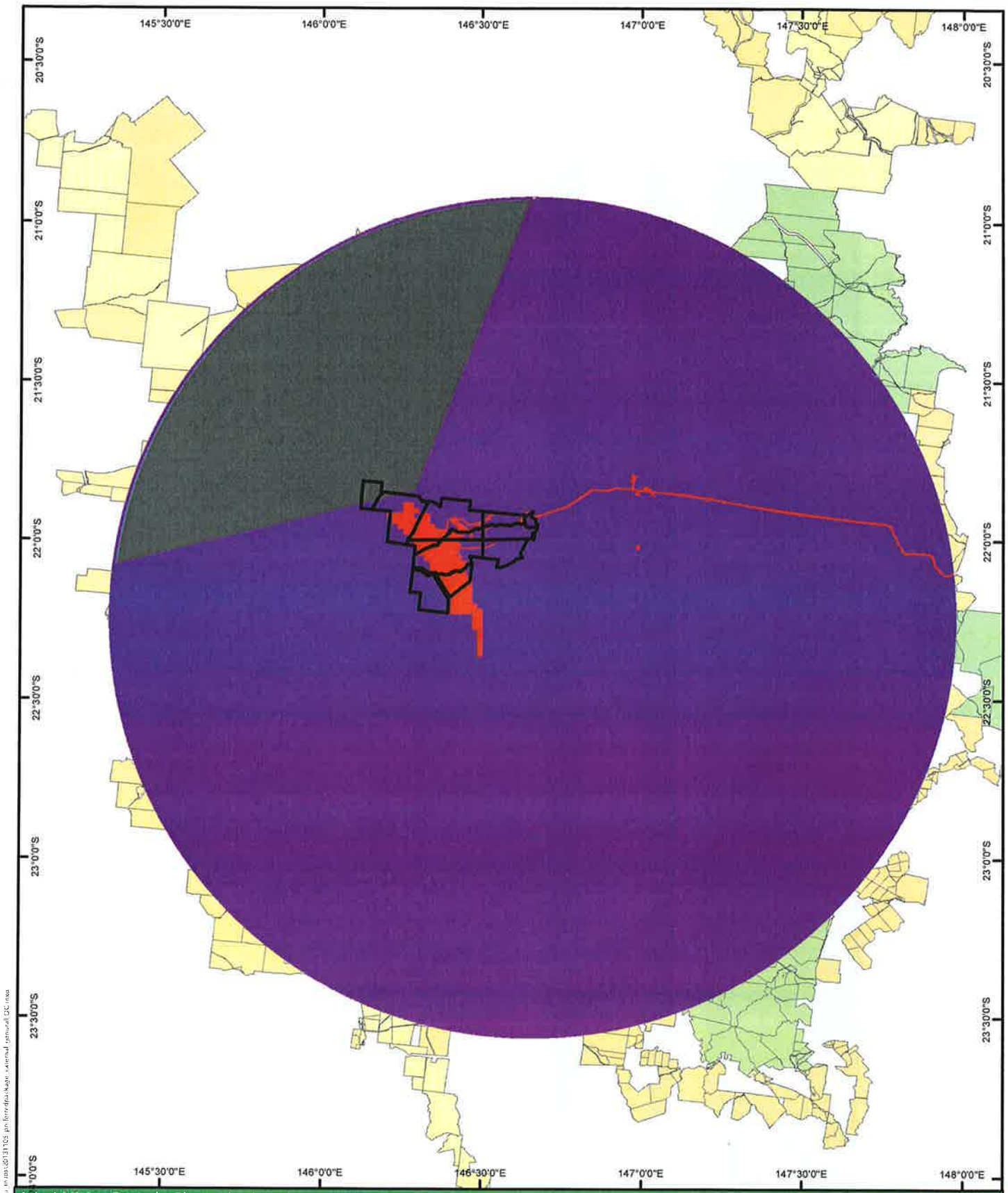
[27] The koala was listed as an MNES under the EPBC Act after the project was designated a control action and is not included as a MNES in this package

ENVIRONMENTAL VALUE	STATUS[26]			MINIMUM PROJECT IMPACT (ha)	PROPERTIES IN THE PREFERRED OFFSET PACKAGE					
	EPBC ACT	NC ACT	VM ACT		PROPERTY 1	PROPERTY 2	PROPERTY 3	PROPERTY 4	PROPERTY 5	TOTAL (ha)
11.4.6)										
BVG 30b (RE 11.4.11)	-	OC	-	145.81						387.13
HIGH VALUE REGROWTH										
BVG 25a	-	-	E	9.56						5,084.24
BVG 16c	-	-	OC	3.77						2,785.94
BVG 26a	-	-	OC	4.20						1,364.20
BVG 30b	-	-	OC	1.08						387.13
THRESHOLD REGIONAL ECOSYSTEMS										
BVG 26a (RE 11.3.5)	-	-	LC	56.02						413.10
BVG 30b (RE 11.4.11)	-	-	OC	145.81						387.13
GRASSLAND REGIONAL ECOSYSTEMS										
BVG 30b (RE 11.4.11)	-	-	OC	145.81						387.13
WATERCOURSES[28]										
stream order 2 – BRB	-	-	-	35.55						86,508.09
stream order 2 – DUB	-	-	-	404.26						81,660.56
stream order 4 – BRB	-	-	-	13.03						86,508.09
stream order 4 – DUB	-	-	-	135.10						81,660.56
stream order 8 – BRB	-	-	-	20.91						18,645.93

[28] Impacts to watercourses within the mine occur in the Desert Uplands Bioregion (DUB). Impacts to watercourses within the rail footprint occur in the Brigalow Belt Bioregion (BRB)

ENVIRONMENTAL VALUE	STATUS[26]			MINIMUM PROJECT IMPACT (ha)	PROPERTIES IN THE PREFERRED OFFSET PACKAGE					
	EPBC ACT	NC ACT	VM ACT		PROPERTY 1	PROPERTY 2	PROPERTY 3	PROPERTY 4	PROPERTY 5	TOTAL (ha)
stream order 8 - DUB	-	-	-	12.96						26,047.10
WETLANDS										
significant wetland	-	-	-	4.42						181.20
WPA	-	-	-	6.04						833.11
CONNECTIVITY										
connectivity	-	-	-	17,917.70						105,734.55

<CONFIDENTIAL INFORMATION REMOVED>



Adani Mining Pty Ltd - Charmichael Coal Mine and Rail Project

LOCATION DIAGRAM

Figure 2:
Preferred Package Option
General Location

DATA SOURCE:

Project footprint provided by GHD (12/07/2013 and 25/10/2013)
The following datasets are © State of Qld 2013:
- Cadastral Data (2013)
- GBOS Strategic Footprint (2012)

- Project footprint
- Offset location
- Moray Downs property
- Priority 1 (GBOS)
- Priority 2 (GBOS)
- Priority 3 (GBOS)

DATE	AUTHOR	REQUESTED BY
20-03-2014	RF	KM

N

CO_2

0 10 20 30 40
Kilometres

1:1,730,000

(A4) GCS GDA 1994

9.3. PROPERTY DETAILS

9.3.1. Property 1

<CONFIDENTIAL INFORMATION REMOVED>

Figure 3. Property 1 Environmental Values

<CONFIDENTIAL INFORMATION REMOVED>

9.3.2. Property 2

<CONFIDENTIAL INFORMATION REMOVED>

Figure 4. Property 2 Environmental Values

<CONFIDENTIAL INFORMATION REMOVED>

9.3.3. Property 3

<CONFIDENTIAL INFORMATION REMOVED>

Figure 5. Property 3 Environmental Values

9.3.4. Property 4

<CONFIDENTIAL INFORMATION REMOVED>

Figure 6. Property 4 Environmental Values

<CONFIDENTIAL INFORMATION REMOVED>

9.3.5. Property 5

<CONFIDENTIAL INFORMATION REMOVED>

Figure 7. Property 5 Environmental Values

<CONFIDENTIAL INFORMATION REMOVED>

10. OFFSET PAYMENTS

Under QBOP and PVMO, eligible applicants are allowed to make financial offset payments to an approved trust[29] established for land management or nature conservation purposes. If an applicant is eligible to make an offset payment, the offset obligation is transferred to the approved trust.

The payment under QBOP may be used to either purchase land containing SSBV to add to the protected area estate or to purchase or secure suitable areas with SSBV or areas located within a mapped strategic area or recognised corridor. Under PVMO, the trustee must locate an offset area within a strategic biodiversity corridor that meets the offset requirements consistent with the policy.

While Adani's preference is to offset impacts using direct offsets, wetland protection areas may not be offset through direct offsets. The lack of suitable directs offset for wetland protection areas is likely a result of limitations of the desktop analysis.

Adani will conduct detailed surveys of proposed offset properties to ascertain if suitable offset areas for this environmental value exists; however, if detailed surveys fail to identify a suitable offset, Adani may acquit its obligation through offset payments or indirect offsets.

[29] QBOP specifies that payments be made to the Balance the Earth Trust.

11. INDIRECT OFFSETS

11.1. PURPOSE

To supplement direct offsets, indirect offsets in the form of research activities and/or the implementation of financial contributions towards research and education programs will be explored. Indirect offsets will be particularly pertinent where such initiatives complement other environmental management initiatives, such as species-specific management plans required for the project.

Where possible, on-ground initiatives should be implemented to compliment direct offsets and other environmental impact mitigation initiatives proposed for the project. Such initiatives are in line with direct offset options under the EPBC Act Environmental Offsets Policy, QBOP and PVMO; however, offset options that nominate a complementary approach need to be negotiated with DoTE and DEHP to confirm that these options satisfy the requirements of all relevant policies.

11.2. GUIDING PRINCIPLES

Adani will use the following principles to guide selection of suitable indirect offset methods:

- deliver an overall conservation outcome that improves or maintains the viability project impacted environmental values
- reflect the level of regulatory protection that applies to the environmental values
- effectively account for and manage the risk of the indirect offset not being effective
- be efficient, effective, timely, transparent, scientifically robust and reasonable
- be readily measured, monitored, audited and enforced.

11.3. EXAMPLES OF INDIRECT OFFSETS

11.3.1. Black-throated Finch

Potential indirect offset options include the development or support of species-specific management plans. The black-throated finch in particular, is listed as endangered under the EPBC Act and the NC Act and has a national recovery plan, which specifies threats and priority management objectives. Subject to regulatory support, the management of black-throated finch threats (e.g. feral predators) is expected to improve the quality of black-throated finch habitat and indirectly offset the project's residual impact while complementing a required species management plan (i.e. black-throated finch).

Examples of actions (and indicative funding options) that may be undertaken include:

- Investigate breeding requirements and threats to key breeding areas as there is currently no knowledge of factors affecting breeding success in wild black-throated finch.
    - Conduct a study to investigate breeding in relation to landscape and management variables (e.g. landscape pattern, vegetation structure, fire, livestock grazing, rainfall and land condition)
    - Existing mapping and habitat modelling will be collated to determine all future mapping and modelling needs for the subspecies. New mapping and habitat modelling will be undertaken to remove gaps and identify further areas of potential habitat for the species.
- Undertake targeted surveys.
    - Surveys should target areas of potential habitat and determine the status of the subspecies at each area.

11.3.2. Waxy Cabbage Palm

Residual project impacts on waxy cabbage palm can be sufficiently offset through the delivery of land-based direct offsets (see **Table 16** and **Table 17**). In addition to the delivery of direct offsets and the proposed mitigation measures detailed in the SEIS (GHD, 2013c), indirect offsets may also be delivered through the following methods:

- Seed collection and planting programs within upstream reaches of the Carmichael River
- Relocation of individual plants if deemed a viable and successful method
- Contributing to further research objectives for the species to broaden the understanding of distributional range, water dependency requirements and threatening process triggers.

11.3.3. Back on Track

Indirect offsets may also support the state-initiated Back on Track species prioritisation framework, which prioritises Queensland's native species to guide species conservation, management and recovery. Adani may contribute to mitigating species-specific threats, which are identified in national and state conservation initiatives by implementing activities such as feral predator control and weed management. These activities would complement Adani's obligations under their environmental management framework.

11.4. COMPLEMENTING DIRECT OFFSETS

Other compensatory measures may involve a holistic approach and incorporate environmental values at risk in the As the details of these compensatory measures include properties descriptions and locations, they have been excluded from this public version of the offset package.

12. OFFSET IMPLEMENTATION

The offset requirements of the project consider impacts from the construction and operation phases of the project's mine and rail components. Direct and indirect impacts consequently linked to project activities will occur in stages to reflect the proposed incremental nature of the development of the project.

12.1. PROJECT DEVELOPMENT TIMEFRAME

Adani proposes to construct, operate and decommission the project as summarised in **Table 18.**

Table 18. Project Development Timeframe

YEAR	PROJECT DEVELOPMENT KEY MILESTONES – INDICATIVE TIMING
Stage 1 – Year 1 to Year 10	
2014	Commence Rail construction Commence Quarry construction Undertake redevelopment of Moray Carmichael Road from Gregory Development Road to Mine site Commence construction of power, water supply and other external services Commence construction of workers accommodation village stage 1 & 2 Commence construction of permanent airport Commence construction of power, construction water supply and other external services Construction of flood harvesting infrastructure Commence construction of open cut facilities including Pits B/C and D/E MIA's, Site Fencing, Water Storage Dams and Temporary Roads.
2015	Commence B ,D and E Pit box-cut Complete Pit B Diversion Drains Construct Carmichael River Northern Flood Protection Levies Commence construction of workers accommodation village stage 3 & 4 Complete construction of Permanent Airport Construct Additional Stages of Flood Harvesting Facilities
2016	Commence C Pit box cut Produce first coal from open cut B, D & E Pits Complete open cut facilities for Pit B/C and D/E MIA, ROM and Overland Conveyors Complete B,D&E Pits HV Roads and HV Power Distribution Complete Coal Handling and Processing Plant Modules 1 & 2 and Tailings Cell Complete Product Handling and Train Load-out Facility Commence construction of workers accommodation village stage 5
2017	First Coal Production from open cut C Pit Construct Underground Mine 1 MIA facilities Complete C Pit water diversion drain and HV Roads
2018	Commence development and longwall operations of underground mine UG 1 Complete Coal Handling and Processing Plant Modules 3 & 4
2019	Complete development operations in UG1 and commence longwall operations Construct coal processing plant (CPP) Bypass systems

YEAR	PROJECT DEVELOPMENT KEY MILESTONES – INDICATIVE TIMING
2021	Construct Carmichael River southern flood protection levee Construct Carmichael River Crossing Commence development of underground mine UG 5 Dragline 1 commences in D Pit Commence G Pit Commence minor rehabilitation of out of pit spoil emplacement (OOPSE)
2022	Commence development of underground mines UG 4 and 5 Commence open cut facilities for Pit F/G and UG 4, MIA, ROM and Overland Conveyors
2023	Complete open cut facilities for Pit F / G, Water Management
Stage 2 – Year 11 to Year 20	
2026	Commence F Pit Commence longwall operation of underground mine UG 5 Complete UG 5 MIA
2027	Commence longwall operation of underground mine UG 4 Complete UG 4 overland conveyors and facilities
2028	Commence development of underground mine UG 3 Complete expansion of Pit D/E MIA for UG 3
2029	Rehabilitation works on Pits B, C, D, E OOPSE
2030	Complete UG 5 Infrastructure Complete UG 1 longwall Operations
Stage 3 – Year 21 to Year 60	
2035	Commence development of underground mine UG 2 Commence UG 2 MIA
2036	Commence longwall operation of underground mine UG 3 Complete UG3 Infrastructure
2040	Complete UG 4 longwall Operations
2045	Complete UG 5 longwall Operations
2051	Complete UG 3 longwall Operations Complete mining in C Pit commence final rehabilitation.
2053	Complete mining in E Pit commence final rehabilitation
2059	Complete UG 2 longwall Operations
2061	Complete mining in D Pit commence final rehabilitation
2068	Complete mining in G Pit commence final rehabilitation
2069	Complete mining in F Pit commence final rehabilitation
2070	Decommission Southern ROMs
2071	Complete mining in B Pit commence final rehabilitation. Decommission Southern ROMs Commence mine site rehabilitation
2072	Rehabilitate mine site

12.2. STAGED RESIDUAL IMPACTS THAT REQUIRE OFFSETTING

Table 19 provides a staged breakdown of residual impacts that require offsetting. Stage 1 includes offset requirements for the Rail, Offsite Infrastructure and Mine Stage 1 impacts. Stage 2 corresponds to Mine Stage 2 impacts. Stage 3 corresponds to Mine Stage 3 impacts.

Table 19. Staged Residual Impacts that Require Offsetting

ENVIRONMENTAL VALUE	EPBC ACT STATUS[30]	NC ACT STATUS[31]	VM ACT[32]	STAGE 1 IMPACT (ha)	STAGE 2 IMPACT (ha)	STAGE 3 IMPACT (ha)	TOTAL IMPACT[33]
MATTERS OF NATIONAL ENVIRONMENTAL SIGNIFICANCE							
Brigalow	E	-	-	218.36	19.89	37.60	275.85
black-throated finch (southern)	E	E	-	6,554.83	1,643.51	1,591.42	9,789.75
waxy cabbage palm	V	V	-	5.00	0.47	0.00	5.47
STATE SIGNIFICANT BIODIVERSITY VALUES							
THREATENED FAUNA							
yakka skink	V	V	-	6,976.95	1,860.25	1,691.67	10,528.87
Brigalow scaly-foot	-	V	-	4,405.23	1,433.16	923.12	6,761.50
ornamental snake	V	V	-	1,222.60	314.72	77.92	1,615.24
cotton pygmy-goose	-	NT	-	320.26	0.00	0.00	320.26
eastern great egret	M	SLC	-	320.25	0.00	0.00	320.25
cattle egret	M	SLC	-	7,670.50	1,598.55	1,431.59	10,700.64
glossy ibis	M	SLC	-	20.45	0.00	0.00	20.45
black-necked stork	-	NT	-	20.45	0.00	0.00	20.45
square-tailed kite	-	NT	-	5,924.78	1,687.89	1,433.37	9,046.05
white-bellied sea-eagle	M	SLC	-	81.45	0.00	0.00	81.45
Latham's snipe	M	SLC	-	171.08	1.00	0.00	172.08
black-tailed godwit	M	SLC	-	20.45	0.00	0.00	20.45
common greenshank	M	SLC	-	20.45	0.00	0.00	20.45
marsh sandpiper	M	SLC	-	20.45	0.00	0.00	20.45
common sandpiper	M	SLC	-	20.45	0.00	0.00	20.45
curlew sandpiper	M	SLC	-	20.45	0.00	0.00	20.45
caspian tern	M	SLC	-	20.45	0.00	0.00	20.45

[30] E- endangered, V- vulnerable, M- migratory
[31] E- endangered, V- vulnerable, NT- near threatened, SLC- special least concern
[32] E- endangered OC – of concern, LC- least concern
[33] To be completed

ENVIRONMENTAL VALUE	EPBC ACT STATUS[30]	NC ACT STATUS[31]	VM ACT[32]	STAGE 1 IMPACT (ha)	STAGE 2 IMPACT (ha)	STAGE 3 IMPACT (ha)	TOTAL IMPACT[33]
squatter pigeon (southern)	V	V	-	7,489.32	2,003.37	1,761.49	11,254.18
fork-tailed swift	M	SLC	-	10,058.10	1,867.04	1,741.18	13,666.32
white-throated needletail	M	SLC	-	10,058.10	1,867.04	1,741.18	13,666.32
rainbow bee-eater	M	SLC	-	10,058.10	1,867.04	1,741.18	13,666.32
black-chinned honeyeater	-	NT	-	5,924.78	1,687.89	1,433.37	9,046.05
satin flycatcher	M	SLC	-	368.76	1.00	0.00	369.76
black-throated finch (southern)	E	E	-	6,554.83	1,643.51	1,591.42	9,789.75
koala	V	SLC	-	6,629.32	1,995.05	1,696.07	10,320.43
echidna	-	SLC	-	6,679.99	1,764.52	1,611.64	10,056.15
little pied bat	-	NT	-	7,051.06	1,867.04	1,741.18	10,659.28
THREATENED FLORA							
waxy cabbage palm	V	V	-	5.00	0.47	0.00	5.47
REGIONAL ECOSYSTEMS							
BVG 25a (RE 11.3.1, RE 11.4.8 and 11.4.9)	-	-	E	218.35	19.89	37.60	275.84
BVG 16c (RE 11.3.3)	-	-	OC	77.55	0.38	1.38	79.31
BVG26a (RE 11.4.5 and 11.4.6)	-	-	OC	131.79	59.15	0.00	190.94
BVG 30b (RE 11.4.11)	-	-	OC	145.81	0.00	0.00	145.81
HIGH VALUE REGROWTH							
BVG 25a	-	-	E	9.56	0.00	0.00	9.56
BVG 16c	-	-	OC	3.77	0.00	0.00	3.77
BVG 26a	-	-	OC	4.20	0.00	0.00	4.20
BVG 30b	-	-	OC	1.08	0.00	0.00	1.08
THRESHOLD REGIONAL ECOSYSTEMS							
BVG 26a (RE 11.3.5)	-	-	LC	48.53	2.12	5.36	56.02
BVG 30b (RE 11.4.11)	-	-	OC	145.81	0.00	0.00	145.81
GRASSLAND REGIONAL ECOSYSTEMS							

ENVIRONMENTAL VALUE	EPBC ACT STATUS[30]	NC ACT STATUS[31]	VM ACT[32]	STAGE 1 IMPACT (ha)	STAGE 2 IMPACT (ha)	STAGE 3 IMPACT (ha)	TOTAL IMPACT[33]
BVG 30b (RE 11.4.11)	-	-	OC	145.81	0.00	0.00	145.81
WATERCOURSES[34]							
stream order 2 – BRB	-	-	-	35.55	0.00	0.00	35.55
stream order 2 – DUB	-	-	-	218.93	76.81	108.51	404.26
stream order 4 – BRB	-	-	-	13.03	0.00	0.00	13.03
stream order 4 – DUB	-	-	-	108.82	26.27	0.00	135.10
stream order 8 – BRB	-	-	-	20.91	0.00	0.00	20.91
stream order 8 - DUB	-	-	-	11.93	1.03	0.00	12.96
WETLANDS							
significant wetland	-	-	-	4.42	0.00	0.00	4.42
WPA	-	-	-	6.04	0.00	0.00	6.04
CONNECTIVITY							
connectivity	-	-	-	9,411.82	4,709.14	3,796.73	17,917.70

12.3. IMPLEMENTATION TIMEFRAME

It is proposed that the offsets for the project will be delivered in three stages to reflect the stages of project development. The three stages of offset delivery are presented in **Table 20**.

These tasks and timeframes are subject to change due to a number of variables, including regulatory approval, regulatory requirements, landholder negotiation, climatic conditions, land access, stakeholder inactivity and other unexpected delays.

Table 20. Offset Delivery Timeframe

TASK	ESTIMATED TIMEFRAME
Stage – Pre-delivery	
Submission of the environmental offset package	Q4 2013
In principle support of the environmental offset package received from regulators	Q4 2013
Preparation of preliminary offsets assessment guides for the preferred offset package	

[34] Impacts to watercourses within the mine occur in the Desert Uplands Bioregion (DUB). Impacts to watercourses within the rail footprint occur in the Brigalow Belt Bioregion (BRB)

TASK	ESTIMATED TIMEFRAME
Finalisation of Subsidence Mangement Plan and, if necessary, update of environmental offset package accordingly.	
Stage 1 – Year 1 to Year 10	
If applicable, the provision of offset payments to the Balance the Earth Trust and the provision of indirect offsets	Q4 2014
If applicable, the establishment of offset transfer arrangements for initial stage of offsets	Q4 2014
If required, landholder engagement and negotiation with the owners of the identified properties	Q4 2013 to Q4 2014
Ecological equivalence assessments of the offset sites required for the initial stage of offsets to verify that the values identified through desktop assessments are present, and that they are ecologically equivalent to the impact sites Preparation of final offsets assessment guides for Australian Government offsets	Q4 2013 to Q2 2014
Development of offset area management plans for the initial stage of offsets in accordance with the requirements of the relevant offset policies	Q4 2013 to Q2 2014
Application of a legally binding mechanism to secure the environmental values of the offset area in perpetuity	Q4 2014
Implementation of the offset area management plan including ongoing monitoring and reporting	Q1 2015 ongoing
Review of impacts of Stage 1 of project to identify any oversupply of offsets	Q3 2023
Stage 2 – Year 11 to Year 20	
Submission of a revised environmental offset package to regulators for approval	2024
Implementation of the environmental offset package for Stage 2 offset requirements	2024 - ongoing
Review of impacts of Stage 2 of project to identify any oversupply of offsets	Q3 2033
Stage 3 – Year 21 to Year 60	
Submission of a revised environmental offset package to regulators for approval	2034
Implementation of the environmental offset package for Stage 3 offset requirements	2034 – ongoing

12.4. ECOLOGICAL EQUIVALENCE

Ecological equivalence assessment of the impact and offset areas will be conducted in accordance with the EEM guideline to ensure that the environmental values in the offset areas are equivalent to those being impacted by the project. Ecological equivalence assessments have been completed for the Offsite Infrastructure Areas (undertaken by GHD) and for the Mining Lease Area (undertaken by Ecological Australia). The results of the ecological equivalence assessments and landholder consultation will be used to finalise the configuration of offsets.

12.5. LANDHOLDER ENGAGEMENT AND NEGOTIATION

Landholder engagement has commenced on potential offset areas that are located within GBOS. Under GBOS, landholders owning property possessing significant biodiversity offset values initially receive information about GBOS and have the opportunity to register their interest in the strategy. Should landholders wish to decline their involvement in GBOS, alternative offset areas will be identified.

12.6. EPBC ACT OFFSETS ASSESSMENT GUIDE

The offsets assessment guide will be applied by Adani to assess the suitability of offsets for MNES (including listed species and the Brigalow TEC). Adani is in the process of preparing the offsets assessment guides for the preferred offset package which will be supplied to the Australian Government. The offsets assessment guides will be refined based on the results of upcoming field assessments. Following finalisation, the offsets assessment guides will be presented to the Australian Government, accompanied by explanation and justification of the assumptions made for each MNES assessed.

12.7. FIELD ASSESSMENT OF OFFSET AREAS

Field assessments of each offset option will be undertaken, including ecological equivalence assessments and flora and fauna surveys where appropriate. The aim of the field assessment is to verify that the values identified through desktop assessments are present on each offset property and confirm the suitability of the property as an offset. Assessments will also inform the size of the offset area and the management requirements of each offset property. Replacement properties will be utilised should the results of field assessments indicate that the identified environmental values are not present on the ground.

12.8. PROPERTY REPORTS

If required, individual property reports will be prepared to:

- outline the results of field assessments and landholder engagement
- further define the MNES and SSBV that will be offset on the property
- describe the compliance of the proposed offset with the relevant offset policies, including results of the ecological equivalence assessment and the offsets assessment guide.

12.9. OFFSET AREA MANAGEMENT PLANS

Offset area management plans (OAMP) will be developed for each offset property. These plans will be based on field assessments and will outline the specific management objectives and outcomes for each property. Each OAMP will be developed in consultation with regulators, Adani and the relevant landholders and will then be submitted to the regulators for review and endorsement. OAMPs will include:

- a map of the offset area, including GPS points
- the type and location of values to be offset
- the ecological equivalence assessment of the offset area, if appropriate
- the offset area management objectives and outcomes
- activities that will be undertaken to achieve the management objectives and outcomes
- an analysis of the risks to achieving the management objectives and outcomes
- a monitoring and reporting program
- estimated time until the offset management objectives and outcomes will be achieved
- identification of all registered interests including mortgages, leases, subleases, covenants, easements and building statements, that have been registered on title under the *Land Act 1994* (Qld) and *Land Title Act 1994* (Qld).

12.10. LEGALLY BINDING MECHANISMS

All offsets must be secured by a legally binding mechanism. The appropriate mechanism for each offset will be determined through negotiation with regulators, Adani and the landholder. Legally binding mechanisms may include the following, as recognised by the NC Act:

- Conservation Park - under the NC Act a conservation park is to be managed to:
  - conserve and present the area's cultural and natural resources and their values
  - provide for the permanent conservation of the area's natural condition to the greatest possible extent
  - ensure that any commercial use of the area's natural resources, including fishing and grazing, is ecologically sustainable.
- Nature refuge - A nature refuge is a voluntary agreement between a landholder and the Queensland Government that acknowledges a commitment to manage and preserve land with significant conservation values while allowing compatible and sustainable land uses to continue. Under the NC Act a nature refuge is to be managed to:
  - conserve the area's significant cultural and natural resources
  - provide for the controlled use of the area's cultural and natural resources
  - provide for the interests of landholders to be taken into account.
- Resource reserve - under the NC Act a resources reserve is to be managed to:
  - recognise and, if appropriate, protect the area's cultural and natural resources
  - provide for the controlled use of the area's cultural natural resources
  - ensure that the area is maintained predominantly in its natural condition
  - eliminate the felling of timber for a commercial purpose.
- National park - under the NC Act a national park is to be managed to:
  - provide, to the greatest possible extent, for the permanent preservation of the area's natural condition and the protection of the area's cultural resources and values - the cardinal principle for the management of national parks
  - present the area's cultural and natural resources and their values
  - ensure that the only use of the area is nature-based and ecologically sustainable.

Legally binding mechanisms may include conservation agreements under the EPBC Act. This involves an agreement between the Australian Government Environment Minister and another person for the protection and conservation of biodiversity in an area of land or sea. A conservation agreement may provide for:

- activities that promote the protection and conservation of the following:
  - biodiversity
  - the world heritage values of declared World Heritage properties
  - the National Heritage values of National Heritage places
  - the Commonwealth Heritage values of Commonwealth Heritage places
  - the ecological character of a declared Ramsar wetland
  - the environment, in respect of the impact of a nuclear action
  - the environment in a Commonwealth marine area
  - the environment on Commonwealth land
- financial, technical or other assistance from the Commonwealth
- monitoring compliance with the agreement.

Offsets may also be protected through a Voluntary Declaration as recognised under the VM Act. A voluntary declaration is registered on the property title. For the area to be considered for declaration as an area of high nature conservation value the area must be one or more of the following:

- a wildlife refuge—an area where a species or a group of species has retreated due to a threatening process (e.g. climatic change)
- a centre of endemism—an area containing concentrations of species that are largely restricted to the area
- an area containing a vegetation clump or corridor that contributes to the maintenance of biodiversity
- an area that makes a significant contribution to the conservation of biodiversity
- an area that contributes to the conservation value of a wetland, lake or spring
- another area that contributes to the conservation of the environment.

13. CONCLUSION

Adani is committed to delivering a comprehensive offset program to compensate for the residual project impacts on environmental values resulting from the development of the Carmichael Coal Mine and Rail Project.

This environmental offset package demonstrates that it is possible to deliver compliant offsets in accordance with Australian and Queensland Government offset legislation through direct, land-based offsets supplemented with indirect and compensatory measures. The preferred offset package consists of five offset areas that also support the broader regional priorities as outlined in GBOS.

While Adani's preference is to offset impacts using direct, land-based offsets, direct offsets could not be delivered to acquit the offset requirements relating to wetland protection areas due to limitations in the desktop analysis. Adani will conduct detailed surveys of the proposed offset properties to ascertain if suitable offset areas for wetland protection areas exist.

As part of the implementation of the package, Adani will conduct landholder engagement and ecological surveys to confirm the suitability of the preferred offset package. Subsequently, Adani will refine the package to reflect landholder participation and the results of the ecological surveys. Should the preferred offset package no longer acquit Adani's offset requirements, the refined offset package will further evaluate offset payments and/or indirect offsets. Offset payments and indirect offsets are likely to contribute to species-specific management plans and targeted recovery actions.

Adani proposes to offset MNES that are expected to be significantly impacted (i.e. Brigalow TEC, black-throated finch and waxy cabbage palm) as a result of residual project actions. In addition, Adani proposes to offset the SSBV specified in this offset package that will be adversely impacted by project actions relating to on-site vegetation clearing, off-site vegetation clearing and high impact subsidence.

Once the Australian and Queensland Governments endorse the package, the package will be implemented in a staged approach to correspond with the sequential development of coal extraction over the production life of the mine.

14. REFERENCES

Adani Mining. 2013. Draft Subsidence Management Plan (unpublished).

Clayton, P.D., Fielder, D.P., Howell, S. and Hill, C.J. 2006. Aquatic Biodiversity Assessment and Mapping Method (AquaBAMM): a conservation values assessment tool for wetlands with trial application in the Burnett River catchment. Environmental Protection Agency, Brisbane.

Department of Environment and Resource Management. 2011. Ecological Equivalence Methodology Guideline Policy for Vegetation Management Offsets Queensland Biodiversity Offset Policy Version 1 3 October 2011. Queensland Government, Brisbane.

DEHP. 2011. Queensland Biodiversity Offset Policy. Queensland Government, Brisbane.

DEHP. 2011. Policy for Vegetation Management Offsets Version 3. Queensland Government, Brisbane.

DEHP. 2008. Queensland Government Environmental Offsets Policy. Queensland Government, Brisbane.

DoTE. 2013. *Environment Protection and Biodiversity Conservation Act 1999* Matters of National Environmental Significance Significant Impact Guidelines 1.1. Australian Government, Canberra.

DSDIP. 2011. Carmichael Coal Mine and Rail Project Final Terms of Reference for the Environmental Impact Statement. Queensland Government, Brisbane.

SEWPaC. 2012. Environment Protection and Biodiversity Conservation Act 1999 Environmental Offsets Policy October 2012. Australian Government, Canberra.

Ecofund. 2012. Environmental Offset Strategy for the Carmichael Coal Mine and Rail Project. Prepared for Adani Mining Pty Ltd.

GHD. 2010. Initial Advice Statement, prepared for Adani Mining Pty Ltd for the Carmichael Coal Mine and Rail Project. Available online: <http://www.dsdip.qld.gov.au/resources/project/carmichael/initial-advice-statement.pdf>

GHD. 2012. Environmental Impact Statement for the Carmichael Coal Mine and Rail Project, prepared for Adani Mining Pty Ltd.

GHD. 2013. Updated impact data prepared for Ecofund for the Environmental Offset Package.

GHD, 2013b. Report for Great Barrier Reef Wetland Protection Areas prepared for Adani Mining Pty Ltd for the Carmichael Coal Mine and Rail Project

GHD, 2013c. Draft Supplementary Environmental Impact Statement, prepared for Adani Mining Pty Ltd for the Carmichael Coal Mine and Rail Project.

APPENDIX A: EIS SUBMISSIONS ON EIS OFFSET STRATEGY

ORGANISATION	FEEDBACK	ACTION	SECTION REFERENCE
DEHP	The offset strategy (two copies) provided at Appendix AH and AK and overview at Volume Section 9) is a framework strategy. Definitive quantitative information on SSBV impacts and offsets to be provided will be required from the EIS process before EA conditions can be developed. No clearing on site will be allowed without quantitative offsets information. Mining stages can be considered however, estimates of life of mine offsets should be in the EIS	Ecological equivalence (EE) assessments are required to provide quantitative information on offset area requirements. EE assessments will be undertaken as part of the implementation of the package	12.3
DEHP	Inconsistent description of offsite infrastructure areas	The package is based on latest impact data and the description of project elements is consistent with SEIS	3.0
DEHP	Lack of a subsidence management plan	Adani has drafted a subsidence management plan which will be finalised prior to construction and proposes to offset high impact subsidence.	3.2, SEIS Volume 4, Appendix I
DEHP	The base-line EE should be carried out for the open cut, subsidence and out of pit waste dump areas in order to quantify the offset requirements, monitor the impact, justify the offset requirements for the subsidence area.	EE assessments of impact areas will be undertaken as part of the development and implementation of the package prior to the disturbance of MNES or SSBV.	12.3
DEHP	There is substantial variation in the survey effort (frequency, intensity, level of site survey between ecological surveys in EPC 1690 and EPC 1080 and off-lease development areas. The off-lease development areas actually changed location after surveys had been completed. While this is not seen as a significant problem for the ecological information presented in the EIS, recognising that further surveys will be needed to meet the requirements of the offset strategy, the statement of survey methodology and survey effort in Volume 2, Section 5 Nature Conservation should clearly reflect what has been done and not require the reader to search to an appendix level determine this (Volume 4, Appendix N1, Appendix B)	Adani has undertaken substantial survey effort as detailed in the SEIS. The package is based on the latest impact information data which incorporates the findings of recent surveys.	3.0
DEHP	The northern area of EPC 1080 has not been comprehensively surveyed for both flora and fauna. It is acknowledged that the area underwent an extensive fire at the time of surveying in November 2011. The best time for survey work is March to May.		

ORGANISATION	FEEDBACK	ACTION	SECTION REFERENCE
DEHP	Brigalow scaly-foot has been located two properties to the west of Moray Downs in the catchment of the Carmichael River and therefore it is likely to occur on the project area and should be accounted for in MNES offset requirements		
DEHP	It is unlikely that there are 37, 839 ha of potential compliant offset for black-throated finch habitat to the west of the mining lease within Moray Downs as at least half of this area is unsuitable as habitat. Offset areas for black-throated finch which already contain the species will need to demonstrate improvement of finch conservation outcomes through specific management improvements or decrease of threats. The maintenance of black-throated finch habitat within the mining lease should be a high priority	At the time of writing, field work is currently being undertaken to determine the extent and quality of species-specific habitat values within the offset areas, including Moray Downs.	12.7
DEHP	It is not clear how the proponent avoided and minimised disturbance in both EPC1690 and EPC1080 in setting out the mine plan. It is not apparent from the EIS document.	Adani conducted a comprehensive avoidance and mitigation assessment.	4
DEHP	The EIS does not demonstrate, or even discuss, minimisation of impact of mining operations (on-lease activities especially out-of- pit waste dumps) on biodiversity values requiring offset. This relates to the need for a more advanced mine plan than the schematic provided in Volume 2 Section 2.		
DEHP	Avoidance and mitigation measures have not been demonstrated to meet the ToR, especially re the Bygana West NR (from ToR adequacy spreadsheet).		
DEHP	The Environmental Offset Strategy is an early outline only and to be useful for public review would need to define offset area values (or other offset type) and likely establishment timeline. The timeline needs to be related to the timing of the EIS outcome, draft environmental authority, final environmental authority, and commencement of mining activities e.g. when ecological equivalence will be completed and when direct offsets will be established.	An updated project development and offset implementation timeline has been prepared	12.1, 12.3
DEHP	The EHP Galilee Offsets Strategy has been released to aide in selecting suitable offsets sites for best biodiversity outcomes.	Environmental offset package utilised direct offset options available on Adani owned properties and areas recognised as	9.0

ORGANISATION	FEEDBACK	ACTION	SECTION REFERENCE
		possessing 'high conservation value' within the Galilee Basin Offset Strategy.	
DEHP	The Environmental Offset Strategy describes the impact area on each environmental value within the open cut, subsidence, off-site and rail corridor area. The area required for each stage (1,2 and 3) of mining for each component should be presented. The offset requirements for stage one (2013 to 2027) should be presented including the areas likely to be used for offset requirements.	The package is based on impact data provided by GHD.	3.0
DEHP	(The EM Plan - Mine) Format is acceptable. The intended series of operations plans (Table 13.4) should include a subsidence management plan and an offsets management plan (if direct offsets are used).	Offset management plans cannot be finalised until specific direct offset areas are confirmed and on-ground assessments are undertaken to determine the nature and extent of the required management actions.	12.0
SEWPaC	Consider the high biodiversity values of Bygana West NR and, in accordance with mining best practice, first demonstrate ways to avoid impacting this area, second demonstrate mitigating measures and offsetting impacts relating to Bygana West Nature Refuge.	The SEIS has been updated to address avoidance and minimisation of impacts	3.0, 4.0
SEWPaC	Describe any departure from no net loss of ecological values.	The environmental offset package is compliant with current offset policies and adopts the policies' approach to 'no net loss' of ecological values.	2
DEHP	The proponent should present in table and map form the impact areas which require offsets for both Commonwealth and State offset requirements for each of the proposed three stages of the project. It is likely that the State values impacted by underground mining (such as subsidence) will require offsets.	An updated project development and offset implementation timeline has been prepared	12.2
DEHP	The proponent should revise the estimated offset potential area within Moray Downs to more accurately reflect the likely availability of 6% FPC areas. Please contact EHP officers for further mapping information.	Final offset areas will be ecologically equivalent and subject to the offsets assessment guide.	12.4, 12.6
DEHP	The proponent should assess the ecological equivalence of the impact area and the proposed offset areas in order to determine the ratio of offset required and to determine the suitability of the habitat for the target species. This will also enable the proponent to determine the management actions required to ensure the survival of the species and ecosystems in this basin. It is	The offset implementation timeline has been updated	12.3

ORGANISATION	FEEDBACK	ACTION	SECTION REFERENCE
	recommended that the proponent provide maps of the availability of each offset value within Moray Downs in order to better assess the availability of offset values on this property.		
DEHP	The offset strategy should be in accordance with the existing Queensland Biodiversity Offset Policy (EHP 2011) and Galilee Basin Offset Strategy (EHP 2012). An offset proposal would not be accepted where the site is located within a mining lease area or mining lease application area. If the offset is in the Galilee Investment Hub shown in the Galilee Basin Offset Strategy, an offset may be supported with the provision of supporting information such as demonstration that there is a nexus between the values impacted and the proposed offset and that a conservation gain can be achieved.	Offset areas have been identified in accordance with the Australian and Queensland Government offset legislation focusing on priority GBOS properties.	2.0, 12.3
DEHP	If the offset is not in the Galilee Investment Hub, it may be supported provided that the Queensland Biodiversity Offset Policy (BOP) requirements are met. This includes: - a demonstrated clear conservation gain; - ecological equivalence requirements met; - remnant regional ecosystems - the offset must be in the same bioregion, same broad vegetation group, not remnant, and with the same conservation status or higher; and - protected plants and animals – the specific policy requirements under the QBOP are met (e.g. page 31 and 33 of QBOP).	Offset areas have been identified in accordance with the Australian and Queensland Government offset legislation focusing on priority GBOS properties.	2, 12.3
Macmines Austrasia Pipelines	MacMines request that no offset areas are secured or approved on land underlying the proposed Project China Stone MLA area. The securing of such offsets would significantly constrain the proposed mining activities within the MLA area and is likely to make the project not economically viable.	Consideration will be given to existing exploration permits and mining leases during the finalisation of the offset plan.	-