

# Rolleston Coal Expansion Project

Initial Advice Statement



# Rolleston Coal Expansion Project

Initial Advice Statement

Prepared for

Xstrata Coal

Prepared by

**AECOM Australia Pty Ltd**

Level 8, 540 Wickham Street, PO Box 1307, Fortitude Valley QLD 4006, Australia

T +61 7 3553 2000 F +61 7 3553 2050 www.aecom.com

ABN 20 093 846 925

9 August 2011

60103583

AECOM in Australia and New Zealand is certified to the latest version of ISO9001 and ISO14001.

© AECOM Australia Pty Ltd (AECOM). All rights reserved.

AECOM has prepared this document for the sole use of the Client and for a specific purpose, each as expressly stated in the document. No other party should rely on this document without the prior written consent of AECOM. AECOM undertakes no duty, nor accepts any responsibility, to any third party who may rely upon or use this document. This document has been prepared based on the Client's description of its requirements and AECOM's experience, having regard to assumptions that AECOM can reasonably be expected to make in accordance with sound professional principles. AECOM may also have relied upon information provided by the Client and other third parties to prepare this document, some of which may not have been verified. Subject to the above conditions, this document may be transmitted, reproduced or disseminated only in its entirety.

## Quality Information

Document      Rolleston Coal Expansion Project  
 Ref             60103583-6.1-IAS-Rev5  
 Date            9 August 2011  
 Prepared by   Mark Herod  
 Reviewed by   Phillip Hawes

### Revision History

Revision	Revision Date	Details	Authorised	
			Name/Position	Signature
5	9-Aug-2011	<b>Final for Issue</b>	Phillip Hawes	

## Table of Contents

1.0	Introduction	1
1.1	Background	1
1.2	The Proponent	1
1.3	Project Need	1
1.4	Legislative Requirements	2
2.0	Project Description	3
2.1	Project Location	3
2.2	Proposed Operations	3
2.3	Site Infrastructure	3
3.0	Community and Statutory Consultation	4
3.1	RCEP Consultation	4
4.0	Existing Environment, Potential Impacts and Management Strategies	6
4.1	Land Systems	6
4.1.1	Land Use	6
4.1.2	Topography and Geology	6
4.1.3	Soils	6
4.2	Climate	6
4.3	Hydrology	7
4.3.1	Surface Water	7
4.3.2	Groundwater	7
4.4	Ecology	8
4.4.1	Flora	8
4.4.2	Fauna	11
4.5	Noise and Vibration	12
4.6	Air Quality	12
4.7	Cultural Heritage	13
4.8	Traffic and Transport	13
4.9	Socio-Economics	13
4.10	Waste	13
4.11	Environmental Management Plan	14
Appendix A		
	Figures	A

## 1.0 Introduction

### 1.1 Background

The Rolleston Coal Joint Venture is seeking to expand the existing Rolleston Coal mine located on Mining Lease (ML) 70307 and Mineral Development Licence (MDL) 227 in Central Queensland, currently authorised under a level 1 mining environmental authority MIN101140410. The proposed expansion is known as the Rolleston Coal Expansion Project (RCEP) and includes Mining Lease Application (MLA) 70415, MLA 70416 and the Springwood MLA, located directly adjacent to the existing ML 70307 and MDL 227. The geographic location of the RCEP is illustrated on Figure 1 in Appendix A. The proposal involves the expansion of the existing mine to access coal reserves on MLA 70415 and MLA 70416 as illustrated on Figure 2 in Appendix A.

An application for a third mining lease to the southwest, the "Springwood MLA", is currently being prepared (see Figure 2). The primary purpose of the Springwood MLA is to make provision for a creek diversion between Sandy Creek and Meteor Creek and for water management infrastructure. No other relevant mining activities are proposed on the Springwood MLA under this project. Any future mining activities on the Springwood MLA would be subject to a separate assessment and approvals process.

The RCEP is planned to consist of up to ten open cut pits that are either extensions to the existing Rolleston Coal operation or adjacent to the existing Rolleston Coal operation. The project will be primarily supported by infrastructure associated with the existing Rolleston Coal mine including the preparation plant, accommodation village and the rail spur. Some upgrades will be required to the existing Rolleston Coal mine infrastructure, including access to power sources and rail access.

The purpose of this Initial Advice Statement (IAS) is to give an overview of the RCEP and its potential impacts. It also allows affected persons, government agencies, and other interested parties an opportunity to input into the final Terms of Reference (ToR) for the Environmental Impact Statement (EIS). For clarity, the purpose of the EIS is to assess the impacts of the proposed RCEP only, as existing mining activities have previously been assessed and are authorised.

The IAS relates to the expansion of the mine from the currently approved up to 10 million tonnes per annum (mtpa) run-of-mine (ROM) coal to up to 20 mtpa of ROM coal.

### 1.2 The Proponent

The RCEP proponent is the Rolleston Coal Joint Venture whose joint venture partners comprise Xstrata Coal Queensland Pty Ltd (XCQ) (75%), Sumisho Coal Australia Pty Ltd (12.5%) and Itochu Coal Resources Australia RPW Pty Ltd (ICRA Rolleston) (12.5%).

XCQ will manage the operation of the project as it does for the existing Rolleston Coal mine for the Rolleston Joint Venture.

XCQ, headquartered in Brisbane, is a wholly owned subsidiary of Xstrata Coal Ltd — an Australian company with a global reputation as the largest exporter of thermal coal and a significant producer of coking coal and semi-soft coal products. With interests in 30 operations throughout Australia, South Africa and Colombia, Xstrata Coal Ltd has access to both the Pacific and Atlantic export coal markets.

### 1.3 Project Need

The proposed RCEP will allow XCQ to extend current mining activities through the continuation of open cut coal mining operations within the existing ML 70307 and expansion into MLAs 70415 and 70416. The Springwood MLA also forms part of the RCEP to accommodate a creek diversion and water management infrastructure, but no actual coal mining.

Increased production at the Rolleston mine will provide further opportunities for local communities, including employment, economic growth, infrastructure improvements and support for businesses throughout the region. XCQ has existing commitments to the Rolleston community and surrounding areas, and will use this opportunity to build on those.

## 1.4 Legislative Requirements

### State

The development and construction of the Rolleston Coal mine was approved under the *Mineral Resources Act 1989 (MR Act, Qld)* and the *Environmental Protection Act 1994 (EP Act, Qld)* after going through an EIS process. The mine is licensed to operate under the conditions of both a Mining Lease and an Environmental Authority (EA).

In October 2009, following the lodgement of new mining lease applications, MLA 70415 and MLA 70416 and of an application to amend the current EA MIN101140410 for the existing Rolleston Coal mine to include the MLA 70415 and MLA 70416, the Department of Environment and Resource Management (DERM) advised in writing that the assessment level decision for the EA amendment application was that the level of environmental harm is likely to be significantly increased and the application is to be assessed as a Non-code compliant Level 1 mining project for which an EIS is required under the EP Act, Qld. Although the Springwood MLA had not been subject to the amendment application in October 2009, it will be covered in this EIS process.

### Commonwealth

The existing Rolleston Coal Mine holds relevant *Environment Protection and Biodiversity Conservation Act 1999 (Cwth)* approvals. The previous owner of Rolleston Coal Mine (MIM Holdings Ltd) referred the original project in 2001 (EPBC 2001/497). In 2009, the participants in the Rolleston joint venture, acting as the Rolleston joint venture, referred an action within ML 70307 associated with the development of additional coal reserves not identified at the time of the original approval (EPBC 2009/5175).

In relation to the RCEP, a referral has been made for MLA 70415 and MLA 70416 to the Department of Sustainability, Environment, Water, Population and Communities (SEWPAC) (EPBC 2011/5965) who has determined the proposed activities on these MLAs to be a controlled action. SEWPAC has advised that a variation is required to assess the Springwood MLA under the EPBC Act to determine if proposed activities are a controlled action. Irrespectively, the EIS process under the EP Act, Qld, which is an accredited assessment process under the Commonwealth-Queensland Bilateral Agreement, is to be followed for this EIS process.

XCQ, on behalf of Rolleston Coal Pty Ltd, has prepared draft ToR for submission to DERM that will commence the EIS process. XCQ will work with SEWPAC and DERM to ensure that the relevant aspects for assessment in relation to impacts on EPBC Act controlling provisions are included in the draft ToRs.

Also, a separate referral regarding the proposed upgrade of the Rolleston Mine Accommodation Village was made to SEWPAC (EPBC 2011/5937). SEWPAC determined that the action was not a controlled action. For clarity, the proposed upgrade of the Rolleston Mine Accommodation Village is a separate and discrete project from the RCEP.

## 2.0 Project Description

### 2.1 Project Location

The Rolleston Coal mine is situated 16 km west of Rolleston in Central Queensland, approximately 270 km west of Gladstone and 120 km south-east of Emerald (Figure 1). The proposed expansion covers MLA 70415, MLA 70416 and the Springwood MLA. Figure 2 illustrates the location of the existing Rolleston Coal Mine Mining Lease (ML 70307) and the MLAs on which the proposed activities for the RCEP will occur.

### 2.2 Proposed Operations

The existing Rolleston Coal mine commenced mining operations in 2005 on ML 70307. Current production on ML 70307 is approximately 7.5 mtpa with potential to increase to approximately 14 mtpa. In 2008 and 2009 additional exploration drilling targeted areas to the west, north and south of ML 70307 within Exploration Permit for Coal (EPC) 595, EPC 538, EPC 737 and Mineral Development Licence (MDL) 227. Additional economic coal reserves have since been identified and quantified resulting in MLAs 70415 and 70416. The development of the coal reserves within MLAs 70415 and 70416 as well as the creek diversion and water management infrastructure on the Springwood MLA are the subject of the RCEP proposal. When operations have fully commenced on MLA 70415 and MLA 70416 the combined tonnages from the Rolleston Coal mine are expected to be in the range of 15 - 20 mtpa. Some upgrades will be required to the existing Rolleston mine infrastructure, for example to power sources and rail access.

It is anticipated that MLA 70415 and MLA 70416 will be developed in accordance with current mining operations. Overburden will be removed by dragline, supported by excavators/shovels and haul trucks, with the coal extracted and then crushed, sized and blended on-site prior to being railed to domestic markets and to Queensland coal ports for export. Overburden will be placed in dumps, predominantly in mined out areas, reshaped, topsoiled and rehabilitated. Additional vegetation clearing will be required as a result of the proposed activity. All vegetation clearing will be undertaken in accordance with applicable State and Federal laws.

### 2.3 Site Infrastructure

The existing site infrastructure will form the basis of the mine expansion. The additional/upgraded infrastructure will include:

- upgrade to the offices and workshops;
- upgrade to the power supply, water supply and sewerage treatment systems;
- new light vehicle and haul roads;
- new stockpiles;
- potential relocation of Springwood Road; and
- potential dams and levees.

## 3.0 Community and Statutory Consultation

### 3.1 RCEP Consultation

Public consultation will be undertaken as part of the EIS process.

A Stakeholder Engagement Strategy is under development to allow open and transparent communication with the local community and key stakeholders during the EIS process. Table 3.1 lists likely 'affected persons' and the preferred communication channels. Table 3.2 lists likely 'interested persons' and the preferred communication channels.

## 4.0 Existing Environment, Potential Impacts and Management Strategies

### 4.1 Land Systems

#### 4.1.1 Land Use

The RCEP is located in the southern part of the Central Highlands Regional Council area and is bounded to east by the Albinia National Park and to the west by the Mount Hope State Forest. The general area is rural in nature and current land use is predominantly cattle grazing with some irrigated pasture and cropping land. The RCEP area does not overlap either the National Park or State Forest areas.

During the EIS process, a detailed analysis of existing tenures and zoning will be undertaken with a view to describing the approvals required for the expansion to progress. This work will be integrated with the legislative framework and will utilise spatial representation of land use and approvals framework.

#### 4.1.2 Topography and Geology

The following three distinctive topographic units exist:

Undulating to low hilly terrain: The hilly terrain is generally flat topped and forms a gently undulating peneplain covered by red, red-brown, brown and black clay soils which grade into dark grey soils down slope or in depression areas.

Prominent low steep flow scarps: A distinct change of slope occurs at the edge of the hilly terrain. Prominent low steep scarps exist between hard and soft formations where resistant volcanic flows have been truncated or eroded. The most prominent feature of this type is a ridge that forms the upper boundary of the alluvial and colluvial soils.

Flat low lying alluviated plains: The scarp areas either give way to gently sloping, undulating and locally benched slopes, or grade into broadly undulating mildly dissected foot slopes. These merge into colluvial, very gently sloping terraces of the Cainozoic alluvial province. Drainage flats and low terraces have formed adjacent to Bootes and Meteor Creeks, which in some places have incised up to 15m into their floodplains. Flows in these creeks are intermittent and strongly seasonal.

#### 4.1.3 Soils

Field studies undertaken during the 2002 EIS for ML 70307 provided the following areas (MIM, 2002):

- 72% cracking clays;
- 12% texture contrast soils;
- 7% uniform non-cracking red clay soils, alluvial soils and lithosols; and
- 9% complex mixture of cracking clay soils and loamy duplex soils'.

The proposed Expansion Area is suitable for pastoral agricultural land and arable agricultural land, determined primarily with reference to the limiting factors of topography, moisture availability for crop growth, and susceptibility to flooding.

During the field studies consideration will also be given to the Queensland Government's policy framework for Strategic Cropping Land (SCL) and the proposed criteria for identification of SCL.

### 4.2 Climate

Rainfall in the Rolleston area (as in the rest of the Bowen Basin) is highly variable and unreliable, with most falls in the summer months. On average, 64% of the 643 mm average annual rainfall is received during the months of November to March (based on 111 years of data from Rolleston). The remaining rain can fall all year round with light rainfall possible during the winter months. The Rolleston rainfall records correlate to similar long-term average annual rainfall (684 mm) collected at the Springsure Post Office, based on 113 years of data. The Mean annual evaporation in the Rolleston area is 2,100 mm. The daily temperature range in summer is 9°C to 44.5°C

and in winter -3°C to 31.5°C. Summer maximum temperature ranges from 32°C to 44.5°C and in winter 23°C to 31.5°C.

## 4.3 Hydrology

### 4.3.1 Surface Water

Six main water courses flow through the proposed Expansion Area. The stream order of the water courses has been assessed using the Strahler's Order Method. The stream order and the catchment area (not including listed tributaries) for each of the water courses at the downstream end of the project site are presented in Table 4.1.

The proposed development will require the diversions of Sandy Creek and Meteor Creek located on the Springwood MLA and for water management infrastructure. Possible alignments will be assessed as part of the EIS process.

**Table 4.1 – Water Courses in the Study Area**

Watercourse Name	Stream Order	Catchment Size (ha)
Meteor Creek	3rd order	64,830
Sandy Creek	2nd order	10,990
Bootes Creek	2nd order	8,578
Gibbs Gully	1st order	2,016
Spring Creek	2nd order	7,419
Patons Springs	1st order	562

The EIS will determine the likely significant impacts to surface water by establishing existing water quality levels, conducting a flood risk assessment and developing a comprehensive Site Water Management Plan (SWMP). The SWMP will likely consider the following key points:

- develop a staged mine water plan that includes separation of clean, dirty and mine water catchments;
- size diversion drains, sediment dams and mine water dams;
- review pumping, water usage and discharge volumes from the existing mine;
- prepare a water balance model for the site that is integrated with the existing mine;
- test the water balance model under a range of climatic conditions to determine the likely surpluses and deficits of mine water;
- assess the potential impacts of mine water discharges on the downstream water quality and the beneficial uses; and
- identify suitable water supply sources for drought conditions to address any deficits.

### 4.3.2 Groundwater

There are three prime groundwater systems within the mine area, characterised as:

- Permian coal seam aquifers;
- Tertiary basalt aquifers; and
- Quaternary alluvial aquifers.

An assessment conducted by Australasian Groundwater and Environmental Consultants Pty Ltd (AGE) in 2009 describes the groundwater regime of the area of the mine site and of the boxcut in particular, and discusses the issues, risks and constraints in developing the boxcut in relation to groundwater. In summary, it is considered unlikely that dewatering of the alluvial aquifer in the vicinity of the boxcut will impact on the irrigation bores or Rainbow Bore on "Springwood". Further assessment will be conducted as part of the EIS.

## 4.4 Ecology

### 4.4.1 Flora

#### EPBC Threatened Ecological Communities

The EPBC Protected Matter Search identified four endangered ecological communities in the vicinity of the proposed expansion area:

- brigalow (*Acacia harpophylla* dominant and co-dominant);
- natural grasslands of the Queensland Central Highlands and the northern Fitzroy Basin;
- semi-evergreen vine thickets of the Brigalow Belt (North and South) and Nandewar Bioregions; and
- weeping myall woodlands.

Two of these communities, brigalow and natural grasslands, were recorded within the proposed expansion area during preliminary field surveys in 2010.

#### Threatened Flora

Nine EPBC threatened species (7 Vulnerable and 2 Endangered) are predicted to occur (listed in Table 4.2) and five of these species have potential habitat within the proposed expansion area. These are:

- *Aristida annua*;
- *Dichanthium queenslandicum*;
- *Dichanthium setosum*;
- *Digitaria porrecta*; and
- *Thesium austral*.

No threatened species of flora have been recorded during previous surveys of the existing Rolleston Mine site or during surveys conducted in 2010 within the proposed expansion area. Grass species *Digitaria porrecta* is known to occur between Springsure and Rolleston in *Eucalyptus orgadophila* dominated areas and in *E. tereticornis* and *E. populnea* drainage lines (DEWHA 2008), however has not previously been identified on site.

*Aristida annua*, *Dichanthium queenslandicum* and *Dichanthium setosum* are known to occur in the area based on their habitat preference and known distribution, and *Dichanthium queenslandicum* has been identified on reference sites in 2010 during rehabilitation monitoring.

**Table 4.2: Threatened flora species predicted to occur within the proposed Expansion Area.**

Scientific Name	EPBC* Status	Preferred Habitat	Likelihood of Occurrence
<i>Aristida annua</i>	V	Appears to be a very localised annual species restricted to the black soils of central Queensland	Possible
<i>Cadellia pentastylis</i>	V	Grows in dry rainforest, semi-evergreen vine thickets and sclerophyll ecological communities, often locally dominant or as an emergent	Unlikely
<i>Commersonia argentea</i>	V	A component of eucalypt open forest on ridges or undulating terrain or along watercourses and occurs in sandy soils	Unlikely
<i>Dichanthium queenslandicum</i>	V	Bluegrass grasslands and Eucalyptus orgadophila woodlands on black cracking clays	Possible
<i>Dichanthium setosum</i>	V	Associated with heavy basaltic black soils. Often found in moderately disturbed areas such as cleared woodland, grassy roadside remnants and highly disturbed pasture	Possible

Scientific Name	EPBC* Status	Preferred Habitat	Likelihood of Occurrence
<i>Digitaria porrecta</i>	E	In grasslands on extensive basaltic plains, and in undulating woodlands and open forests with an underlying basaltic geology. It usually occurs on dark and fine textured soils with some degree of seasonal cracking	Possible
<i>Macrozamia platyrhachis</i>	E	In eucalypt woodland or open forest on sandy soil	Unlikely
<i>Marsdenia brevifolia</i>	V	North of Rockhampton, <i>M. brevifolia</i> grows on serpentine rock outcrops or crumbly black soils derived from serpentine in eucalypt woodland, often with Broad-leaved Ironbark ( <i>Eucalyptus fibrosa</i> ) and <i>Corymbia xanthope</i> . At Hidden Valley near Paluma, plants grow in woodland on granite soils and on Magnetic Island the species occurs in open forest on dark acid agglomerate soils.	Unlikely
<i>Thesium australe</i>	V	Grassland and grassy woodland Associated with RE 11.3.21 and 11.8.5	Possible

\*Status - Commonwealth EPBC Act 1999 (E = Endangered; V = Vulnerable)

#### 4.4.1.1 State Significant Vegetation

Vegetation of State significance includes:

- Regional Ecosystems (RE);
- Essential Habitat (EH); and
- High Value Regrowth Vegetation.

REs with a biodiversity status of Endangered are also listed as Category B Environmentally Sensitive Areas (ESA).

#### Regional Ecosystems

REs mapped by DERM within the site are described in Table 4.3.

**Table 4.3: Regional Ecosystems Mapped by DERM within the Proposed Expansion Area**

Regional Ecosystem	Short Description	VM Act Status*	Area (ha)
11.3.1	<i>Acacia harpophylla</i> and / or <i>Casuarina cristata</i> open forest on alluvial plains	E	3.47
11.3.2	<i>Eucalyptus populnea</i> woodland on alluvial plains	OC	19.41
11.3.2 / 11.3.3 / 11.3.6 / 11.3.25	<i>Eucalyptus populnea</i> woodland on alluvial plains / <i>Eucalyptus coolabah</i> woodland on alluvial plains / <i>Eucalyptus melanophloia</i> woodland on alluvial plains / <i>Eucalyptus tereticornis</i> or <i>E. camaldulensis</i> woodland fringing drainage lines	OC / OC / LC / LC	131.4
11.3.3a / 11.3.4	Riverine wetland or fringing riverine wetland. <i>Melaleuca bracteata</i> woodland. On alluvial plains / <i>Eucalyptus tereticornis</i> and / or <i>Eucalyptus</i> spp. tall woodland on alluvial plains	OC / OC	892.18
11.3.4 / 11.3.3a	<i>Eucalyptus tereticornis</i> and / or <i>Eucalyptus</i> spp. tall woodland on alluvial plains / Riverine wetland or fringing riverine wetland. <i>Melaleuca bracteata</i> woodland. On alluvial plains	OC / OC	0.14
11.3.25	<i>Eucalyptus tereticornis</i> or <i>E. camaldulensis</i> woodland fringing drainage lines	LC	174.78
11.4.9	<i>Acacia harpophylla</i> shrubby open forest to woodland with <i>Terminalia oblongata</i> on Cainozoic clay plains	E	2.21

Regional Ecosystem	Short Description	VM Act Status*	Area (ha)
11.4.9 / 11.4.4	<i>Acacia harpophylla</i> shrubby open forest to woodland with <i>Terminalia oblongata</i> on Cainozoic clay plains / <i>Dichanthium</i> spp., <i>Astrebla</i> spp. grassland on Cainozoic clay plains	E / LC	4.36
11.4.9 / 11.3.21	<i>Acacia harpophylla</i> shrubby open forest to woodland with <i>Terminalia oblongata</i> on Cainozoic clay plains / <i>Dichanthium sericeum</i> and / or <i>Astrebla</i> spp. grassland on alluvial plains. Cracking clay soils	E / E	10.99
11.8.5	<i>Eucalyptus orgadophila</i> open woodland on Cainozoic igneous rocks	LC	329.15
11.8.5 / 11.8.11	<i>Eucalyptus orgadophila</i> open woodland on Cainozoic igneous rocks / <i>Dichanthium sericeum</i> grassland on Cainozoic igneous rocks	LC / OC	2472.70
11.8.11	<i>Dichanthium sericeum</i> grassland on Cainozoic igneous rocks	OC	941.84
11.8.11 / 11.8.5	<i>Dichanthium sericeum</i> grassland on Cainozoic igneous rocks / <i>Eucalyptus orgadophila</i> open woodland on Cainozoic igneous rocks	OC / LC	1259.16
11.9.12	<i>Dichanthium sericeum</i> grassland with clumps of <i>Acacia harpophylla</i> on fine-grained sedimentary rocks	E	45.55
Non-remnant			2686.03

\* VM Act: Status under the *Vegetation Management Act 1999*.

E: Endangered; OC: Of Concern; LC: Least Concern

#### Essential Habitat

Vegetation is classified as EH if a record of a Nature Conservation Act threatened species has been previously known to occur. The essential habitat factors for *Dichanthium setosum*, as described by the DERM, are shown in Table 4.4.

**Table 4.4. Essential Habitat Species Factors for *Dichanthium setosum*.**

Species	NCA status	Regional ecosystems (mandatory essential habitat factor)	Vegetation Community	Altitude
<i>Dichanthium setosum</i>	Near threatened	11.3.25, 11.8.5, 11.9.2, 11.9.7, 11.9.9  Also RES in Einasleigh Uplands Bioregion (9.3.2, 9.8.1, 9.11.2, 9.11.16) and South east Queensland Bioregion (12.3.7, 12.3.9, 12.8.17, 12.11.7), which do not occur in central Queensland.	<i>Eucalyptus tereticornis</i> or <i>E. camaldulensis</i> woodland fringing drainage lines  <i>Eucalyptus orgadophila</i> open woodland on Cainozoic igneous rocks	0- 1000 m

REs 11.3.25 and 11.8.5 are mapped within the proposed expansion area.

An area of essential habitat for the near threatened fauna species *Chalinolobus picatus* (little pied bat) was also mapped along Meteor Creek.

#### Regrowth Vegetation

High value regrowth vegetation was confined to several small areas along Meteor Creek.

#### Environmentally Sensitive Areas

A number of Environmentally Sensitive Areas (ESA) for Mining Activities occur in and adjacent to the proposed expansion area. There are four categories of ESA – A, B, C and Others. Three Category B areas, comprising REs which have an endangered biodiversity status, occur in the proposed expansion areas.

Albinia National Park, which is a Category A ESA, is adjacent to the eastern MLAs. Mt Hope State Forest, a Category C area, occurs near the southeast boundary.

Detailed mitigation measures will be developed and presented in the Environmental Management Plan (EMP) upon completion of the ecological surveys. Some potential mitigation measures that may be detailed in the EMP include:

- Progressive rehabilitation strategies consistent with successful strategies implemented at the existing Rolleston Mine;
- Provision of wildlife spotters during clearing;
- Weed management; and
- Provision of offsets for clearing of listed vegetation through development of an offset strategy (if required).

Consultation with statutory agencies and stakeholders will be undertaken to inform the scope of the surveys as well as provide input into the measures detailed in the EMP.

#### 4.4.2 Fauna

##### Threatened Fauna

No endangered terrestrial fauna have been recorded on the existing Rolleston Mine site or during preliminary surveys conducted in the Expansion Areas during 2010. The EPBC Protected Matters Report lists ten threatened (8 Vulnerable 2 Endangered) and species that are predicted to occur within the study area (Table 4.3).

Six of the threatened species have potential habitat within the proposed Expansion Area. These were:

- Ornamental snake (*Denisonia maculata*);
- Yakka skink (*Egernia rugosa*);
- Dunmall's snake (*Furina dunmalli*);
- Squatter pigeon -southern subspecies (*Geophaps scripta scripta*);
- Eastern long-eared bat (*Nyctophilus corbeni*); and
- Brigalow scaly-foot (*Paradelma orientalis*).

**Table 4.3: Threatened flora species predicted to occur within the proposed Expansion Area.**

Common Name	Scientific Name	EPBC Act Status*	Preferred Habitat	Likelihood of Occurrence
Northern quoll	<i>Dasyurus hallucatus</i>	E	Vine thicket; brigalow	Highly unlikely
Ornamental snake	<i>Denisonia maculata</i>	V	Brigalow; dry/rocky habitats	Possible
Yakka skink	<i>Egernia rugosa</i>	V	Brigalow; cracking clays	Possible
Dunmall's snake	<i>Furina dunmalli</i>	V	Brigalow; dry woodlands	Possible
Squatter pigeon -southern subspecies	<i>Geophaps scripta scripta</i>	V	Grassy open woodland	Highly likely
Star finch - eastern subspecies	<i>Neochmia ruficauda ruficauda</i>	E	Grassy wetland margins	Unlikely
Eastern long-eared bat	<i>Nyctophilus corbeni</i> (formerly <i>Nyctophilus timoriensis</i> )	V	Vine thicket; brigalow	Possible
Brigalow scaly-foot	<i>Paradelma orientalis</i>	V	Brigalow; dry woodlands	Possible

Common Name	Scientific Name	EPBC Act Status*	Preferred Habitat	Likelihood of Occurrence
Fitzroy River turtle	<i>Rheodytes leukops</i>	V	Fast-flowing clear waters	Unlikely
Australian painted snipe	<i>Rostratula australis</i>	V	Wetland margins	Unlikely

\*Status - Commonwealth EPBC Act 1999 (E = Endangered; V = Vulnerable)

Preliminary surveys for these threatened species were conducted in the proposed Expansion Area in 2010. None of these species were recorded within the proposed Expansion Area.

## 4.5 Noise and Vibration

The surrounding area is generally rural farmland. The nearest and potentially most affected noise sensitive receivers are summarised in Table 4.4.

**Table 4.4 Summary of Most Affected Noise Sensitive Receivers**

Location	Direction from mine lease to homestead	Approximate distance from the mine lease to the homestead	X & Y Coordinates MGA 94 Z55
Meteor Downs	NW	5.6 km	X: 634830.54 Y: 7303006.03
Springwood	SW	6.2 km	X: 636677.32 Y: 7285979.68
Albania Downs	NE	4.9 km	X: 650356.43 Y: 7298211.33
Bottle Tree Downs	SE	7.1 km	X: 650047.75 Y: 7287058.56
Mount Kelman	NW	9.3 km	X: 630012.17 Y: 7298448.98
Inderi	N	8.3 km	X: 644738.00 Y: 7308753.41
Croydon Hills	NW	10.5 km	X: 630973.31 Y: 7305470.11

The Meteor Park residence is located within the mining lease and is understood to be owned by the mine for the purposes of the background noise assessment. Noise emission to this residence will not be included.

The RCEP will be required to meet noise and vibration standards for occupational health and safety, and the *EP Act, Qld*, including the *Environmental Protection (Noise) Policy 2008*. These regulatory requirements will ensure that sensitive receptors are not adversely affected by any noise or vibration generated by the RCEP.

Any necessary mitigation strategies will be formulated as a result of the detailed noise and vibration studies that will be undertaken as part of the EIS process.

## 4.6 Air Quality

It is not anticipated that dust deposition impacts will represent a significant constraint to the development of the mine. There are a limited number of properties potentially impacted by the proposed works and the new mine would generally be located further from the residences than the current operations. The existing operation will provide critical baseline data. The fact that the existing operations has been able to effectively manage dust deposition without impacting on the local residents in a more challenging operating environment limits the risks associated with the RCEP. Notwithstanding this, additional studies will be undertaken as part of the EIS to quantify any changes to air quality as a result of any potential increase in dust levels from the RCEP.

The RCEP will be required to meet air quality standards for occupational health and safety, and the *EP Act, Qld*, including the *Environmental Protection (Air) Policy 2008*. Any necessary mitigation strategies will be formulated as a result of the detailed Air Quality studies that will be undertaken as part of the EIS process.

## 4.7 Cultural Heritage

It is envisaged that the proposed expansion to the mine poses a low risk to European cultural heritage. Previous work has been undertaken in the original mine area and historical information of the broader area is included in the original EIS.

The existing Cultural Heritage Management Plan (CHMP) process will be run in parallel with the EIS. Prior to the EIS being approved the CHMP will be in place. The CHMP will manage any impacts on features of European or aboriginal cultural heritage value.

## 4.8 Traffic and Transport

The traffic and transportation issues relating to the RCEP are not considered to have a significant impact on the surrounding area. Operationally there are limited impacts. The coal will be hauled from the new mine to the existing loadout facility and transported by rail to the Gladstone Port. The key potential impacts are the increase in construction traffic during project development and the impacts of the additional workforce on the capacity of the existing road network.

## 4.9 Socio-Economics

Potential social impacts may occur at both regional and local levels, in terms of:

- demographic, social, cultural and economic profiles;
- local residents' values and aspirations, existing lifestyles and enterprises;
- current land uses, social infrastructure, community services and community cohesion;
- local and State labour markets, with regard to the source of the workforce; and
- construction and operational workforces and associated contractors on housing demand/availability. An accommodation strategy will be developed as part of the Social Impact Assessment (SIA).

The SIA will be completed in accordance with the *Sustainable Resource Communities* Policy released by the Queensland Government in 2008. This Policy follows on from the *Sustainable Futures Framework for Queensland Mining Towns (2007)* and builds on the key principles of leadership, collaboration, corporate responsibility, sustainability, communication and community engagement. The SIA will describe the potential impacts on the existing social environment and practical measures for protecting or enhancing social values.

In terms of economic impact assessment, coal mines, and the associated infrastructure required to facilitate an export trade, produce a range of economic benefits such as revenue from sales of coal and employment. Where possible, these potentially beneficial impacts will be quantified as part of the EIS.

The economic impact assessment will describe and, where possible, quantify the current and ongoing benefits from the proposed changes in order to assess how the changes will affect the local and regional economies. The outcome will allow the design of any suitable mitigation strategies should they be required.

## 4.10 Waste

The environmental values relative to waste are the landscape, diversity of the ecological processes surrounding the proposed mining leases and the health and wellbeing of the local community.

Potential environmental impacts due to the waste produced at the mining lease areas are identified below.

Items	Pathway Identified	Potential Impacts
Air Quality	Uncontrolled disposal or storage of waste in inappropriate areas Inappropriate handling of waste Waste spread over wide areas by the wind	Release of odour nuisances Generation of dust Propagation of diseases
Land	Waste disposed on land without any specific measures of protection	Contamination of the soils Contamination of the surface and/or ground water

Items	Pathway Identified	Potential Impacts
Water (surface and groundwater)	Waste disposal nearby or directly into a surface water resource Waste disposed on land without any specific measures of protection	Decrease of the water quality and/or aquatic habitat values Contamination of the surface and/or ground water
Flora & Fauna	Waste spread over wide areas by the wind Waste disposed on land without any specific measures of protection	Contamination of the soils and/or surface water and/or ground water Propagation of diseases
Public health and safety impacts	Direct contact / Inhalation / Ingestion	Staff and visitor health, safety and hygiene issues
Visual amenity	Inappropriate disposal Waste spread over wide areas by the wind	Visual impact
Noise	None identified	N/A

A waste management strategy will be implemented so that the development and operation of the mine is undertaken without posing any health or environmental risks.

The strategy will be based on:

- Adequate segregation of waste components at the point of generation;
- Maintaining the adequate segregation of the different types of waste during storage and transport;
- Assessment of the waste streams for potential re-use, prior to transport off site for recycling or disposal; and
- Ensuring that waste is recycled / reprocessed or disposed of to appropriate facilities.

#### 4.11 Environmental Management Plan

After having identified the environmental issues that could arise as a consequence of the proposed development, detailed mitigation measures will be developed and presented in an Environmental Management Plan (EMP) as part of the EIS process to ensure that environmental values are protected. The EMP will incorporate mitigation measures already included and implemented as part of the EMP for the existing Rolleston Coal mine and conditions issued as part of the Environmental Authority pursuant to the *Environmental Protection Act 1994*.

## Appendix A

# Figures