Galilee Coal Project
(China First)

Biodiversity Offset Strategy

WAR005-ENV-RPT-0001

Release authorisation

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Reviewed	Berlinda Ezzy
Approved	Steve Fox

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Rev	Date	Status	Originator	Reviewed	Approved
B	17 June 2011	Second draft for review	JuC / JM	RF	SF
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Definitions and abbreviations

In this document, the following definitions and abbreviations apply:

Term/Abbreviation	Meaning
APSDA	Abbot Point State Development Area
BNR	Bimblebox Nature Refuge
BVG	Broad Vegetation Group
CG	Co-ordinator General
DERM	Department of Environment and Resource Management (Qld)
SEWPaC	Department of Sustainability, Environment, Water, Population and Communities (Cwth)
EIS	Environmental Impact Statement
EPBC Act	*Environment Protection and Biodiversity Conservation Act 1999 (Cwth)*.
ha	Hectare
HVR	High Value Regrowth
km²	Square kilometres
Land Act	*Land Act 1994* (Qld)
Land Title Act	*Land Title Act 1994* (Qld)
NC Act	*Nature Conservation Act 1992* (Qld)
MIA	Mine Infrastructure Area
MNES	Matters of National Environmental Significance
NQBP	North Queensland Bulk Port Authority
PMAV	Property Map of Assessable Vegetation
QGEOP	*Queensland Government Environmental Offsets Policy*
Qld	Queensland
RE	Regional Ecosystem
SDPWO Act	*State Development and Public Works Organisation Act 1971*
TEC	Threatened Ecological Communities
VM Act	*Vegetation Management Act 1999* (Qld)
VMP	Vegetation Management Plan

Executive summary

Unidel have been engaged by Waratah Coal to assess the biodiversity offset requirements of the Galilee Coal Project (Northern Export Facility), also referred to as The China First Coal Project, and develop a Biodiversity Offset Strategy (the Offset Strategy) that assesses the offset requirements at the State and Commonwealth level, identifies an approach for delivery of offsets and analyses potential offset availability.

For the purposes of this project, biodiversity offsets are defined as all offsets required under the Queensland Governments Environmental Offset Policy 2008 and subordinate policies, and the offsets provided for matters of national environmental significance under the *Environment Protection and Biodiversity Conservation Act 1999*.

The Project consists of a new coal mine in the Galilee Basin near Alpha, railway and use of North Queensland Bulk Ports coal stockyards and supporting infrastructure at the Port of Abbot Point to export quality thermal coal to international markets.

The Project is a 'state significant project' under the *State Development and Public Works Organisation Act 1971* for which an Environmental Impact Statement (EIS) is required. The Project is also a controlled action under the *Environment Protection and Biodiversity Conservation Act 1999*. Waratah Coal are currently finalising the EIS of which this Offset Strategy will form part.

An assessment has been undertaken of the environmental offset requirements of the Project under both Commonwealth and State legislation, and offset policies currently in place that are relevant to the Project including:

(i) Draft Policy Statement: Use of environmental offsets under the *Environment Protection and Biodiversity Conservation Act 1999*.

(ii) Queensland Government Environmental Offsets Policy 2008

Offset analysis has identified a number of significant biodiversity values that may be adversely impacted by the Project and require offsetting. These include Threatened Ecological Communities, Of Concern and Endangered regional ecosystems and a number of threatened fauna species habitat, including the Black-throated Finch. The Project will also impact upon an existing nature refuge, Bimblebox Nature Refuge, for which compensation is being proposed.

Waratah Coal has identified that it is seeking to adopt an approach to offsetting that is directed at locating and securing larger, strategic offset areas that contain multiple offset values. This will maximise the biodiversity outcomes achieved and result in more viable offsets for the long-term. The approach being proposed for compensation for the Bimblebox Nature Refuge is to assess additional areas of land within the Desert Uplands bioregion (preferably in close proximity to the mine) that contain the same vegetation communities, similar or better biodiversity values, and that the offset become a future protected area to be protected and enjoyed by the broader public in perpetuity.

Based on the Project footprint and the current information on the extent of potential fauna habitat the Project requires compensation and offsets for the following biodiversity values:

- Bimblebox Nature Refuge;
- Brigalow Threatened Ecological Communities;
- Grassland Threatened Ecological Communities;
- Endangered Regional Ecosystems;
- Of Concern Regional Ecosystems;
- Essential habitat (Large-podded trefoil);
- EPBC Threatened flora (Black Ironbox); and
- EPBC Threatened fauna (six species)

Unidel has undertaken spatial analysis to determine the potential availability of suitable offsets. This included a desktop exercise to identify potential offset sites that contain as many of the offset values as possible, will deliver strategic conservation outcomes and also deliver real benefit to those species and ecological communities at greatest risk. Large areas of potential offsets have been identified within 100km of the mine and 50km of the rail corridor that are mapped as containing the vegetation communities and biodiversity values Waratah Coal are seeking to offset.

Once Waratah Coal have endorsement of the Offset Strategy, the next phase is to prioritise offset areas, commence landholder engagement and undertake preliminary site inspections to verify the biodiversity values on the ground.

In consultation with the Coordinator-General, Department of Environment and Resource Management and Department of Sustainability, Environment, Water, Population and Communities an Offset Package will then be prepared that details the proposed offset sites, mechanisms to secure the areas and management requirements. The Offset Package will also include information on any indirect offsets that may be proposed based on consultation with stakeholders.

1 Introduction

1.1 Purpose

Unidel Group was engaged by Waratah Coal Pty Ltd to prepare a Biodiversity Offset Strategy (the Offset Strategy) that assesses the biodiversity offset requirements at the State and Commonwealth level for the Galilee Coal Project, also referred to as The China First Coal Project (the Project). The Offset Strategy details the anticipated offset requirements of the Project, Waratah Coal's proposed approach to meeting the offset requirements, and potential offset availability.

The Offset Strategy addresses the mine and rail components only. Offset requirements associated with the port facility will be assessed in a separate approvals process by the North Queensland Bulk Port Authority (NQBP).

The Offset Strategy forms part of the Galilee Coal Project Environmental Impact Statement (EIS) to satisfy impact assessment requirements of the Co-ordinator General (CG) and Department of Sustainability, Environment, Water, Population and Communities (SEWPaC) for the Project.

As part of the CG's assessment it is anticipated that offsets will be required in accordance with the Queensland Government Environmental Offsets Policy (QGEOP). The CG has discretion when conditioning the proposal to require environmental offsets, and in what form they will take. The Project has also been declared a Controlled Action under the *Environment Protection and Biodiversity Conservation Act 1999 (*EPBC Act). It is therefore anticipated that SEWPaC's approval conditions will include offset requirements for unavoidable impacts to matters of national environmental significance. This is likely to include Threatened Ecological Communities (TECs) and significant impacts on listed flora and fauna species and/or their habitat.

1.2 Objectives

The objectives of this Offset Strategy are to:

- Analyse the current estimated residual, direct environmental impacts associated with the mine and rail components of the Project (as detailed in the EIS);
- Assess the residual impacts against relevant specific-issue offset policies and determine the Project's biodiversity offset requirements;
- Outline Waratah Coal's offset principles and approach to offsetting for the Project;
- Undertake spatial analysis to identify offset availability and potential strategically-located offset sites;
- Identify and describe potential mechanisms to secure and manage offsets; and
- Describe likely tasks and timelines for the completion of the offset program;

Figure 1 shows the proposed offset development process, and identifies where this Offset Strategy fits within this process.

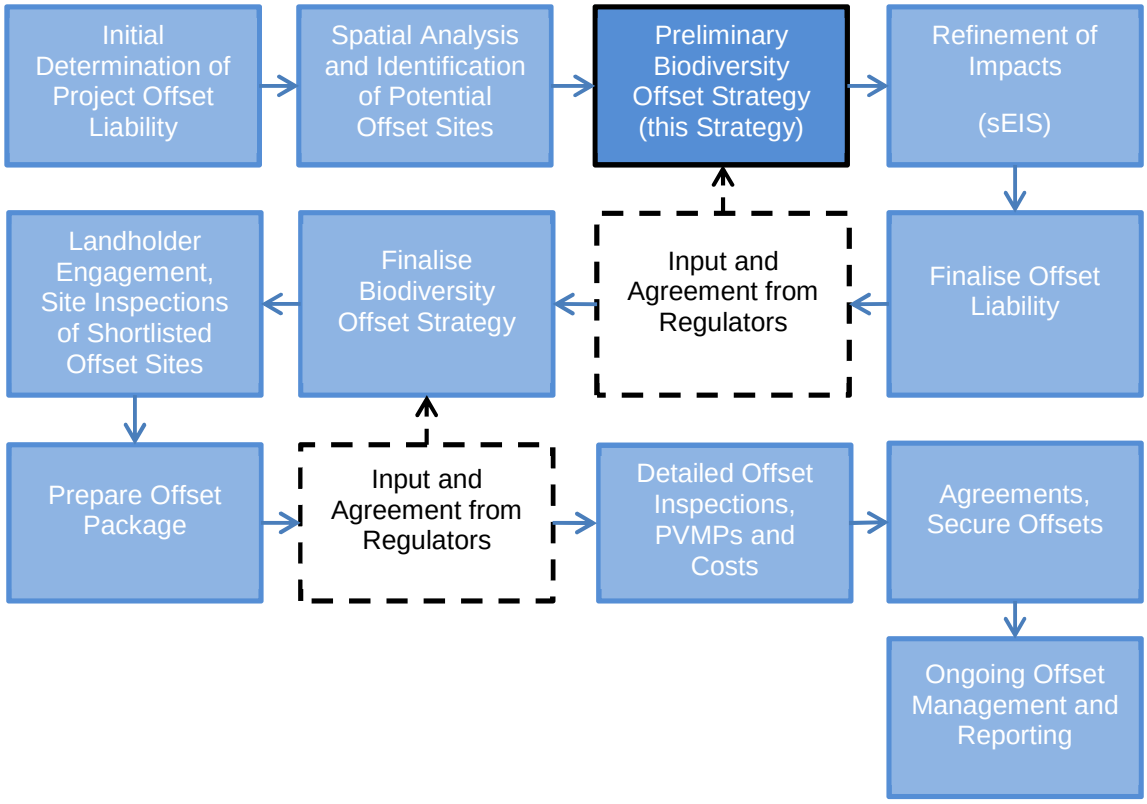


Figure 1: Offset Development Process.

2 Background

2.1 Galilee Coal Project

Waratah Coal is a privately owned Australian Coal Exploration and Coal development company. Waratah Coal is the proponent for the Galilee Coal Project (Northern Export Facility), otherwise known as The China First Coal Project, which consists of a new coal mine, railway and use of the NQBP coal stockyards and supporting infrastructure to export quality thermal coal to international markets.

The Project's estimated total development cost is $8.4 billion dollars. It will proceed through a staged development process that targets first coal production in Q4 2014. The Project is anticipated to have a life of at least 30 years.

2.2 Location and Extent

The coal mine is located approximately 30km north of Alpha, within the Desert Uplands bioregion. It will be a combination of two surface mines and four underground mines, with a planned combined export capacity of 40Mtpa. The mines will be supported by a purpose-built Mine Infrastructure Area (MIA).

The mine area covers approximately 69,777 ha and includes:

- Mine surface clearance footprint (14,615ha), which corresponds to the area to be cleared to enable the mine to be developed; and
- Underground longwall area (29,755 ha).

Processed coal will be transported by a new railway system, approximately 447km in length, to the coal terminal at the existing Port of Abbot Point, on strategic port land. Coal bulk storage facilities and associated end or rail infrastructure is within the Abbot Point State Development Area (APSDA).

Figure 2 shows the proposed location of the Project, while Figure 3 outlines the proposed mine footprint and extent of the above and below ground operations.

2.3 Approvals Process

The Project was classed as a 'controlled action' in March 2009 by the Commonwealth SEWPaC, necessitating an EIS and full assessment against the EPBC Act. The project is being assessed under a parallel process between the Commonwealth and the State of Queensland (overseen by the CG).

The Project was declared a 'significant project' in November 2008 for which an Environmental Impact Statement (EIS) is required pursuant to section 26(1)(a) of the *State Development and Public Works Organisation Act 1971* (SDPWO Act).

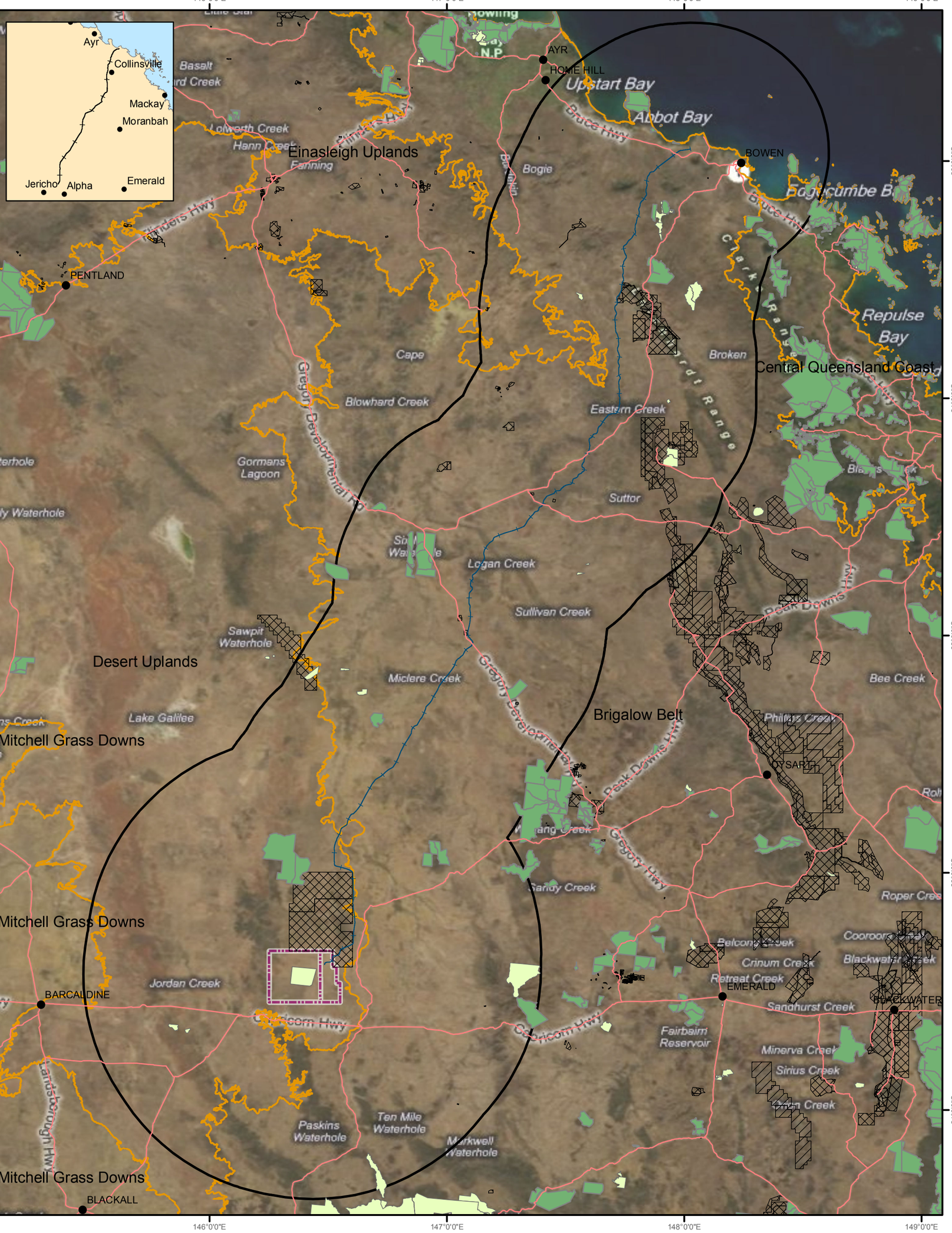
Waratah Coal are currently finalising the EIS in accordance with the Terms of Reference issued by the CG and the Commonwealth. This Offset Strategy will form part of the EIS.

2.4 Assessment of Impacts

The purpose of the EIS is to provide information on the nature and extent of potential direct and indirect environmental, social and economic impacts associated with construction and operation of the Project.

Information provided in the EIS describing the presence of particular environmental values within the Project area, and the estimated extent of unavoidable impacts to those values, has been used to inform the development of this Offset Strategy. Some of the impacts and offset calculations are preliminary and as the Project progresses, and impacts refined, the Offset Strategy will be reviewed.

Waratah Coal commit to avoiding and mitigating environmental impacts to the greatest extent possible when designing and constructing the Project. Offsets are only being considered and proposed where environmental impacts are unavoidable, cannot be fully mitigated and there is a residual impact remaining. This is consistent with the offset principles detailed under both State and Commonwealth offset policies.



WARATAH COAL CHINA FIRST PROJECT

Figure 2 - Project Location

Data Source
Base Layers obtained from DERM website;
Aerial Image by Bing Maps Microsoft Corporation 2010.

Job: WAR005
Date: 21/06/2011

Legend

- Major_towns
- Road
- Rail Alignment 20/05/2011
- Nature Refuges
- Protected Areas
- Mining Leases
- Petroleum Leases
- Offset Study Area
- Mine Study Area
- Bioregions

Kilometres
0 5 10 20

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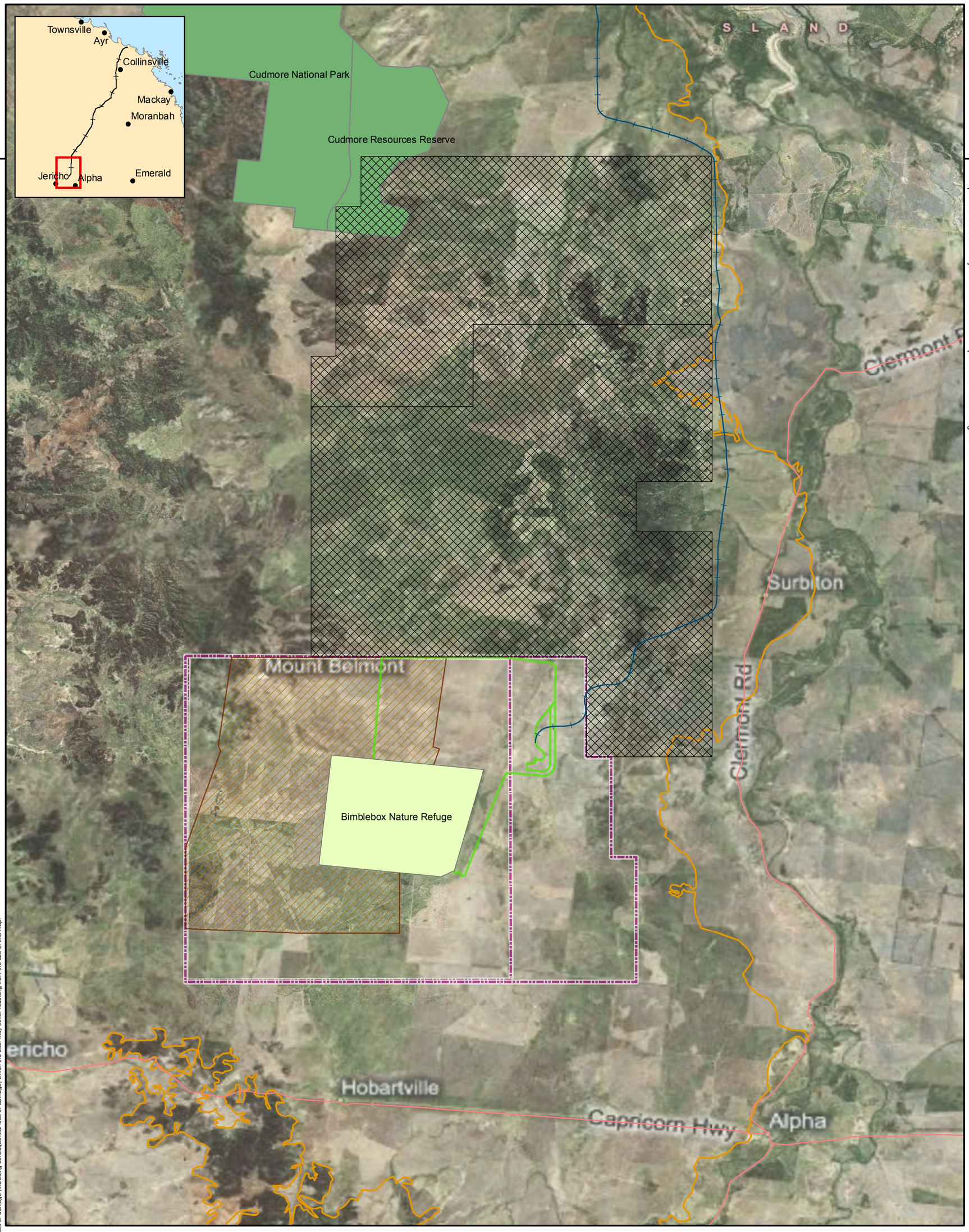

WARATAH COAL CHINA FIRST PROJECT

Figure 3 - Mine Area

Data Source
Base Layers obtained from DERM website;
Aerial Image by Bing Maps Microsoft Corporation 2010.

Job: B11438.01
Date:

Legend

- Major_towns
- Road
- Rail Alignment 20/05/2011
- Mining Leases
- Petroleum Leases
- Nature Refuges
- Protected Areas
- Study Area
- Surface Clearance Footprint
- Underground Mine Area
- Mine Study Area
- Bioregions

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3 Legislative Framework and Proposed Offsetting Principles

3.1 Introduction

Proposed actions within Queensland requiring the clearing of vegetation have the potential to trigger requirements under Commonwealth and State policies for the provision of environmental offsets to compensate for any loss experienced as a result of the action.

The environmental offsets policy framework operates on three separate levels in the State:

- The EPBC Act enables the provision of offsets to be a condition of approval under the Act for any action that has the potential to have a significant impact on MNES;
- The QGEOP provides an overarching framework setting the principles and requirements for delivery of offsets in Queensland, as well as development of new specific-issue offset policies. The CG may use QGEOP as a guide to requiring and conditioning biodiversity offsets for state significant projects; and
- A number of specific-issue offset policies are in effect in Queensland under separate legislation such as the *Vegetation Management Act 1999* (VM Act) and *Fisheries Act 1994* and offsets may be conditioned as part of a separate approval under these Acts.

3.2 Commonwealth

The "Draft Policy Statement: Use of environmental offsets under the *Environment Protection and Biodiversity Conservation Act 1999*" outlines the position of the Commonwealth Government with respect to the use of environmental offsets under the EPBC Act. Offsets are viewed by the Commonwealth as the third strategy to reduce potential impacts to MNES – after avoidance and mitigation, which generally refers to on-site measures.

Offsets, as an approval condition, are subject to legislative requirements under Part 9 of the EPBC Act. Offsets are a type of approval condition and need to be consistent with Section 134 of the EPBC Act, which states that conditions can only be made to protect, repair or mitigate damage to MNES or the environment for actions affecting the Commonwealth.

The Draft Policy Statement lists actions that can be considered as environmental offsets:

- Direct offsets:
  - Long-term protection of existing habitat;
  - Restoration and rehabilitation of existing degraded habitat; and
  - Re-establishing habitat.
- Indirect offsets:
  - Implementation of recovery plan actions;
  - Contributions to relevant research or education programs;
  - Removal of threatening processes;
  - Contributions to appropriate trust funds or banking schemes; and
  - Ongoing management activities.

Offsets should be consistent with the principles of ecologically sustainable development (section 3A) and should aim to maintain or enhance the environment and aid the recovery of listed threatened species and ecological communities.

The Draft Policy Statement lists eight principles for offsets:

1. Environmental offsets should be targeted to the matter protected by the EPBC Act that is being impacted;

2. A flexible approach should be taken to the design and use of environmental offsets to achieve long-term and certain conservation outcomes which are cost effective for proponents;
3. Environmental offsets should deliver a real conservation outcome;
4. Environmental offsets should be developed as a package of actions, which may include both direct and indirect offsets;
5. As a minimum, environmental offsets should be commensurate with the magnitude of the impacts of the development and ideally deliver outcomes that are 'like for like';
6. Environmental offsets should be located within the same general area as the development activity;
7. Environmental offsets should be delivered in a timely manner and be long lasting; and
8. Environmental offsets should be enforceable, monitored and audited.

3.3 State

The QGEOP guides the appropriate use of environmental offsets across terrestrial and aquatic ecosystems within Queensland. The CG may require offsets as part of approvals under the SDPWO Act, and use QGEOP as a guide to determining the extent and type of offsets required.

QGEOP describes offsets as an action taken "to counterbalance unavoidable, negative environmental impacts that result from an activity or a development."

The scope of the QGEOP is limited to projects where a State Government agency is the decision maker, or is involved as a concurrence agency. At present, there are three specific-issue offset policies in operation within the QGEOP framework, concerning:

- Clearing of Remnant Vegetation;
- Koala Habitat; and
- Marine Fish Habitat.

There are seven policy principles that direct offset development under the QGEOP:

1. Offsets will not replace or undermine existing environmental standards or regulatory requirements;
2. Environmental impacts must first be avoided, then minimised, before considering the use of offsets for any remaining impact;
3. Offsets must achieve an equivalent or better environmental outcome;
4. Offsets must provide environmental values as similar as possible to those being lost;
5. Offset provision should minimise the time-lag between the impact and delivery of the offset;
6. Offsets must provide additional protection to environmental values at risk, or additional management actions to improve environmental values; and
7. Offsets must be legally secured for the duration of the offset requirement.

3.4 Offset Principles and Approach adopted by Waratah Coal

Waratah Coal proposes to adopt the offset principles that are central and consistent to both the Commonwealth and State as the Project will be required to deliver offsets under both jurisdictions.

The following key principles have been adopted by Waratah Coal in identifying and proposing biodiversity offsets for the Project:

- A fundamental principle in the development and operation of the Galilee Coal Project is the avoidance of areas of biodiversity significance wherever possible, and to minimise impacts through appropriate mitigation measures;

- Where impacts are unavoidable to values of Commonwealth and State biodiversity significance (as defined in existing offset policies), offsets will be provided. No specific offset policy is currently in place for protected areas. However Waratah Coal is committed to providing compensation for the impacts to the Bimblebox Nature Refuge (BNR) and is liaising with DERM and stakeholders to identify an appropriate offset that will achieve a net conservation gain to Queensland's protected area estate for this loss;

- Preference will be to locate offsets as close as possible to the area of impact. For impacts associated with the rail (due to the long, linear nature) this will be to co-locate the offset values from the rail to the greatest extent possible, and offset within the same sub-region or bioregion;

- A smaller number of larger, strategic offset areas will be preferred over a larger number of smaller offset sites. Preference will be given to properties that provide for co-location of offset values;

- A flexible approach will be taken to offsetting impacts by allowing a focus on the key threatened ecosystem types and fauna species habitat impacted by the Project to achieve the best conservation outcomes;

- Offsets may consist of a combination of remnant and non-remnant areas that are located in biodiversity corridors and adjacent to protected areas or large tracts of bushland to enhance the viability and connectivity of existing habitats;

- Offsets will be protected on title and actively managed through sustainable land management practices to enhance their biodiversity values; and

- A package of direct and indirect offset measures will be considered to allow for tailored offset solutions that deliver conservation effort where it is most required, and of greatest benefit to those regions and values being impacted.

4 Offset Requirements of Project

4.1 Determination of Impacts

Studies undertaken for the EIS have assessed key flora and fauna values of the study area and described the potential impacts associated with both the construction and operation of the mine and rail. The studies have assessed potential impacts to TECs, Regional Ecosystems (REs) and threatened flora and fauna species under the *Nature Conservation Act 1992* (NC Act) and EPBC Act.

Studies included flora and fauna surveys and ground-truthing of more than 31 sites (mine) and 57 sites (rail), a number of which were within mapped remnant areas. The determination of offset requirements (Section 4.2 of this Offset Strategy) for the Project have been based on information provided within the EIS and has therefore relied on the methodology and survey effort currently undertaken. The clearing impacts for the rail are upper estimates assuming a 100m clearance footprint with the clearing width able to be reduced to 40m in areas of environmental sensitivity, where practicable. For further information pertaining to the ecological surveys and results refer to Volume 2, Chapter 6 (mine) and Volume 3, Chapter 6 (rail).

Direct, unavoidable impacts identified include the clearing of Endangered and Of Concern remnant vegetation and habitat that is protected at the Commonwealth and/or State levels, some of which trigger offset requirements under the relevant offset policies. Compensation for impacts to the existing BNR will also be addressed in this Offset Strategy.

Impacts associated with the port facility are not addressed in this Offset Strategy. These impacts and any associated offsets will be addressed separately by the NQBP in separate EIS processes.

4.2 Determination of Offset Requirements

4.2.1 Commonwealth

In order to determine the Commonwealth offset requirements for the Project, consideration must be given to the expected impacts of the Project on any MNES. The eight categories of MNES are listed in **Table 1**, along with expected impacts of the Project upon these values.

Table 1 MNES

Matter of National Environmental Significance	Expected Impacts of Project
World Heritage Properties	The Project will not impact on any World Heritage properties.
National Heritage Places	The Project will not impact on any National Heritage Places.
Wetlands of International Importance	The Project will not impact on any Wetlands of International Importance.
Listed Threatened Species and Ecological Communities	The Project has the potential to impact **2** TECs, **9** fauna species and **7** flora species protected under the EPBC Act. Further details are provided in section 4.2.3 of this Strategy.
Migratory Species	**17** migratory bird species preferred habitats were identified as present in the Project area.
Commonwealth Marine Areas	The Project will not impact on a Commonwealth Marine Area.
The Great Barrier Reef Marine Park	The Project will not impact on the Great Barrier Reef Marine Park.
Nuclear Actions	The Project does not involve a nuclear action.

4.2.2 State

An analysis has been undertaken of potential impacts to the State significant biodiversity values that are currently required to be offset under the specific-issue offset policies.

These policies include:

- Policy for Vegetation Management Offsets 2009, under the VM Act;
- Protected Plant Offset Policy under the NC Act *(DERM internal policy); and*
- Marine Fish Habitat – Mitigation and Compensation for Works or Activities Causing Marine Fish Habitat Loss under the *Fisheries Act 1994*.

The Project is not subject to the VM Act as mining activities are exempt from the need to obtain clearing permits under the Act. However for the purposes of this Offset Strategy Waratah Coal have given consideration to individual offset policies under QGEOP and therefore assessed those key environmental values that would normally require the provision of an offset under the VM Act.

Waratah Coal also propose to assess the impacts to the protected area, BNR, as a result of the proposed mining activities and identify appropriate compensation outcomes in consultation with DERM and stakeholders.

Therefore, the main offset requirements for the Project at the State level have been determined through an analysis of the *Policy for Vegetation Management Offsets (Version 2.4)* (DERM, 2009) Protected Plants under the NC Act and consideration of compensation for loss of protected areas.

4.2.3 Offset Liability

Tables 2 and **3** below outline the biodiversity values at the Commonwealth and State level that are likely to occur in the Project footprint, will incur some level of unavoidable impact, and for which offsets will be proposed. Information is presented on the estimated extent of impact, the value or species habitat in the Project area, and offset considerations.

It should be noted the potential areas of disturbance identified below are preliminary at this stage of the Project. The EIS lists broad habitat ranges for the potential impact to the threatened fauna species as defined by SEWPaC. Where information is available these broad habitat ranges have been refined to more accurately define the impact in this preliminary offset strategy. It is likely that these impact areas will be further reduced following more detailed investigations.

The estimated total offset liability of the Galilee Coal Project is detailed in **Table 4**. The multipliers used to calculate the offset liability were selected to be consistent with the relevant policies, reflect the scale of impacts and strategic conservation outcomes that will be delivered. It is noted that **Table 4** does not take into account the co-location of offset values and therefore the total area to be provided for offsets will be less than the sum of this table.

EPBC Act

Table 2 Offsets under the EPBC Act

MNES	Project Component	Estimated Area of Impact (ha)	Discussion
Brigalow Threatened Ecological Community (Brigalow TEC)	Rail	71	The areas of Brigalow TEC impacted by the Project are limited to the rail component. Surveys found that these areas are small intermittent patches throughout the length of the proposed rail corridor and generally in good condition. It is proposed that the areas of Brigalow cleared will be offset in one consolidated strategic offset area located within 50km of the rail corridor.
Natural Grasslands of the Qld Central Highlands and the northern Fitzroy Basin Threatened Ecological Community (Natural Grassland TEC)	Rail	48	Natural Grassland TEC areas are limited to the rail component of the Project. The majority of mapped Natural Grasslands in the rail corridor were found during field surveys not to be present. One area was confirmed between KP60-KP110. It is proposed the offset for Natural Grasslands will be located within 50km of the rail corridor and preferably co-located on the same property as the Brigalow offset.
Migratory Bird Species	Mine and Rail		Surveys have identified areas of potential habitat for a number of migratory bird species in the study area. They are found in a variety of habitats such as eucalypt woodlands, paperbark forests or grasslands that occur near waterways, swamps and flooded areas. The Project is not likely to have a significant impact on these species due to the abundance of their habitats in surrounding areas, they are highly mobile and visit the study area periodically. A large proportion of their preferred habitat coincides with watercourses, wetlands and fringing vegetation. The approach is to include areas of watercourse vegetation and wetlands within the offset sites that also provide habitat for a number of these migratory birds.
Egernia rugosa Yakka Skink	Mine and Rail	5,004	Preferred habitat for the Yakka Skink has been confirmed within or adjoining the mine surface footprint and rail corridor. The species occurs in dry forests, woodlands and rocky areas (Wilson and Swan, 2008) and is reliant on fallen timber. Due to the wide variety of habitats and REs the Yakka Skink may occur in, the estimated clearing extent provided is significantly greater than the actual likely impact to the species. Only a small proportion of this total area will contain the micro-habitat features required to support the species.

MNES	Project Component	Estimated Area of Impact (ha)	Discussion
			Therefore for the purposes of offsets core habitat REs were identified in the Brigalow Belt bioregion as reported in Boobook (2010). No refinement of the broad habitat areas identified in the EIS has been undertaken for the Desert Uplands bioregion. The approach is to co-locate offsets for Yakka Skink with other Brigalow Belt reptiles such as the Ornamental Snake and Brigalow Scaly-foot.
Delma labialis Striped-tailed Delma	Rail	354	The Striped-tailed Delma has been found in a variety of habitats, including low and tall open forests and open woodland (all with grassy understory), wet sclerophyll forest, coastal microphyll/notophyll vine forests/thickets, eucalypt forest and woodland with dense *Xanthorrhoea* and *Acacia* mid-storey to understory, spinifex, and seasonally dry tea-tree (*Melaleuca viridiflora*) swamp (Brigalow Belt Reptiles Workshop, 2010; Queensland Museum, 2009; Woodcock 2008). Due to the wide variety of habitats and REs the Striped-tailed Delma may occur in, the estimated clearing extent provided is significantly greater than the actual likely impact to the species. Only a small proportion of this total area will contain the micro-habitat features required to support the species. The approach is to co-locate offsets for Striped-tailed Delma with other Brigalow Belt reptiles such as the Ornamental Snake and Brigalow Scaly-foot.
Denisonia maculata Ornamental Snake	Rail	1,990	Occurs in Brigalow on clay and sandy soils, riverside woodland and open forest growing on natural levees. Due to the wide variety of habitats and REs the Ornamental Snake may occur in, the estimated clearing extent provided is significantly greater than the actual likely impact to the species. Only a small proportion of this total area will contain the right mirco-habitat features to support the species. The approach is to co-locate offsets for Ornamental Snake with other Brigalow Belt reptiles such as the Yakka Skink and Brigalow Scaly-foot.
Paradelma orientalis Brigalow Scaly-foot	Rail	154	The Brigalow Scaly-foot's core habitat occurs mostly within the Brigalow Belt South bioregion. The species is found in a wide variety of remnant and non-remnant open forest to woodland habitats. The species is known to persist in highly disturbed vegetation types, for example areas invaded by Buffel Grass (*Cenchrus ciliaris*),

MNES	Project Component	Estimated Area of Impact (ha)	Discussion
			Parthenium (*Parthenium hysterophorus*) and other weeds (Brigalow Belt Reptiles Workshop 2010). The approach is to co-locate offsets for Brigalow Scaly-foot with other Brigalow Belt reptiles such as the Yakka Skink and Ornamental Snake.
Poephila cincta cincta Black-throated Finch	Mine and Rail	2,822	The Black-throated Finch (southern) occurs mainly in grassy, open woodlands and forests, typically dominated by *Eucalyptus*, *Corymbia* and *Melaleuca*, and occasionally in tussock grasslands or other habitats (for example freshwater wetlands), often along or near watercourses, or in the vicinity of water (Baldwin, 1976; Britton & Britton 2000; BTF Recovery Team, 2004; Ley & Cook, 2001; NRA 2005; Wieneke, 1989). Almost all recent records of the finch from south of the tropics have been in riparian habitat (Baldwin 1976; BTF Recovery Team, 2004; Ley & Cook, 2001). The subspecies is thought to require a mosaic of different habitats in which it can find seed during the wet season (Mitchell, 1996). Due to the wide variety of habitats and REs the Black-throated Finch may occur in, and limited records of the species in the study area, it is difficult to quantify the likely extent of impact to the species. Therefore for the purposes of offsets based on survey results for the species undertaken by Austecology in 2001, an estimate has been provided of impacts to the likely breeding areas for the species in the surface mine area and rail footprint. Further refinement of impacts to Black-throated Finch will be undertaken after further ecology studies have been completed. The approach for offsets is to identify other potential Black-throated Finch habitat that reflects similar ecosystems and habitat features to that impacted. This offset is likely to be co-located with the compensation area for the BNR. The National Recovery Plan for the species will also be considered in identifying whether indirect offset measures would be appropriate to assist in the species conservation.
Dasyurus hallucatus Northern Quoll	Rail	1,277	The species is found in a wide range of eucalypt forest and woodland habitats associated with steep dissected rocky terrain; also found in rainforest patches, vegetation along creek lines, adjacent to mangroves, around human settlement and on beaches (Pollock, 1999; Oakwood, 2002,

MNES	Project Component	Estimated Area of Impact (ha)	Discussion
			2008). The species has an ability to forage over a large area, and mobile with the ability to cross linear barriers, therefore is not likely to be significantly impacted by the rail corridor. Potential preferred habitat has been refined compared to the EIS through the identification of remnant vegetation within buffers of 500m from areas where the slope exceeds 10%.
Acacia ramiflora	Rail	Not confirmed	Occurs in woodland on sandstone hills. Unlikely to be impacted by the Project.
Croton magneticus	Rail	Not confirmed	Occurs in vine thickets. Potential habitat present KP 0 -100. Unlikely to be impacted by the Project.
Eucalyptus raveretiana Black Iron Box	Rail	Confirmed. Exact number to be removed yet to be confirmed.	Black Iron Box was recorded at seven locations. In all instances they were observed within the beds or banks of watercourses. It is likely that individuals will need to be cleared. Potential habitat is present along watercourses between KP 0 -100. As impacts to the species is likely the approach to offsets will be to identify suitable habitat for the species and consider potential for rehabilitation of the species into other riparian areas. Habitat for this species may be able to be co-located with other offset values such as Of Concern REs as a number of these REs are associated with watercourses.
Livistona lanuginosa	Rail	Not confirmed	Restricted to a small area of the Burdekin River Basin along sandy river and creek channels. Potential habitat present KP 0-20.
Omphalea celata	Rail	Not confirmed	Occurs in fragmented semi evergreen vine thicket or araucarian microphyll vine forest. Recorded along watercourses in steep sided gorges and gullies. Potential habitat present KP0-140.
Ozothamnus eriocephalus	Rail	Not confirmed	Known from a range of habitat types, including the margins of disturbed notophyll vine forest, gallery forest, microphyll vine forest and tall ope *Eucalyptus andrewsii* – E. *resinifera* forest.
Tephrosia leveillei	Rail	Not confirmed	Habitat poorly known. Only three records one from open woodland beside creek. Unlikely to be impacted by the Project.

Coordinator-General

Table 3 Offsets required at the State level

Biodiversity Value	Project Component	Estimated Area of Impact (ha)	Discussion
Endangered Regional Ecosystems	Rail	70.9	All three Endangered REs are Brigalow vegetation found in small patches along the rail corridor. The approach is to identify one large offset area of Brigalow vegetation within 50km of the rail corridor.
Of Concern Regional Ecosystems	Rail	213.4	There are 18 Of Concern REs that occur within the rail corridor. These are dispersed across the majority of the rail alignment. The approach is to identify one large offset area containing Of Concern vegetation within 50km of the rail corridor.
Essential Habitat *Desmodium macrocarpum* Large-podded trefoil	Mine	801.5	Based on the WorleyParsons (2009) survey results, 33-53 individual Large-podded Tick-trefoil occur within the study area. An estimated 21-31 individuals occur within the mine surface clearance footprint, which equates to over half of the known population within the study area. Large-podded Tick-trefoil is a herbaceous perennial scrambler to 0.5 m that is known to be self-pollinating. It normally occurs in open Eucalypt woodlands and open Eucalypt forest communities predominantly on red earths (rarely on sandy clay soils) and has been recorded to 884 m elevation. Populations have been recorded from north of Townsville to near Mundubbera and as far west as Longreach. The closest known populations occur 50 km and 70 km northwest and 120 km east of the study area. The BNR includes three areas mapped as Essential Habitat for the Near Threatened plant species. DERM does not require offsets for the clearing of Near Threatened plants, however under the VM Act Essential Habitat does require the provision of an offset. Therefore Waratah Coal will consider offsetting this area of Essential Habitat by protecting and managing suitable habitat for the species in co-location with other offset values.
Protected Area Bimblebox Nature Refuge (BNR)	Mine	7,912	In 2003, the Bimblebox Nature Refuge Agreement (category VI IUCN protected area) was signed with the Queensland state government to protect the conservation values of the property. The BNR is gazetted as a protected area under the *Nature Conservation At 1992* and recognised as a Category C Environmentally Sensitive Area

			under the *Environment Protection Act 1994*. The property is managed for conservation and beef production purposes as part of the cattle grazing enterprise conducted by Glen Innes Station. A vegetation survey was undertaken of the BBN in 2009 by Worley Parsons. The vegetation within the BNR consists predominantly of Poplar Box (*Eucalyptus populnea*) and Silver-leaved Ironbark (*Eucalyptus melanophloia*) open woodland (REs 10.5.12, 10.5.5). The REs are listed as Least Concern under the VM Act. The vegetation in this area was found to range from average to very good condition with evidence of grazing, clearing for tracks, Buffel Grass invasion and patches of dieback present to varying degrees. Utilising DERM's Biodiversity Planning Assessment (BPA) for the Desert Uplands the BBN is mapped of State Significance and identified as an area of 'High Species Richness', a 'Wildlife refugia' and contains Hollow-bearing trees. The proposed surface mine footprint occupies approximately half of the BNR area and the underground mine the other half. Whilst the underground mining area will not need to be cleared of vegetation, the long-term impacts to the surface vegetation communities are unclear due to potential changes to hydrology and subsidence because of the underground operations. Therefore Waratah Coal currently propose to provide compensation for the entire area of the BNR. The proposed approach for compensation is to identify another parcel of land within the same bioregion (Desert Uplands) that is of 'ecological equivalence' to the BNR. Criteria will include an area that contains a mix of the same REs and the same or higher biodiversity values. To assist in determining 'ecological equivalence' DERM's biocondition methodology and BPA mapping will be used. It is currently estimated the BNR compensation area may be twice the total area (approx. 16,000 ha) and the intent is it will become a future protected area. However Waratah Coal is not in control of this process and will need to work closely with DERM to identify suitable properties that can be gazetted as a nature refuge or another form of protected tenure.
Eucalyptus raveretiana Black Iron Box	Rail	Confirmed. Exact number to be removed yet to be confirmed.	Black Iron Box was recorded at seven locations. In all instances they were observed within the beds or banks of watercourses. It is likely that individuals will need to be cleared.

			Potential habitat is present along watercourses between KP 0 -100. As impacts to the species are likely the approach to offsets will be to identify suitable habitat for the species and consider potential for rehabilitation of the species into other riparian areas. Habitat for this species may be able to be co-located with other offset values such as Of Concern REs as a number of REs are associated with watercourses. The species is also listed under the EPBC Act and can be co-located with other MNES offset areas.

Table 4 Offset Liability of the Galilee Coal Project

Biodiversity value/type	Listing under legislation	Impact Area (ha)	Proposed State Ratio	State Offset Area (ha)	Commonwealth Requirement	Proposed Cmwth Ratio	Commonwealth Offset Area (ha)	Proposed Total Offset Area (ha)
Offsets administered by the Coordinator-General and DERM								
Vegetation Management Act 1999								
Endangered REs								
11.3.1	Endangered	20	3:1	60	Yes	3:1	60	60
11.4.8	Endangered	45.8	3:1	137.4	Yes	3:1	137.4	137.4
11.4.9	Endangered	5.1	3:1	15.3	Yes	3:1	15.3	15.3
	TOTAL	**70.9**					**TOTAL**	**212.7**
Of Concern REs								
11.11.13	Of Concern	12.1	2:1	24.1	No			24.1
11.12.10	Of Concern	3.4	2:1	6.8	No			6.8
11.3.2	Of Concern	32.4	2:1	64.8	No			64.8
11.3.3	Of Concern	53.1	2:1	106.2	No			106.2
11.3.33	Of Concern	3.4	2:1	6.8	No			6.8
11.3.4	Of Concern	45.6	2:1	91.1	No			91.1
11.4.5	Of Concern	8.7	2:1	17.4	No			17.4
11.4.6	Of Concern	1.8	2:1	3.7	No			3.7
11.4.11	Of Concern	3.4	2:1	6.7	Yes	3:1	10.2	10.2
11.5.10	Of Concern	4.6	2:1	9.2	No			9.2
11.9.10	Of Concern	16.9	2:1	33.9	No			33.9
11.11.16	Of Concern	3.2	2:1	6.4	No			6.4
11.12.14	Of Concern	1.8	2:1	3.6	No			3.6
11.12.15	Of Concern	2.4	2:1	4.8	No			4.8
11.12.16	Of Concern	2.4	2:1	4.8	No			4.8
11.12.18	Of Concern	0.6	2:1	1.2	No			1.2
11.3.34	Of Concern	2.6	2:1	5.2	No			5.2
11.8.11	Of Concern	15.0	2:1	29.9	No			29.9
	TOTAL	**213.4**					**TOTAL**	**430.1**
Essential Habitat								
Desmodium macrocarpum Large-podded trefoil	Near Threatened	801.5	1:1					**801.5**

Biodiversity value/type	Listing under legislation	Impact Area (ha)	Proposed State Ratio	State Offset Area (ha)	Commonwealth Requirement	Proposed Cmwth Ratio	Commonwealth Offset Area (ha)	Proposed Total Offset Area (ha)
Protected Areas								
Bimblebox Nature Refuge	Protected Area	7,912	2:1	7,852	No			**15,824**
Wetlands								
Impacts may occur. Extent of impacts to be confirmed.		Impacts to be assessed						
Conservation Status Threshold Regional Ecosystems								
None to be disturbed	-							
Nature Conservation Act 1992								
Protected Plants								
Black Ironbox *Eucalyptus raveretiana*	Vulnerable	No of individuals currently unknown						
Fisheries Act 1994								
Marine Plants								
None to be disturbed	-							
Marine ecosystems								
None to be disturbed	-							
Declared Fish Habitat Areas								
None to be disturbed	-							
Offsets administered by DSEWPaC under the EPBC Act								
World Heritage Areas								
None to be disturbed	-							
Migratory Bird Species								
Australian Painted Snipe *(Rostratula australis)*	Vulnerable / Migratory							To be co-located with other offset areas.

Biodiversity value/type	Listing under legislation	Impact Area (ha)	Proposed State Ratio	State Offset Area (ha)	Commonwealth Requirement	Proposed Cmwth Ratio	Commonwealth Offset Area (ha)	Proposed Total Offset Area (ha)
Various species	Migratory							To be co-located with other offset areas.
Threatened Ecological Communities-								
Brigalow (11.3.1, 11.4.8 and 11.4.9)	Endangered	71			Yes	3:1	210	210
Natural Grassland (11.4.4, 11.4.11, 11.9.3)	Least Concern or Of Concern	48			Yes	3:1	144	144
							TOTAL	**354**
Threatened Fauna Species								
Poephila cincta cincta Black-throated Finch	Endangered	2,822			Yes	1:1	2,822	2,822
Striped-tailed Delma *Delma labialis*	Vulnerable	354			Yes	1:1	354	354
Ornamental Snake *Denisonia maculata*	Vulnerable	1,989			Yes	1:1	1,989	1,989
Yakka Skink *Egernia rugosa*	Vulnerable	5,004			Yes	1:1	5,004	5,004
Brigalow Scaly-foot *Paradelma orientalis*	Vulnerable	154			Yes	1:1	154	154
Northern Quoll *Dasyurus hallucatus*	Endangered	278			Yes	1:1	278	278
	TOTAL						**TOTAL**	**10,601**
Threatened Flora Species								
Black Ironbox *Eucalyptus raveretiana*	Vulnerable	No. individuals unknown			Yes	3:1		

5 Offsetting Approach

5.1 Methodology

While all proposed offset sites will meet the intent of relevant State and Commonwealth offset policies, the process for identifying and prioritising potential offset sites has encompassed a number of additional elements to reflect Waratah Coal's commitment to minimizing the Project's environmental impacts and achieving meaningful conservation and social outcomes.

A number of criteria were developed to determine the extent of offset availability in the study area, and compare and prioritise potential offset sites. These criteria were applied through a spatial analysis and assessment matrix process. Sites with a mix of remnant vegetation and mature regrowth vegetation in good condition were targeted.

For State offset values, particularly Of Concern REs, regrowth vegetation was analysed. For the BNR and EPBC Act offset requirements a mixture of remnant and regrowth was considered. The spatial analysis study area encompasses biodiversity values within 100 km of the mine footprint and 50 km of the rail line.

The following sections provide an overview of offset criteria that have been applied in the preliminary offset availability analysis and for future shortlisting of potential offset sites.

5.1.1 **Broad Spatial Assessment**

- Tenure and land use constraints
  - Occurs on appropriate tenure (non industrial or urban land uses);
  - No existing mining, extraction or petroleum leases; and
  - Not on Strategic Cropping Land.
- Distance from area of impact
  - Within 100km from the mine footprint;
  - Within 50 km either side of the rail corridor; and
  - Within the same bioregions as the Project.
- Connectivity
  - Within bioregional corridors or riparian corridors;
  - Adjacent to existing protected areas;
  - Within key investment areas that may support existing conservation programs; and
  - Between existing patches of remnant vegetation.

5.1.2 **Site Specific Spatial Assessment**

- Size (comparative to available offset options)
  - Classed and ranked in deciles
- Mature vegetation
  - Classed and ranked by cover (approximation for maturity)
- Existing level of protection
  - Non-remnant;
  - High value regrowth; and

  - Remnant
- Habitat potential
  - Regional Ecosystems that provide suitable habitat;
  - Coincides with existing records (eg Essential Habitat);
  - Presence of water bodies, streams and wetlands; and
  - Slope and morphology.
- Spatial arrangement
  - Edge-to-area ratio; and
  - Proximity to special features.

Priority will be given to those areas that contain multiple offset values, are strategically located in the set offset study area, and based on desktop analysis contain the right REs and biodiversity values. Larger offset sites containing multiple offset values and criteria will be prioritised as they reduce the number of offsets that need to be secured, contain higher biodiversity values, are less susceptible to edge effects and are more likely to sustain viable and more varied populations (improved biodiversity) of native flora and fauna than smaller patches.

Offsets with links to other areas of native vegetation and riparian corridors, particularly in cleared or highly modified environments, provide a greater enhancement of biodiversity and long term conservation outcomes. Corridors play an important role in both providing habitat and assisting in wildlife movement and genetic flow. Corridors have been identified at different geographical scales by State and local governments. Offsets within Bioregional Wildlife Corridors will be prioritised.

Specifically for BNR other areas containing remnant vegetation with the same mix of REs and biodiversity values will be targeted in the Desert Uplands bioregion. Other key criteria will include that the sites do not have existing mining or petroleum leases and have the potential to be of 'ecological equivalence' as the BNR and gazetted as a future protected area.

5.2 Direct Offsets

At this preliminary stage direct offsets are being assessed for all biodiversity values identified to be offset in **Table 4**. An initial desktop assessment has been undertaken to identify the availability of REs and particular habitats, and where they occur within close proximity to the study area. Refer to **Section 6** for further detail on results of GIS analysis and mapping.

Waratah Coal currently propose that one or two larger, strategic offset sites that contain a number of the key biodiversity values impacted by the Project will be secured. By providing a direct offset it will ensure habitat for these species and ecosystems are protected and managed to improve their ecological condition. Subject to further investigation on the long-term viability of the BNR located above the underground mining, and landholder consultation, direct offsets may include rehabilitation to improve linkages between the area of the BNR to currently isolated remnant vegetation on the range to the northwest of the site.

Offset sites could be secured through Nature Refuge conservation agreements or other legally binding mechanisms with the landowner and be actively managed to enhance their biodiversity values. Or Waratah Coal may seek to acquire a property or properties and dedicate to the State as future protected areas, which is an option currently being explored for the BNR.

The final Offset Package may include both direct and indirect offsets. As a result of offset analysis and negotiation it may be more appropriate for some particular environmental values, including some endangered fauna species that indirect offset measures are the most

appropriate approach to support the conservation of the species as habitat loss may not be the largest threatening process. Further consideration of indirect offsets is included below.

5.3 Indirect Offsets

Waratah Coal will consider the use of indirect offsets as part of the overall Offset Package. Indirect offsets may consist of:

- implementation of recovery plan actions;
- financial contributions to relevant research or education programs;
- removal of threatening processes, such as feral animal and weed management; and
- ongoing management activities.

Indirect offsets for the Project are being explored for the following biodiversity values:

- Black-throated Finch habitat– investigate Waratah Coal supporting the implementation of actions identified within the '*National Recovery Plan for the Black-throated finch southern subspecies (Poephila cincta cincta)'* 2007. This may include research, monitoring or raising public awareness of the species.

During consultation on the EIS, Waratah Coal and Unidel will consult and explore with DERM, SEWPaC and additional stakeholder groups the potential for indirect offset actions and whether there are any particular programs or management actions that have been identified that Waratah Coal can support as part of the Project's overall Offset Package.

6 Potential Offset Options

6.1 Spatial Analysis Results

The offset liabilities identified for the Project and presented in **Table 4** were analysed separately according to their offset triggers. It has been assumed that the habitat values can be co-located with the vegetation offsets required and have not been analysed separately at this stage, but will be during the refinement of priority offset sites and development of the final Offset Package. The results of the spatial analysis are presented below.

6.1.1 Compensation for BNR

The area of land available to offset the clearing of the BNR within 100km of the mine is detailed in **Table 5**. These areas are remnant vegetation of the dominant REs found within the BNR. A map showing the location of these areas is presented in **Figure 4.**

Table 5 Availability of remnant vegetation with REs occurring in the BNR

Tenure	Area (ha)
FH	73,516
LL	325,355
Total	398,871

6.1.2 Brigalow TEC and Endangered REs

There are a total of approximately 91,000 ha of remnant Brigalow and 64,500 ha of potential regrowth available to offset the clearing impacts on Endangered REs and Brigalow TEC (**Table 6**). The areas available for potential Brigalow offsets are presented in **Figure 5.**

Table 6 Availability of Brigalow remnant vegetation and potential regrowth

	E-dom (ha)	E-subdom (ha)	Total
Remnant	90,742	312	91,054
Potential regrowth	64,516	123	64,639
Total	64,639	91,054	155,693

6.1.3 Natural Grassland TEC

The area available for potential grassland offsets was broken into remnant and non-remnant vegetation communities. There is a total area of approximately 123,000 ha available for potential offsets, as presented in **Table 7** and **Figure 6.** These figures were calculated based on areas where grasslands were mapped as the dominant RE.

Table 7 Potential offset availability of Natural Grassland TEC

Status	Area (ha)
Remnant	54,670
Non-remnant	68,460
Total	123,130

6.1.4 Of Concern REs

The areas of potential regrowth for the Of Concern REs were derived from the spatial analysis and these areas are presented in **Figure 7**. A total of approximately 75,000 ha are available as potential offset sites (**Table 8**).

Table 8 Potential offset availability of regrowth Of Concern REs

Status	Area (ha)
Potential regrowth	75,684

6.2 Available Offsets

The results presented in Section 6.1 demonstrate that there are large areas of potential offsets available to meet the Project's requirements.

The outcomes of the spatial analysis identifies that there are particular geographic areas which have the greatest strategic value in terms of the offset requirements and ability to co-locate offset values. Two of these strategic areas are presented in **Figure 8** and **Figure 9**.

Figure 8 shows the availability of large areas of Natural Grasslands and Of Concern vegetation regrowth in close proximity and located in biodiversity corridors or close to Mazeppa National Park.

Figure 9 identifies large areas of remnant and regrowth Brigalow, Natural Grasslands and Of Concern vegetation regrowth in close proximity to each other and located in biodiversity and riparian corridors.

Further analysis to identify potential offset properties will be carried out according to the offset principles detailed in Sections 5.1 and 7.5 of this report.

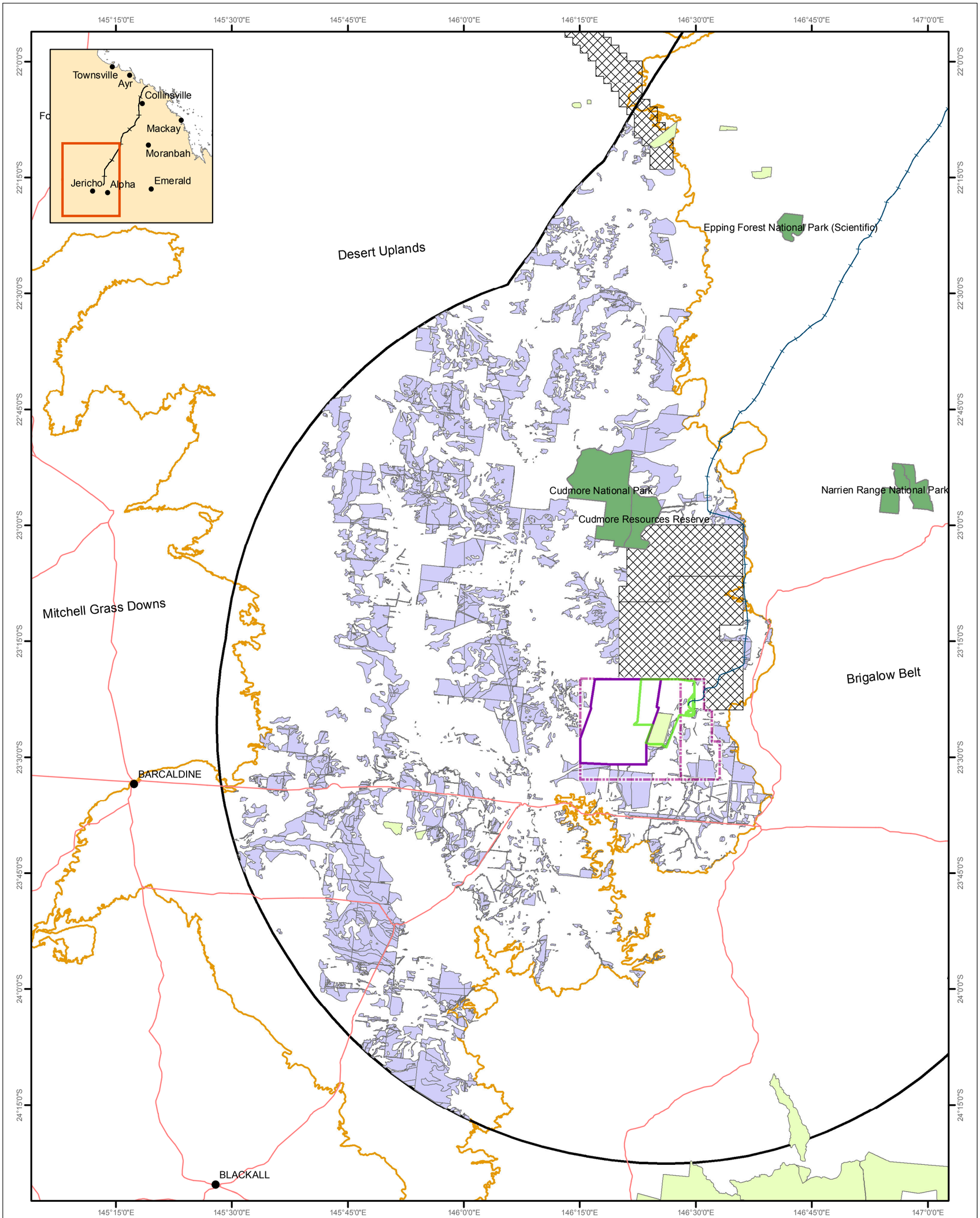

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Figure 4 - Bimblebox Nature Refuge Potential Offset Areas

Data Source
Base Layers obtained from DERM website;
Aerial Image by Bing Maps Microsoft Corporation 2010.

Job: WAR005
Date: 21/06/2011

Legend

- Major towns
- Road
- Rail Alignment 20/05/2011
- Surface Clearance Footprint
- Underground Mine Area
- Mine Study Area
- Offset Study Area
- Nature Refuges
- Bimblebox NR Potential Offset Areas
- Protected Areas
- Mining Leases
- Petroleum Leases
- Bioregions

Kilometres
0 5 10 20

N

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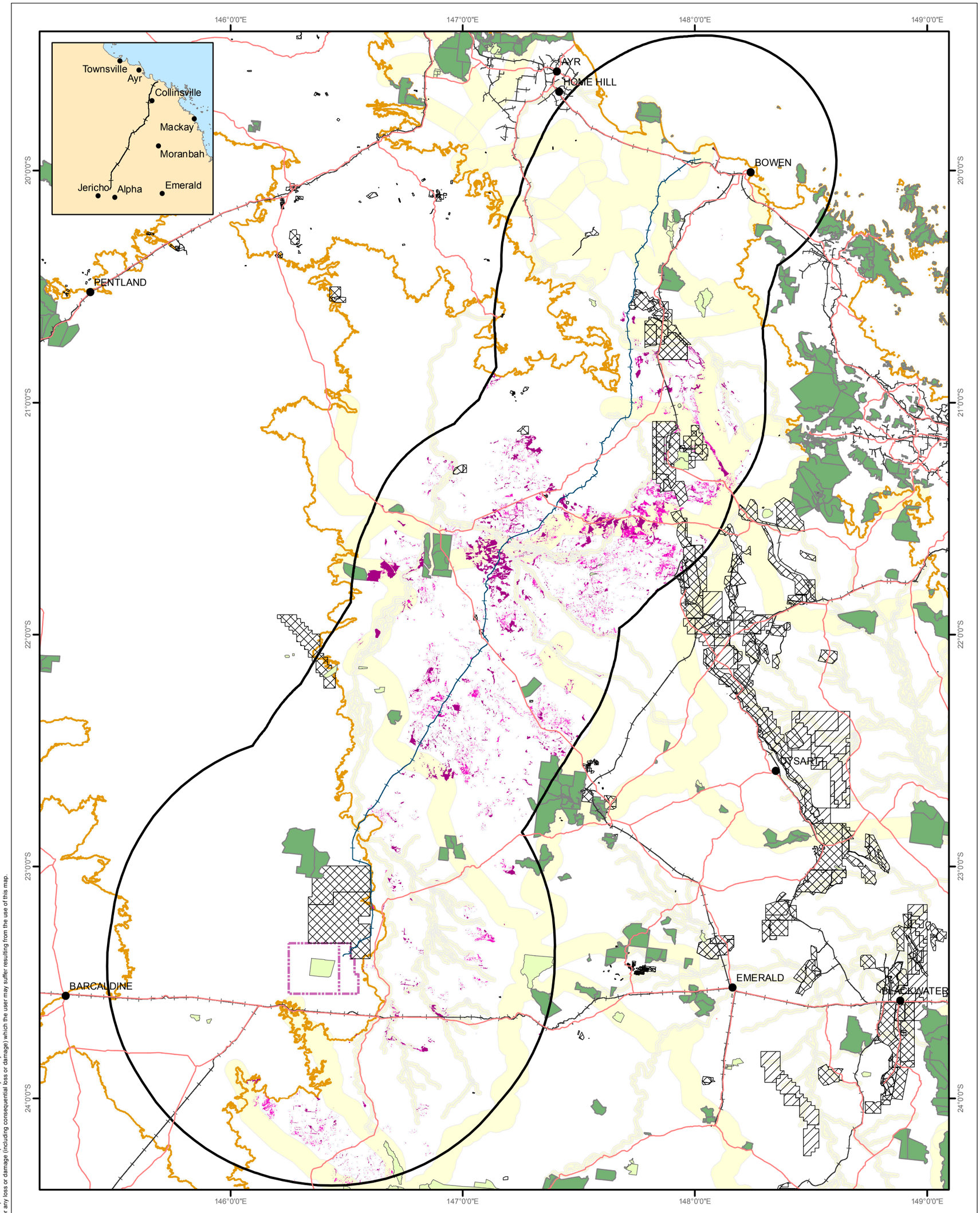

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Figure 5 - Brigalow remnant and potential regrowth offset areas

Data Source
State Environmental Layers © State of Queensland (Department of Environment and Resource Management) 2010.

Job: WAR005
Date: 21/06/2011

Legend

- Road
- Rail Alignment 20/05/2011
- Nature Refuges
- Protected Areas
- Mining Leases
- Petroleum Leases
- Mine Study Area
- Offset Study Area
- Brigalow Potential Regrowth
- Brigalow Remnant
- Bioregions
- Biodiversity Corridors

Kilometres
0 10 20 40
N

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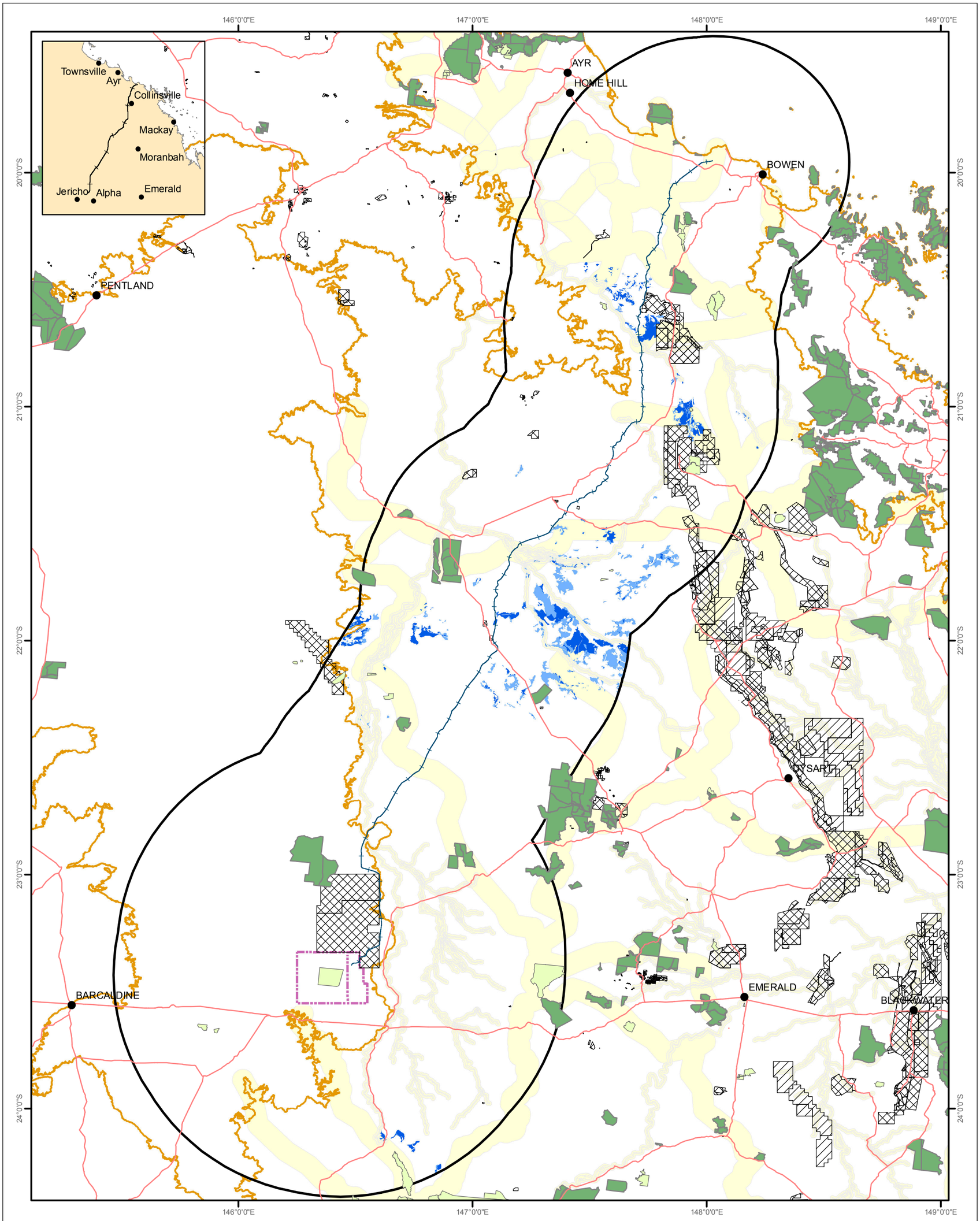

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Figure 6 - Grasslands remnant and non-remnant potential offset areas

Data Source
Base Layers obtained from DERM website;
Aerial Image by Bing Maps Microsoft Corporation 2010.

Job: WAR005
Date: 21/06/2011

Legend

- Major_towns
- Road
- Rail Alignment 20/05/2011
- Nature Refuges
- Protected Areas
- Mining Leases
- Petroleum Leases
- Offset Study Area
- Mine Study Area
- Grasslands Remnant
- Grasslands Non-remnant
- Bioregions
- Biodiversity Corridors

Kilometres
0 80 160 320
N

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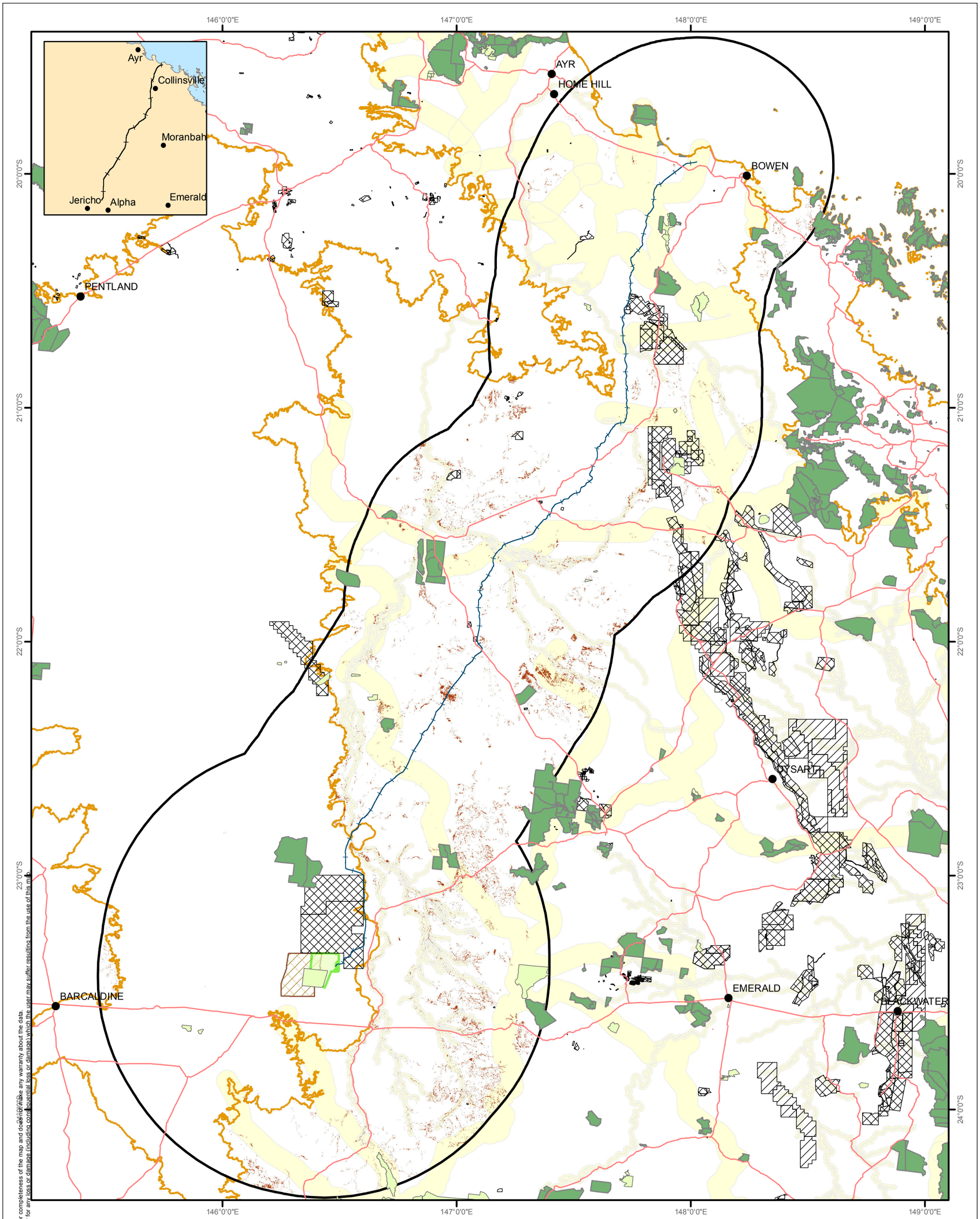

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Figure 7 - Of Concern potential regrowth for offsets

Data Source
Base Layers obtained from DERM website;
Aerial Image by Bing Maps Microsoft Corporation 2010.

Job: B11438.01
Date:

Legend

- Major towns
- Road
- Rail Alignment 20/05/2011
- Nature Refuges
- Protected Areas
- Mining Leases
- Petroleum Leases
- Offset Study Area
- Surface Clearance Footprint
- Underground Mine Area
- Of Concern Regrowth
- Bioregions
- Biodiversity Corridors

Kilometres
0 10 20 40

N

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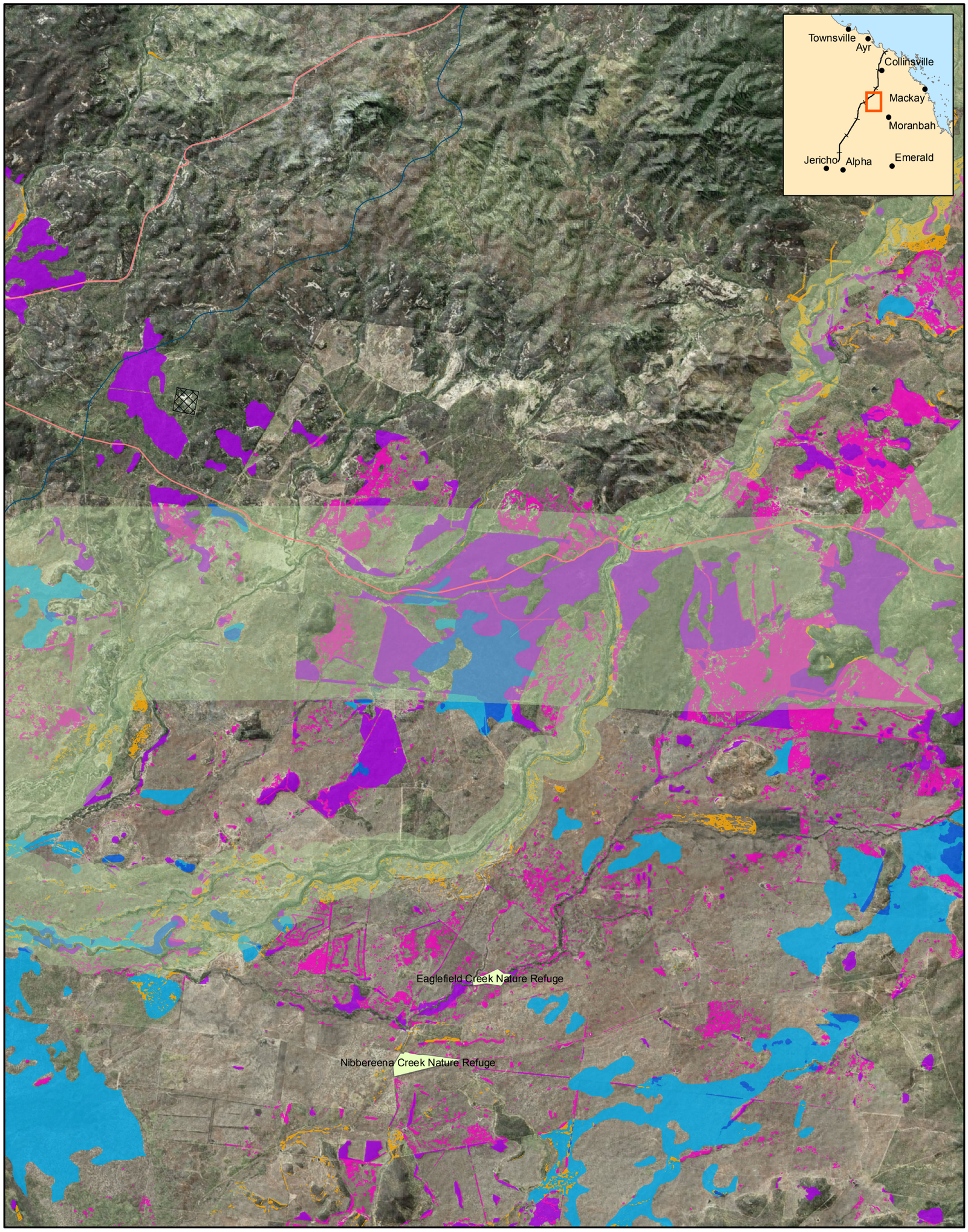

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Figure 8 - Focus Area 1

Data Source
Base Layers obtained from DERM website;
Aerial Image by Bing Maps Microsoft Corporation 2010.

Job: WAR005
Date: 21/06/2011

Legend

- Major_towns
- Rail Alignment 20/05/2011
- Road
- Offset Study Area
- Nature Refuges
- Protected Areas
- Bioregional Corridors
- Mining Lease
- Petroleum Lease
- Of Concern Regrowth
- Brigalow Regrowth
- Brigalow Remnant
- Grasslands Non-remnant
- Grasslands Remnant

Kilometres
0 1.25 2.5 5

N

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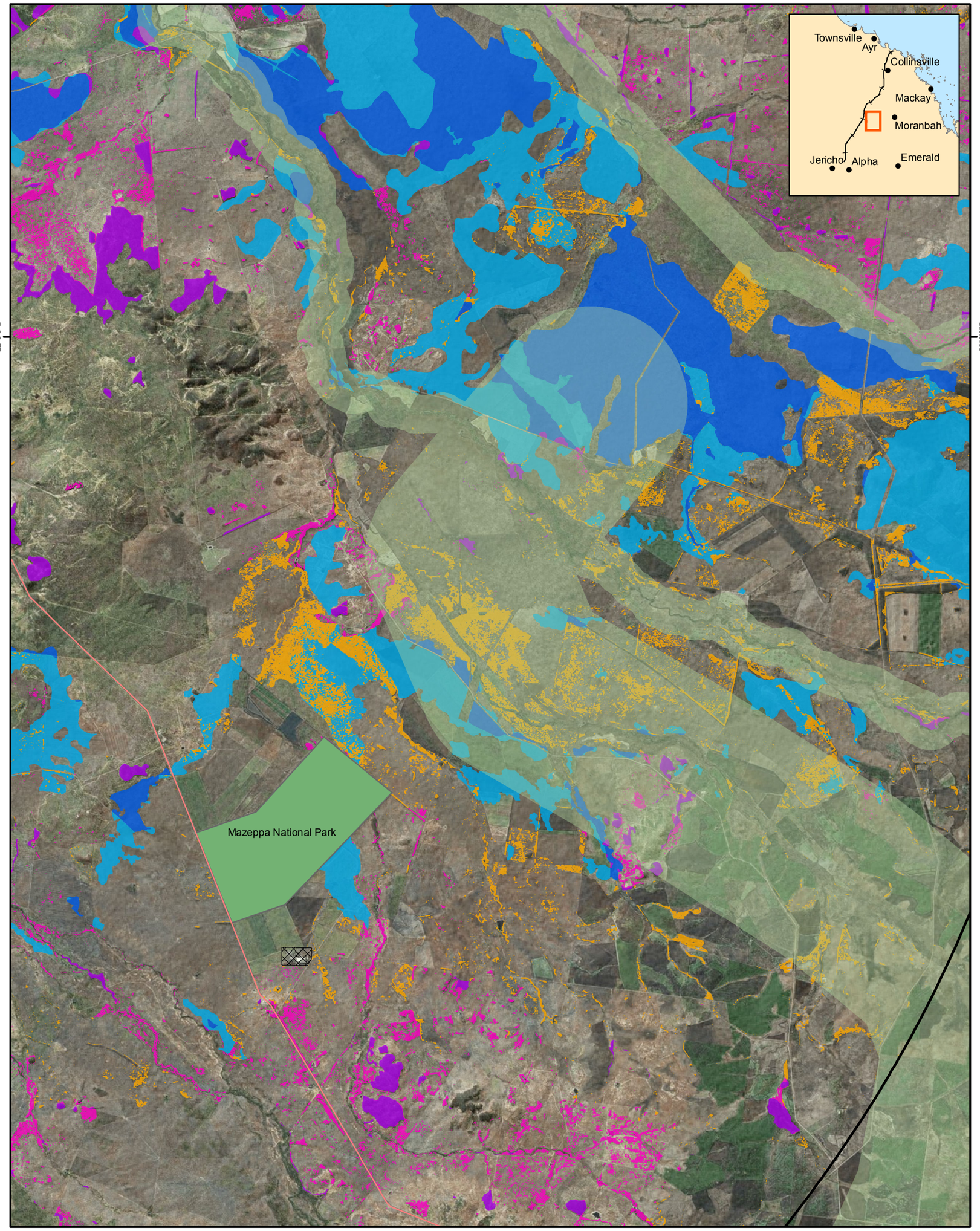

WARATAH COAL CHINA FIRST PROJECT

Figure 9 - Focus Area 2

Data Source
Base Layers obtained from DERM website;
Aerial Image by Bing Maps Microsoft Corporation 2010.

Job: WAR005
Date: 21/06/2011

Legend

- Major towns
- Rail Alignment 20/05/2011
- Road
- Offset Study Area
- Nature Refuges
- Protected Areas
- Bioregional Corridors
- Mining Lease
- Petroleum Lease
- Of Concern Regrowth
- Brigalow Regrowth
- Brigalow Remnant
- Grasslands Non-remnant
- Grasslands Remnant

Kilometres
0 1.25 2.5 5

N

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7 Securing and Managing Offsets

The following sections provide a summary of the proposed approach to the protection and ongoing management of offset sites. Mechanisms are outlined for ongoing reporting and approval compliance and timelines are provided for each of the major elements.

7.1 Legal Instruments of Protection

In accordance with the QGEOP and *Draft Policy Statement: Use of environmental offsets under the Environment Protection and Biodiversity Conservation Act 1999* the proposed offsets are required to be legally secured to ensure that all project related environmental impacts are adequately compensated over the long term. Typical legal mechanisms that can be used to secure offsets, include, but are not restricted to:

- Voluntary Declarations under the VM Act;
- Nature Refuge Agreements under the NC Act;
- Statutory Covenants under the *Land Title Act 1994* (Land Title Act) or *Land Act 1994* (Land Act); and
- Conservation tenures e.g. National Park and Conservation Reserve.

All of the above instruments are legally binding on existing and future landowners. The preferred instrument of protection is dependent on the tenure and ownership of the particular land parcel. It is also dependant on the condition of the vegetation to be offset; for example, for National Park the Queensland Government typically requires large areas of remnant vegetation in reasonable to good condition. These instruments are discussed below.

7.1.1 Voluntary Declaration

The voluntary declaration process is a relatively simplistic and cost effective approach provided for a landholder to voluntarily protect native vegetation on their property.

The voluntary declaration is generally accompanied with a management plan which sets out the activities to be undertaken to achieve the management intent and outcomes of the agreement. This management plan is a legally binding on all present and future owners of the property. This plan will only cease to bind landholders once the intent and desired outcomes of the plan have been achieved.

A voluntary declaration must be signed by all parties that have an interest in the land. This may include mortgagees, easement holders or Native Title claimants. The State may refuse to grant a voluntary declaration or an existing declaration may be cancelled if it hinders the development of a state significant project under the *State Development and Public Works Organisation Act 1971*.

7.1.2 Nature Refuge Agreements

A nature refuge is a voluntary agreement between a landholder and the Queensland Government that allows for the management and preservation of conservation significant land while allowing compatible and sustainable land uses to continue. These agreements attach to land title and are therefore binding on both present and future owners of the property. Landholders with a nature refuge continue to own and manage their land to generate an income and in keeping with their lifestyle. They also have a supporting conservation agreement (a type of management plan) written for the areas subject to the nature refuge which is administered and enforced by DERM. A nature refuge is recognised as a type of ‘protected area’ in Queensland. Nature refuges comprise the second largest expanse of Queensland's protected areas estate, and actually out number national parks.

Mining or petroleum leases may be granted over nature refuge areas, although the presence of a nature refuge may lead to additional State imposed conditions on the mining or petroleum proponent. In all other situations a nature refuge agreement will only be terminated in exceptional circumstances. It is the highest level of protection that can be afforded to a freehold or leasehold property in Queensland.

7.1.3 Statutory Covenant

A statutory covenant is a written agreement that can bring about positive environmental outcomes by ensuring that ecological values are not diminished in the future. A covenant over freehold land is registered under the Land Title Act and a covenant over non-lease hold land is registered under the Land Act.

A statutory covenant may not restrict other registered interests over the title. A registered interest holder may apply to have the covenant removed under Section 181 of the *Property Law Act 1958.* Section 97D of the Land Title Act and Section 373D of the Land Act allows a landholder to be released from a statutory covenant.

7.2 Mechanisms for the Management of Offset Sites

Each legally secured offset will be supported by a Vegetation Management Plan (VMP) that outlines practical measures to ensure the effective re-establishment and ongoing management of the offset.

The VMP will include restoration requirements as well as monitoring and compliance specifications. Onsite management strategies described in each VMP will depend upon the specific characteristic of each offset site and the ecological value being protected, these may include:

- Weed and pest management;
- Fire risk abatement measures; and
- Grazing practices (where appropriate).

The VMP will be prepared through an iterative process involving consultation with landholders, government agencies and suitably qualified ecologists. The VMP will identify who is responsible for any actions including field restoration works and compliance monitoring and reporting.

The VMP will include specific monitoring and reporting requirements. For example it is usual for annual reports to be prepared on the progress of the offset and submitted to the regulators for review. Site works will be audited annually by a suitably qualified person. The Minister will be notified in the event of any non-compliance.

The VMP will include clear statements of the intent of the restoration (e.g. management will typically continue until the offsets have reached a mature self-sustaining state) and period for management.

7.3 Approval and Timeframe for Securing Offsets

Once the Offset Strategy has been finalised, including refinement of unavoidable impacts requiring the provision of offsets, Unidel will identify priority offset areas and commence liaison with landholders and initial site inspections. Unidel and Waratah Coal will also liaise with DERM during this process to ensure these priority offset areas meet their requirements. An Offset Package will then be presented to the CG, DERM and SEWPaC for approval which proposes the final offset sites, how they will be secured and managed, and any other indirect measures.

The Offset Package will be provided to the CG, DERM and SEWPaC within **six months** of the Offset Strategy being approved. Where the sites are acceptable to the CG, DERM and SEWPaC management plans will be finalised and the sites will be secured. Waratah Coal may seek to purchase suitable sites or they may enter into agreements with existing landholders depending on the most suitable and practical method for each site.

The timeline for finalising these arrangements, with offsets secured and management arrangements in place will be **twelve months** from CG, DERM and DSEWPaC approval of the Offset Package.

7.4 Ongoing Management and Reporting

Active management of the offset site is expected to continue for a number of years depending on the condition of the offset. The VMP for each site will specify the key outcomes for restoration and ecological criteria that determine when ongoing management will be complete. It is estimated that management would be undertaken up to a period no greater than 20 years.

Ongoing management of the offset site is likely to include weed, pest and fire management strategies. The regularity and scale of the management strategies are likely to depend on the nature of the offset site and the ecological values to be protected.

Established offsets are required to be audited on an annual basis. Records taken from these audits will be summarised in an annual report to be submitted to the CG, DERM and DSEWPaC. The annual reporting requirement will continue until the CG and Minister are satisfied that the conditions of the Approval have been met.

7.5 Revision of this Strategy

Waratah Coal will be entering into a public submission period after release of the EIS. Waratah Coal will then be asked to prepare a supplementary EIS (sEIS) to address submissions and environmental impacts associated with the Project will be refined. This Offset Strategy will then be reviewed in light of any additional information that may be gathered or changes to the Project and associated environmental impacts.

The Final Offset Strategy will then form part of the sEIS for consideration and endorsement by the CG, DERM and DSEWPaC.

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