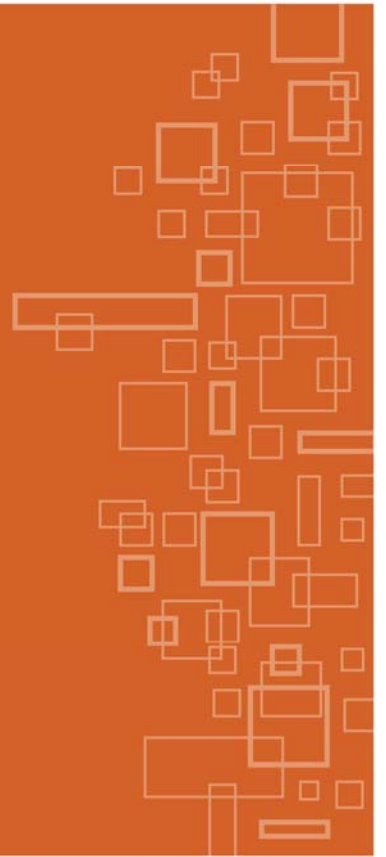




Coordinator-General's evaluation report for an environmental impact statement

Bowen Basin Coal Growth Project: Daunia Mine

October 2009

**Under part 4 of the *State Development and Public
Works Organisation Act 1971***



Coordinator-General's report

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List of acronyms and abbreviations

AADT	annual average daily traffic
ACH Act	<i>Aboriginal Cultural Heritage Act 2003</i>
ANZECC	Australian and New Zealand Environment Conservation Council
ARMCANZ	Agriculture and Resource Management Council of Australia and New Zealand
AUL	auxiliary left turn lane
AUR	auxiliary right turn lane
BBCG	Bowen Basin Coal Growth (project)
BBKY	Barada/Barna/Kabelbara/Yetimarala people
BMA	BHP Billiton Mitsubishi Alliance Pty Ltd
CC Act	<i>Criminal Code Act 1899</i>
CFMEU	Construction, Forestry, Mining and Energy Union
CG	Coordinator-General
CHMP	cultural heritage management plan
CHPP	coal handling and preparation plant
CHR	channelised right turn
CPP	community partnerships program
CRG	community reference group
Cwlth	Commonwealth
Cor Act	<i>Coroners Act 2003</i>
CPI	consumer price index
CQCA	Central Queensland Coal Associates Joint Venture
CHPP	coal handling and processing plant
dB	decibels
DCS	Department of Community Safety
DEEDI	Department of Employment, Economic Development and Innovation
DEIR	(The former) Department of Employment and Industrial Relations (now part of DEEDI)
DERM	Department of Environment and Resource Management
DES	Department of Emergency Services
DEWHA	Department of Environment, Water Heritage and the Arts
DMP	disaster management plan
DMR	(The former) Department of Main Roads (now part of DTMR)
DNRW	(The former) Department of Natural Resources and Water (now part of DERM)
DoC	Department of Communities
DPI&F	(The former) Department of Primary Industries and Fisheries (now part of DEEDI)
DSQ	(The former) Disability Services Queensland
DTMR	Department of Transport and Main Roads



DTRDI	(The former) Department of Tourism, Regional Development and Industry (now part of DEEDI)
EA	environmental authority
EIS	environmental impact statement
EM Plan	environmental management plan
EP Act	<i>Environmental Protection Act 1994</i>
EPA	(The former) Environmental Protection Agency (now part of DERM)
EPBC Act	<i>Environment Protection and Biodiversity Conversation Act 1999</i>
EPP Air	<i>Environmental Protection (Air) Policy</i>
ESA	equivalent standard axes
GQAL	good quality agricultural land
IEMS	integrated environmental management system
IAS	initial advice statement (as defined by the SDPWO Act)
IP Act	<i>Integrated Planning Act 1997</i>
IRC	Isaac Regional Council
km ²	square kilometres
kpa	kilopascals
kph	kilometres per hour
kV	kilovolts
MR Act	<i>Mineral Resources Act 1989</i>
ML	mining lease
MRC	Mackay Regional Council
Mt	million tonnes
m/s	metres per second
Mtpa	million tonnes per annum
NC Act	<i>Nature Conservation Act 1992</i>
NEPM	National Environmental Protection Measure
NES	national environmental significance (as defined by the EPBC Act)
PIA	pavement impact assessment
NRA	Nature Refuge Agreement
PIA	Pavement Impact Assessment
PM10	particles of 10 micrometers or less
QGEOP	<i>Queensland Government Environmental Offset Policy</i>
QH	Queensland Health
QH Act	<i>Queensland Heritage Act 1992</i>
QNCW Reg	<i>Queensland Nature Conservation Wildlife Regulation 1994</i>
QPS	Queensland Police Service
QT	(The former) Queensland Transport (now part of DTMR)
RE	regional ecosystem



RIA	road impact assessment
RMP	road management plan
ROM	run of mine
SDPWO Act	<i>State Development and Public Works Organisation Act 1971</i>
SEIS	supplementary environmental impact statement
TMP	traffic management plan
SIMP	social impact management plan
SIU	Social Impact Unit (within DIP)
TMP	traffic management plan
ToR	terms of reference (as defined by the SDPWO Act)
VM Act	<i>Vegetation Management Act 1999</i>
$\mu\text{g}/\text{m}^3$	micrograms per cubic metre
$\mu\text{S}/\text{cm}$	microSiemens per centimetre



Machinery of Government changes

Due to Machinery of Government changes from 26 March 2009 (see *Public Service Department Arrangements Notice* (No.2) 2009), the following changes to Queensland Government departments referred to in this report occurred (summarised in Table 1):

Table 1

New department (as of 26 March 2009)	Previous department/s
Department of Employment, Economic Development and Innovation—DEEDI	Department of Primary Industries and Fisheries—DPI&F Department of Mines and Energy—DME Department of Tourism, Regional Development and Industry—DTRDI Department of Employment and Industrial Relations—DEIR
Department of Environment and Resource Management—DERM	Environmental Protection Agency—EPA Department of Natural Resources and Water—NRW
Department of Transport and Main Roads—DTMR	Department of Main Roads—DMR Queensland Transport—QT
Department of Communities—DOC	Department of Communities—DOC Department of Housing—Housing Department of Local Government, Sport and Recreation—DLGSR Disability Services Queensland—DSQ
Department of Community Safety—DCS	Department of Emergency Services—DES



Synopsis

This Coordinator-General's (CG) report has been prepared pursuant to s.35 of Queensland's *State Development and Public Works Organisation Act 1971* (SDPWO Act) and provides an evaluation of the environmental impact assessment process for the first component of the Bowen Basin Coal Growth (BBCG) Project ('the BBCG Project'), the Daunia Coal Mine Development ('the Daunia Project'). The Department of Infrastructure and Planning (DIP) managed the environmental impact assessment process for this project on my behalf in accordance with the SDPWO Act.

This report includes an assessment and conclusion about the environmental effects of the project and any associated mitigation measures. Assessed material includes: the environmental impact statement (EIS); the supplementary report to the EIS (SEIS); properly made submissions and other submissions that I have accepted; and any other material that I think is relevant to the project, such as comments and advice from advisory agencies and other entities, technical reports and legal advice.

BHP Billiton Mitsubishi Alliance Coal Operations Pty Ltd (BMA, 'the proponent') is proposing to produce an additional 20 million tonnes per annum (mtpa) of coking coal through the progressive development of two new coking coal mines, an expansion of an existing coal mine and developing a new, larger capacity airport. The BBCG project consists of four potential project components:

- Daunia Mine: a new open cut mine and associated infrastructure to produce up to 4 mtpa of coal
- Caval Ridge Mine: a new open cut mine and associated infrastructure to produce up to 5.5 mtpa of coal
- Goonyella Riverside Mine: an expansion of the existing open cut and underground mining operations to produce up to 9.5 mtpa of coal
- airport: construction of a new airport replacing the existing Moranbah airport facility to accommodate increased travel to and from the area providing a wider range of transport options for the larger workforce associated with the BBCG Project's expanded operations.

The Daunia Project component of the BBCG Project is located approximately 30 kilometres south east of Moranbah and is buttressed along its western boundary by an existing open cut mining operation, the Poitrel Mine, that is managed by BMA on behalf of BHP Mitsui Coal. The Daunia Project involves the production of four mtpa of high quality coking coal.

An EIS may be submitted in parts for each of these components of the project as allowed under s.32(1)(b) of the SDPWO Act. BMA has indicated that it intends to submit the EIS in multiple parts. The Daunia Project is the first component to be assessed under this process. The EIS process of the other three components of the BBCG Project will be assessed under separate environmental impact assessments.

The BBCG Project's initial advice statement was lodged with the Coordinator-General on 27 May 2008 and the BBCG Project was declared to be a 'significant project for which an EIS is required', pursuant to section 26(1)(a) of the SDPWO Act, on 18 July 2008.

On 22 September 2008, the Daunia Project was declared a controlled action pursuant to s.75 of the *Environment Protection and Biodiversity Conservation Act 1999* (Cwlth) (EPBC Act)—decision notice EPBC 2008/4418. Under a bilateral agreement between the Queensland and Australian Governments, the impact assessment process conducted under the SDPWO Act satisfies the requirements of the EPBC Act and this report will be used by the Australian Government Minister for the Environment, Heritage and the Arts to make an assessment of the controlled action.

The BBCG project's draft terms of reference (TOR) were advertised for public comment on 9 August 2008. Comments were accepted until close of business on 5 September 2008. A final TOR was issued to the proponent in November 2008.

The Daunia Project EIS was approved for release and advertised publicly on Saturday 29 November 2008 inviting submissions until close of business on Monday 2 February 2009. All submissions were forwarded to the proponent for consideration and, following discussions with the proponent and its technical consultants, the CG determined that the preparation of a SEIS was necessary to address substantive issues that were raised.

The key environmental issues raised in submissions, including public submissions, were:

- new technologies for dewatering and disposal of coal tailings



- tighter controls on dust emissions
- the management of controlled water releases from mine sites
- interactions with transport and other infrastructure
- the development of adequate mitigation measures to counter the broad range of social impacts experienced by communities across the northern Bowen Basin.

On 3 April 2009, the Daunia Project SEIS addressing the above issues was forwarded to advisory agencies requesting their specific comments or advice for consideration in preparing this report, and to other EIS respondents for their information.

In evaluating the environmental effects, I have considered:

- the EIS, SEIS and a draft environmental management plan (EM plan) prepared by the proponent
- public submissions received on the EIS
- comments on the EIS and other advice provided by state and local government authorities (advisory agencies)
- other relevant information.

I consider that the environmental impact assessment process for the Daunia Project has addressed the environmental and other impacts of the project and meets the requirements of the Queensland Government for impact assessment in accordance with the provisions of Part 4 of the SDPWO Act.

This report has been prepared to amend the current environmental authority (mining lease) (EA) that covers the Daunia Project's mining lease (ML) 1781 and ML70115 and update this EA to cover Daunia Project related activities on ML70116, ML70312 and ML4749.

Accordingly, pursuant to section 49 of the SDPWO Act, I have formulated conditions which may be attached to the draft EA that are contained in Appendix C of this report.

This report is therefore prepared for submission to the Queensland Minister administering the *Environmental Protection Act 1994* for advice in consideration of the Minister's decision on the EA for the Daunia Project.

This report also contains Coordinator-General imposed conditions which I propose to apply under Division 8 of the SDPWO Act to mitigate impacts of the project.

My report also contains observations and recommendations which I commend for the proponent's consideration in making commitments in support of the project.

I have also prepared this report to include material for assessment by the Australian Government Minister for the Environment, Heritage and the Arts when making a decision under the EPBC Act.

I would like to take this opportunity to thank all individuals, organisations and government agencies that have contributed to the EIS process by providing submissions on the EIS and SEIS and attending relevant meetings. The input has contributed to the development of relevant and reasonable conditions that are to apply to ensure acceptable implementation of the project.

.....
Colin Jensen
Coordinator-General
Date:



1 Introduction

This report has been prepared pursuant to s.35 of the *State Development and Public Works Organisation Act 1971* (Qld) (SDPWO Act) and provides an evaluation of the environmental impact statement (EIS) process for the Daunia Project component of the Bowen Basin Coal Growth Project (BBCG, 'BBCG Project'). The EIS was conducted by the proponent—BHP Billiton Mitsubishi Alliance Pty Ltd (BMA).

The objective of this report is to summarise the key issues associated with the potential impacts of the project on the physical, social and economic environments at the local, regional, state and national levels. It is not intended to record all the matters which were identified and subsequently settled. Instead, it concentrates on the substantive issues identified during the EIS process.

This report represents the end of the Queensland Government EIS process. Essentially, it is an evaluation of the project—based on information contained in the EIS, submissions made on the EIS, and information and advice from advisory agencies and other parties—and states conditions under which the project may proceed.

Under a bilateral agreement with the Australian Government, this report will be used by the Australian Government Minister for the Environment, Heritage and the Arts to make an assessment of the controlled action for the purposes of the EPBC Act.



2 Project description

2.1 The proponent

The project's proponent is BHP Billiton Mitsubishi Alliance Coal Operations Pty Ltd (BMA) as manager and agent on behalf of the Central Queensland Coal Associates Joint Venture ('C.Q.C.A.'). Central Queensland Coal Associates is an unincorporated joint venture between BHP Billiton (50 per cent) and Mitsubishi Corp. (50 per cent). Joint venture arrangements are regulated in accordance with the C.Q.C.A. Joint Venture Agreement as amended most recently by deed dated 28 June 2001 and a strategic alliance agreement dated 28 June 2001 which created BMA. Operations are managed by BM Alliance Coal Operations Pty Ltd on behalf of the C.Q.C.A. Joint Venturers under a management agreement dated 28 June 2001.

BMA has equal ownership and management of seven central Queensland coal mines, all located within the Bowen Basin: Goonyella Riverside, Broadmeadow, Peak Downs, Saraji, Norwich Park, Gregory Crinum and Blackwater. BMA also manages the Hay Point Coal Terminal near Mackay, Queensland.

In addition to the above, BMA manages the operations of BHP Mitsui Coal, which is owned by BHP Billiton (80 per cent) and Mitsui and Co (20 per cent). These operations include the South Walker Creek Mine and Poitrel Mine, which is immediately west of the proposed Daunia Mine.

BMA has three existing coal mines adjacent to the Daunia project site: Goonyella Riverside open cut, Broadmeadow underground, and Peak Downs open cut. BHP Mitsui has one existing coal mine adjacent to the Daunia project sites—Poitrel open cut.

To clarify future interpretation of this report:

- Any references to BHP Billiton Mitsubishi Alliance Pty Ltd or BM Alliance Pty Ltd (BMA) can also be read as 'the project proponent' (or 'the proponent').
- All references to commitments made by BMA and recommendations and conditions applying to BMA for this project also apply to all parties engaged/assigned to construct and/or operate any part of the project and to any party to which BMA may assign the BBCG project.

2.2 The project

2.2.1 The Bowen Basin Coal Growth Project

The project involves the production of an additional 20 million tonnes per annum (mtpa) of coal products through progressive development of four principal components:

- a new open cut Daunia Mine
- a new open cut Caval Ridge Mine
- a large expansion of the existing open cut and underground Goonyella Riverside Mine
- construction of a new larger capacity airport in the vicinity of Moranbah.

The mines are located approximately 30 kilometres south east, south and north of Moranbah respectively, 170 kilometres south west of Mackay.

2.2.2 The Daunia Mine

The Daunia Project component of the BBCG Project is located approximately 30 kilometres south east of Moranbah. Daunia is adjacent to the existing open cut BHP Mitsui Poitrel Mine, and is accessed via the existing access road leading from the Peak Downs Highway to the Millennium Project and Poitrel Mine.

The site is also located approximately two kilometres to the north of the Isaac River (which forms the southern boundary of the Poitrel Mining Lease) and 15 kilometres south of the Peak Downs Highway (see Figure 1.).



The Daunia Project is located within the existing mining leases (Table 2 below):

Table 2

Mining tenure	Name	Holder	Development associated with the Daunia Mine
ML 1781	Daunia	BHP Coal Pty Ltd and others (CQCA Joint Venture participants)	Mining and mining related infrastructure
ML 70115	Daunia East	BHP Coal Pty Ltd and others (CQCA Joint Venture participants)	Mining and mining related infrastructure
ML 70116	Red Mountain	BHP Coal Pty Ltd and others (CQCA Joint Venture participants) 50% and BHP Mitsui Coal Pty Ltd 50%	CHPP, workshops, haul road, ROM and product coal stockpiles
ML 70312	Millennium East	Millennium Coal Pty Ltd 50% and BHP Mitsui Coal Pty Ltd 50%	Mining related infrastructure (product conveyor and train load out)
ML 4749	Poitrel	BHP Mitsui Coal Pty Ltd	Mining related infrastructure

The site has been heavily degraded through past clearing and agricultural use. It is currently used for cattle grazing purposes.

The land is generally flat and comprises large areas of rural grassland. Small and isolated patches of remnant and riparian vegetation exist on the site, including some brigalow communities. Two unnamed drainage paths flow north to south through the Daunia and Daunia East Mining Leases.

The coal deposits are located in the Late Permian, Rangal Coal Measures which are approximately 100 metres in thickness. The three potentially commercial coal seams located within the site are:

- Leichhardt Seam (DL1)
- Lower Leichhardt Seam (DL0)
- Upper Vermont Seam (DV4).

Indicated resources of 149 million tonnes were calculated for the Leichhardt Seams and Upper Vermont Seam.

The Daunia Project involves the production of 4 mtpa of high quality coking coal over a mine life of 21 years. The Daunia Mine development comprises (see Figures 2 and 3):

- an open cut coal mine on Daunia Mining Lease (ML 1781) generating up to 5.6 mtpa run of mine (ROM) to produce approximately 4 mtpa of product coal for the export market
- out of pit spoil dumps located on the Daunia (ML 1781) and Daunia East (ML 70115) Mining Leases
- mine haul roads and an overpass across the Norwich Park Branch Railway Line, connecting the open cut mine to the coal handling and preparation plant (CHPP) on the Red Mountain Mining Lease (ML 70116)
- a conveyor connecting the CHPP to the train load out area located on the Millennium Mining Lease (ML 70312)
- an upgrade of the Red Mountain rail loop to 12 mtpa capacity.

The Daunia Mine will share some services, including site offices, workshops, storage areas, magazine, communications and car parking with the adjacent BHP Mitsui Poitrel Mine.

Services will be provided to the site as follows:

- electricity is to be provided via an overhead 60 kilovolt (kV) transmission line from the Millennium Switchyard to the lease boundary adjacent to the proposed Daunia Switchyard. A 66/11 kV transformer and an 11 kV electrical system will deliver power to the CHPP
- process water will be supplied via the Braeside Water Pipeline
- sewage will be pumped to the sewage treatment plant at the Poitrel Mine for treatment and disposal.

The coal will be transported from Daunia Mine via train from the proposed load-out area, through the Red Mountain Rail Loop to Hay Point and Dalrymple Bay Coal Terminals.



The construction phase of the project is expected to create approximately 450 positions. The operation of the Daunia Mine will require approximately 300 employees.

Up to 90 per cent of the construction workforce is expected to be a contract workforce who will be accommodated at the MAC Accommodation Village at Coppabella, located approximately 20 kilometres from the Daunia Mine. The remaining 10 per cent will be employed directly by BMA and will be housed in local townships, most likely Moranbah.

Up to 70 per cent of the operational workforce are also expected to be housed at the MAC Accommodation Village at Coppabella. As above, the remaining 30 per cent is likely to be accommodated in housing in nearby townships such as Moranbah.

2.3 Project rationale

2.3.1 Bowen Basin Coal Growth Project

In 2006–2007, Queensland produced 172.67 mt of saleable coal product and as of 30 June 2006 employed 14 604 people. The value of exports in 2006–2007 was \$16.3 billion and the state received royalties of \$1.02 billion between 30 June 2006 and 30 June 2007. The top three export destinations were Japan, Korea and India, who continue to demand coal for steel-making and thermal energy purposes¹. Despite recent changes in the coking coal market as a result of global market decline, BMA expects the market to recover and has decided to continue with its expansion plans.

The four components of the project are expected to provide significant investment in the state, region and local townships, and employment opportunities for the Bowen Basin region.

2.3.1 Daunia Mine

The Daunia Project is the first component of BMAs BBCG Project which is based on expansion of the company's existing coking coal mining process at Moranbah, Queensland.

The Daunia deposit is shallow and therefore ideal for open cut mining. The proponent has assessed the Daunia Mine as commercially viable and the operations at Daunia are expected to provide first coal as early as 2011, in time for the expected market recovery. The pit area and associated infrastructure, such as the CHPP, have been located so as to avoid significant impact upon the identified endangered remnant vegetation—as discussed in section 7.7 (Terrestrial ecology) of this report—and utilise existing access road and rail links.

2.3.2 Alternatives to the project

In order for the Daunia Mine to be operational, all components of the project need to be constructed, for example, the access roads, CHPP, spoil piles and pits are all required in order to mine and export coal.

If the project were not to proceed at all, the expected consequences are:

- a loss of significant direct and indirect employment opportunities in the region and State
- a loss of significant export and royalty income for the state
- a loss of local and regional investment.

¹ Department of Mines and Energy (<http://www.dme.qld.gov.au/mines/coal.cfm>)

Figure 1 – Location of project site

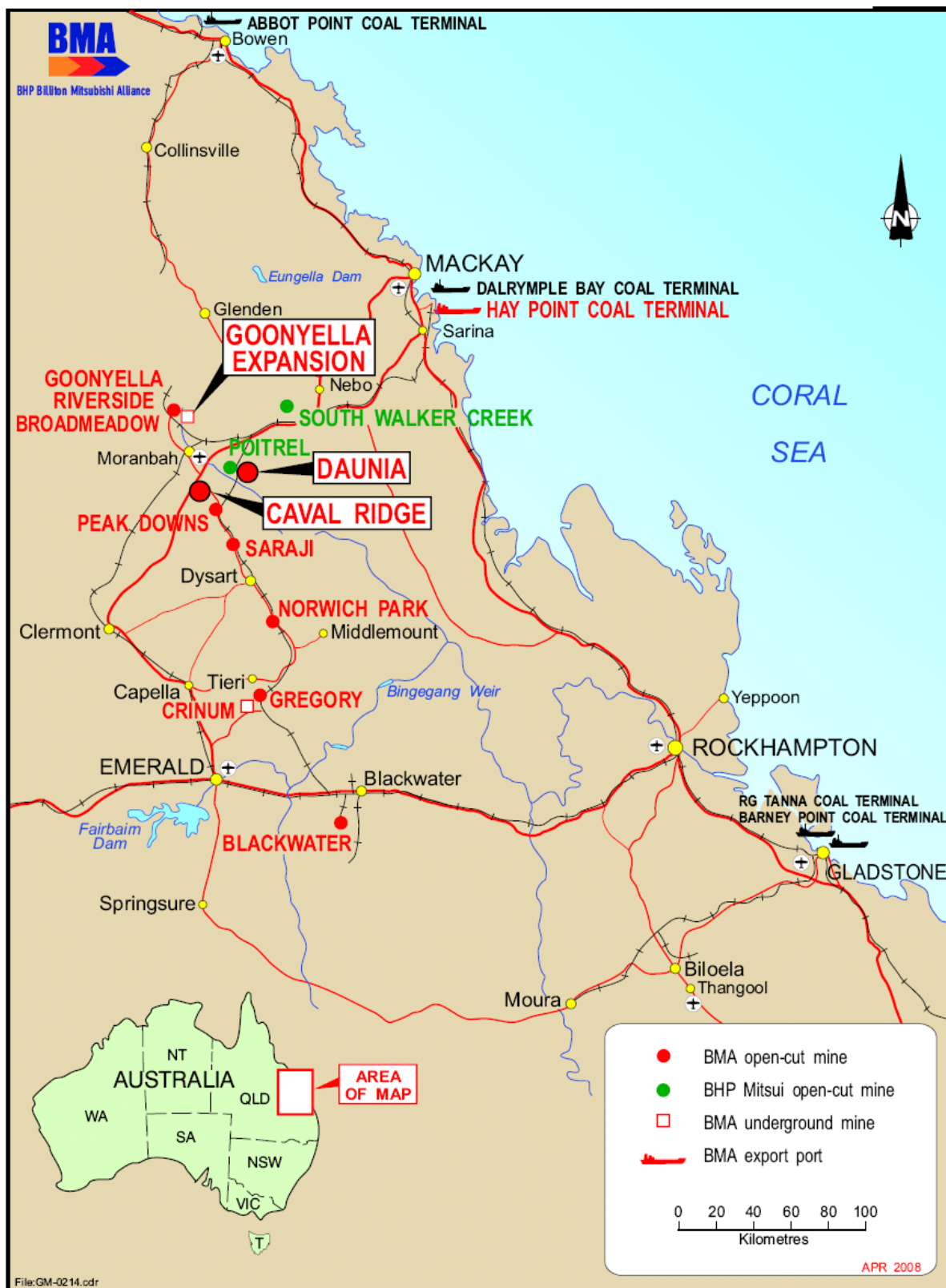
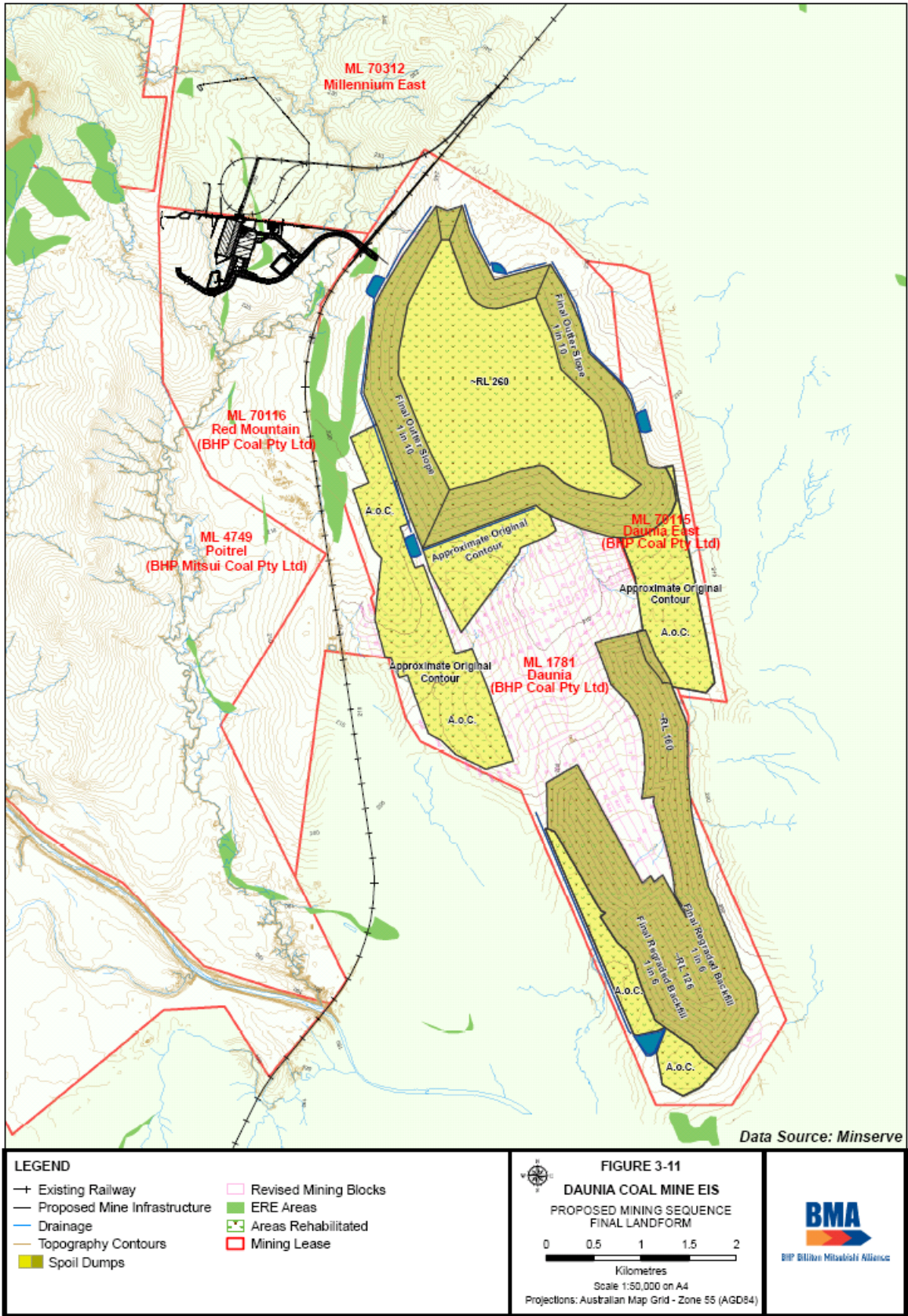




Figure 3 – Mine landform at year 20





3 The environmental impact assessment process

3.1 Declaration as a significant project and controlled action

BMA lodged an initial advice statement (IAS) for the project with the Coordinator-General (CG) on 27 May 2008. Pursuant to section 26 of the SDPWO Act, the CG declared the Bowen Basin Coal Growth Project to be a 'significant project for which an EIS is required' on 18 July 2008.

In July 2008, the project was referred to the Australian Government Minister for the Environment, Heritage and the Arts for assessment under the *Environment Protection and Biodiversity Conservation Act 1999* (Cwlth) (EPBC Act): reference number EPBC 2008/4418. On 22 September 2008, the proposal was determined to be a 'controlled action' pursuant to s.75 of the EPBC Act, the controlling provisions being sections 18 and 18A (listed threatened species and communities).

The EIS process has been undertaken in accordance with the requirements of the bilateral agreement between the Queensland and Australian Governments, which accredits Queensland's assessment process for significant projects under the SDPWO Act. Therefore, the EIS was required to address both state and Australian Government matters.

3.2 Review of the environmental impact statement terms of reference

A number of Australian, state and local government representatives and other appropriate authorities were invited to participate as advisory agencies for the EIS process and to provide comment on draft terms of reference (TOR).

The Queensland Government Department of Infrastructure and Planning (DIP), on behalf of the Coordinator-General, coordinated the consultation process between the proponent, the advisory agencies and the public.

The IAS was released for public information and draft terms of reference (TOR) were advertised for public comment on 9 August 2008 in *The Mackay Daily Mercury*, *The Courier-Mail* and *The Weekend Australian*. Comments were accepted until the close of business on Friday 5 September 2008.

Advisory agency briefings were held in Brisbane on 1 September 2008 and Mackay on 2 September 2008.

A total of 15 submissions on the draft TOR were received by DIP: 14 from advisory agencies and one anonymous general public submission. Comments, where appropriate, were incorporated into a final TOR. Submissions were received from²:

Agencies:

- Department of Communities
- Department of Education, Training and the Arts
- Department of Employment and Industrial Relations
- Department of Housing
- Department of Main Roads
- Department of Natural Resources and Water
- Department of Primary Industries and Fisheries
- Department of Tourism, Regional Development and Industry

² Due to Machinery of Government changes from 26 March 2009 (see *Public Service Department Arrangements Notice (No.2) 2009*), changes were made to Queensland Government departments referred to in this Report – see Abbreviations and acronyms.



- Environmental Protection Agency
- Powerlink
- Queensland Health
- Queensland Police Service
- Queensland Transport
- QR Limited
- Australian Government Department of Environment, Water, Heritage and the Arts.

Public

- Anonymous.

Final TOR were issued to the proponent in November 2008.

3.3 Public review of the Daunia Project EIS

The EIS was approved for release and advertised publicly in The Mackay Daily Mercury, The Courier-Mail and The Weekend Australian on Saturday 29 November 2008, inviting submissions until close of business on Monday 2 February 2009. A CD-ROM or USB copy of the EIS was available free of charge from the proponent, and hard copies were available for purchase.

The EIS was displayed at:

- Isaac Regional Council Office, Moranbah
- Mackay Library at the Mackay Civic Centre
- State Library of Queensland, Info Zone, South Bank, Brisbane.

Information on the project was available via the BMA and DIP websites. Agency consultation was undertaken through advisory agency briefings.

The following advisory agencies were approached formally to conduct an evaluation of the EIS:

- Department of Communities
- Department of Education and the Arts
- Department of Emergency Services
- Department of Employment and Industrial Relations
- Department of Housing
- Department of Local Government, Sport and Recreation
- Department of Main Roads
- Department of Natural Resources and Water
- Department of Primary Industries and Fisheries
- Department of Tourism, Regional Development and Industry
- Environmental Protection Agency
- Powerlink
- Queensland Health
- Queensland Police Service
- Queensland Transport
- QR Limited
- Australian Government Department of Environment, Water, Heritage and the Arts.

Following the eight-week public review of the EIS a total of 19 submissions were received from:

Advisory Agencies:

- Department of Communities
- Department of Education and the Arts
- Department of Emergency Services
- Department of Employment and Industrial Relations
- Department of Housing
- Department of Main Roads
- Department of Natural Resources and Water



- Department of Primary Industries and Fisheries
- Department of Tourism, Regional Development and Industry
- Environmental Protection Agency
- Powerlink
- Queensland Health
- Queensland Police Service
- Queensland Transport
- QR Limited
- Isaac Regional Council
- Australian Government Department of Environment, Water, Heritage and the Arts.

Public:

- Construction, Forestry, Mining and Energy Union (CFMEU).

The substantive issues raised in submissions during the EIS process were:

- new technologies for dewatering and disposal of coal tailings
- tighter controls on dust emissions
- the management of controlled water releases from mine sites
- interactions with transport and other infrastructure
- the development of adequate mitigation measures to counter the broad range of social impacts experienced by communities across the northern Bowen Basin.

The issues listed above are discussed individually in section 7 of this report. Any conditions necessary to manage the environmental effects of the development are included in each discussion. Where applicable the reasons for each condition are provided.

3.4 Review of the Daunia Project Supplementary EIS

All submissions were forwarded to the proponent for consideration and, following discussions with the proponent and its technical consultants, the CG determined that the preparation of a SEIS was necessary to address substantive issues that were raised.

On 3 April 2009 the supplementary EIS (SEIS) was issued to advisory agencies and other respondents to the EIS. The SEIS was available for review on the BMA website and was accessible via a link on the DIP website.

Advisory agencies were invited to comment on the SEIS and to provide specific advice to the CG for consideration for inclusion as conditions or recommendations in this report. Comments from advisory agencies were due by the close of business on 1 May 2009.

3.5 Other public information and consultation activities

The proponent conducted a public information and consultation program throughout the EIS process, as documented in section 16 of the EIS and section 3 of the SEIS. Consultation included activities such as:

- newsletters distributed to Moranbah residents
- advertising and media releases
- fact sheets
- BMA website
- static and mobile displays
- key stakeholder briefings
- council meetings
- community reference group meeting
- affected property owner discussions
- one on one meetings with affected property owners
- community contact points (free call information line and enquiry email address).



4 Approvals for the Daunia Project

4.1 Mining leases

The Daunia Project will be carried out on land over which mining leases have already been granted, some of which result from use of the *Central Queensland Coal Associates Agreement Act*. Mining leases ML1781 and ML70115 will contain the principal mining operations and mining related activities, for example, the coal preparation plant and rail loading infrastructure will be carried out on mining leases ML70116, ML70312 and ML4749. As such the mining lease conditions will remain as currently set.

Table 3 below summarises the approvals required for all phases of the Daunia Project.

4.2 Environmental authority

Under the *Environmental Protection Act 1994* (EP Act), an environmental authority (EA) is required to carry out 'mining activities'. The Daunia Project will involve the following types of mining activities:

- mining under the *Mineral Resources Act 1989*
- processing mined materials
- a number of activities directly associated with, or facilitating or supporting, the mining and processing activities
- rehabilitation/remediation
- actions taken to prevent environmental harm.

This report has been prepared to amend the current EA (mining lease) that covers the Daunia Project's mining lease ML 1781 and ML70115 and update this EA to cover Daunia Project related activities on ML70116, ML70312 and ML4749.

Accordingly, pursuant to section 49 of the SDPWO Act, I have formulated conditions which may be attached to the draft EA that are contained in Appendix C of this report.

4.3 Coordinator-General imposed conditions

Since a number of specific matters are not appropriate for conditioning under the EA, I have prepared conditions which may be imposed under my powers under the SDPWO Act Division 8. These conditions are termed 'imposed conditions'. I have nominated an appropriate entity that is to have jurisdiction for each condition.

4.4 Isaac Regional Council

All parts of the project are located within the jurisdiction of the Isaac Regional Council (IRC). IRC has administered the former Belyando, Broadsound and Nebo shires' *Integrated Planning Act 1997*-compliant planning schemes (the 'planning scheme') since 15 March 2008 following council amalgamations. The Daunia Project component of the Bowen Basin Coal Growth Project does not require any material change of use or reconfiguration of a lot development permits under the IP Act.

4.5 Other

The table below outlines approvals required for the project, including the development approvals mentioned above, together with certain other permits identified during the EIS that are required for this project under other legislation.



Table 3 – Summary of likely approvals required for the project

Legislation	Approval	Approval agency
State <i>State Development and Public Works Organisation Act 1971</i>	Coordinator-General imposed conditions under Division 8 of the Act.	Department of Infrastructure and Planning (DIP)/ Coordinator-General (CG)
<i>Environmental Protection Act 1994 (Environmental Protection Regulation 2008)</i>	Approval of EM plan and resulting EA to operate the mine. Acceptance of plan of operations including financial assurance	Department of Environment and Resource Management (DERM)
<i>Vegetation Management Act 1999</i>	Vegetation clearing permit for any off mining lease activities	DERM
<i>Water Act 2000</i>	May be required for taking of groundwater (as a result of open cut impacts on groundwater)	DERM
<i>Nature Conservation Act 1992</i>	Interference with species listed under the <i>Nature Conservation (Wildlife) Regulation 1994</i>	DERM
<i>Fisheries Act 1994</i>	Waterway barrier works to construct the haul road across New Chum Creek	Department of Employment, Economic Development and Innovation (DEEDI)
Commonwealth <i>Environment Protection and Biodiversity Conservation Act 1999</i>	Decision on controlled action approval	Minister for Environment Water Heritage and the Arts



5 Key findings and management strategies of the EIS

5.1 Introduction

The SDPWO Act defines ‘environment’ to include:

- ecosystems and their constituent parts, including people and communities
- all natural and physical resources
- the qualities and characteristics of locations, places and areas, however large or small, that contribute to their biological diversity and integrity, intrinsic or attributed scientific value or interest, amenity, harmony and sense of community
- the social, economic, aesthetic and cultural conditions that affect, or are affected by, things mentioned above.

‘Environmental effects’ means ‘the effects of development on the environment, whether beneficial or detrimental’. These effects can be direct or indirect, of short, medium or long-term duration and cause local or regional impacts.

This section outlines the major environmental effects identified in the EIS and SEIS and outlines the significant issues on which impacts may be experienced. Also noted here are the means by which the impacts will be managed for this project.

5.2 Key findings in the EIS

The EIS presents the following findings:

- the Daunia Project will be limited to the removal of approximately 240 hectares of Class A and B as well as some Class C Good Quality Agricultural Land (GQAL)
- mineral waste is unlikely to be acid-producing
- the project will have marginal impact on the flow of New Chum Creek and therefore on surface water supplies
- water supply management strategies and water quality monitoring will enable controlled surface water discharges
- the project is likely to have minimal impact upon groundwater supplies and therefore adjoining bore users
- vegetation within the site is highly degraded and offsets will be used to mitigate the clearing of 2.4 hectares of endangered brigalow (11.4.9) and 11.8 hectares of mixed vegetation that includes brigalow (11.3.1)—which will be removed to install essential infrastructure for the project
- the presence of fauna and migratory bird species within the site is low and habitat is widely available in the local area, and therefore no fauna or migratory bird species are expected to be significantly impacted by the mine
- air quality monitoring and dust mitigation strategies may be required to ensure that nearby sensitive receivers are not impacted, particularly by cumulative impacts from a range of mining projects in the local area
- noise and vibration impacts may be felt for Olive Downs Homestead during certain years of mine operation
- consultation with Senior Traditional Owner representatives has indicated that the project site has a limited cultural significance compared to that of New Chum Creek to the west but BMA is yet to finalise a cultural heritage management plan
- assessment of the impact upon state roads has yet to be fully detailed, however, BMA has committed to upgrade the Peak Downs Highway/Millennium and Poitrel Access Road intersection
- the mine workforce may not have a significant impact upon local accommodation and social services availability and cost by itself but the cumulative effects of this and further mines within the Bowen Basin Coal Growth Project still need to be quantified.



The EIS indicates that the following environmental matters will be of significance for the Daunia Project:

- dust emissions
- water release and groundwater
- satisfactory performance of the coal fines tailings dewatering system
- discussion of cumulative social impacts
- rehabilitation.

Management of these impacts will be undertaken by the:

- EM plan as described in section 6 of this report
- conditions of the environmental authority as described in Appendix C of this report
- Coordinator-General imposed conditions
- other conditions of the mining lease and
- management commitments.



6 Environmental management plan

A draft environmental management plan (EM plan) has been prepared by the proponent for the Daunia Project and is contained in the SEIS.

The draft EM plan has been prepared in order to propose environmental protection commitments to assist the administering authority of the EP Act to prepare the draft environmental authority for the Daunia Project. As such, the EM plan proposes environmental management strategies to protect the environmental values potentially affected by the proposed Daunia Project footprint. The EM plan was refined based on submissions received during the impact assessment period. The EM plan will be further refined and expanded following the finalisation of this report, during the detailed design phase of the Daunia Project and through ongoing consultation with the relevant advisory agencies.

The environmental studies and consultation conducted as part of the impact assessment process have identified the potential construction and operational impacts of proceeding with the Daunia Project. The purpose of the EM plan is to detail the actions and procedures to be carried out during the construction and operational phases of the Daunia Project in order to mitigate adverse and enhance beneficial environmental and social impacts.

The EM plan must address proposed mitigation measures, record environmental commitments and establish the framework to ensure they are implemented during each stage of the Daunia Project. In effect, the EM plan becomes the key reference document in that it converts the undertakings and recommendations of the environmental studies into a set of actions and commitments to be followed by the designers, constructors and future operators of the proposed Daunia Project.

The EM plan will also serve as the benchmark for measuring the effectiveness of environmental protection and management. This can be achieved by specifying the monitoring, reporting and auditing requirements, with nominated responsibilities and timing to ensure the necessary mitigation measures are met. The EM plan will also make provision, as appropriate, for unforeseen events by outlining corrective actions which may be implemented in these situations.

In accordance with section 203 of the EP Act, an EM plan must contain the following sections:

- **section 1** – provides a description of all elements of the project including the relevant mining leases and land tenure, potential adverse and beneficial impacts on the environmental values likely to be affected by mining activities, states any code of environmental compliance environmental protection commitments and any other information to allow the administering authority of the EP Act to decide the application and conditions to be imposed on the EA
- **section 2** – outlines how the environmental protection commitments and objectives are to be measured and audited, and includes control strategies to ensure the objectives are achieved
- **section 3** – states the rehabilitation objectives and identifies rehabilitation indicators against the environmental protection objectives described in section 2
- **section 4** – states that the indicators described in section 3 may vary for different parts of the land that have different types of disturbance.

The effective implementation of the EM plan will satisfy the commitments made by the proponent in the EIS, the SEIS, and in correspondence with members of the public and advisory agencies, and will ensure the effective management of environmental impacts of the Daunia Project.

After considering my legislative responsibilities in relation to examination of the proponent's Environmental management plan, and after taking advice from relevant agencies, I consider the draft EM plan as currently presented in the EIS and SEIS does not meet the statutory requirements of section 203 of the EP Act. Issues that I understand need to be finalised include:

- evaluation of the water quality of all mine water management dams to determine their hazard category for regulation purposes
- the development of a groundwater monitoring program
- the evaluation of pre-development surface water quality to determine appropriate discharge limits and receiving environment trigger values



- further information on the stability of the material to be disposed of in the Daunia Mine Project's spoil dumps for regulation purposes.

The finalisation of a draft EM plan is carried forward by the proponent in the application for an environmental authority (EA) for the project under the *Environmental Protection Act 1994*. Hence in this case the Department of Environment and Resource Management will consider the environmental management plan in the context of their finalisation of the environmental authority for the project, and will not be able to issue an environmental authority without an updated environmental management plan. Accordingly I make no further determination on the draft environmental management plan.

I note that the EIS and SEIS had not presented sufficient environmental information to DERM 'to enable all the appropriate conditions to be drafted for the project' (letter from DERM 18 September 2009).

As I noted above, the submitted EM Plan did not meet the statutory requirements of section 203 of the *Environmental Protection Act 1994* and consequently DERM were unable to obtain all the information necessary to complete the specific criteria of the environmental authority for a final document.

One consequence of this is that the draft environmental authority now contains a number of provisions which require the proponent to provide more information on the management of the project, as well as the measurement of environmental values. These provisions include:

- locations of monitoring points
- receiving environment monitoring program
- water management plan
- consultation on the Fitzroy River Basin Study
- background groundwater monitoring program
- waste management plan
- spoil disposal facility operational plan
- residual void investigation
- regulated dam certification.

These are significant items to which the proponent must address resources in order to provide information to DERM for assessment and approval to enable the environmental authority to be issued.

Notwithstanding my above findings, I consider that the EIS and supplementary EIS have not identified any impacts that are considered to be of sufficient magnitude to prevent the project proceeding. I have therefore concluded that the material contained in this report, together with the conditions I have imposed in this report and the draft conditions DERM has provided, can form the basis for developing the project.

Further explanation of how I have arrived at this conclusion (or to substantiate my conclusion), is discussed in the following section of this report.



7 Management of specific issues

7.1 Introduction

This section outlines the major environmental effects identified in the EIS, submissions on the EIS and consultation with advisory agencies and other key stakeholders.

Where appropriate, I have provided comment on these matters to explain the rationale supporting any conclusions that I have reached and, where necessary, I have provided development approval conditions to mitigate any potential adverse impacts of the project that have been identified in the EIS.

7.2 List of commitments

I note that Appendix D of this report contains a list of commitments provided by BMA. This is a distillation of BMAs proposed actions as outlined in the EIS and SEIS. The discussion of issues that follows is based upon the assumption that these commitments are reflected in the EM plan that has been drafted for implementation through the environmental authority. Some commitments are also to be implemented by conditions included as Coordinator-General's imposed conditions.

These commitments generally include actions beyond those required to meet statutory approvals, and their implementation would enhance the mitigation of potential adverse environmental impacts made by the project. I therefore accept the commitments presented in Appendix D which have been made by BMA both within the EIS and during consultation and negotiation with advisory agencies further to the EIS.

7.3 Land resources

The following key matters, in relation to land resources, were raised during the impact assessment process and in submissions from the Department of Environment and Resource Management (DERM) and the Department of Employment, Economic Development and Industry (DEEDI):

- loss of good quality agricultural land (GQAL), rehabilitation and post mine land use
- the size of the final void footprint.

7.3.1 Good quality agricultural land and rehabilitation

Sections 4 (Land resources) and 8 (Terrestrial ecology) of the EIS report that the majority of land within the project site is highly disturbed, has a long history of vegetation clearing and has been primarily used for cattle grazing for many years. There is no evidence of any past attempts at cropping within the project site. The project site supports approximately 680 hectares of Class A and B GQAL (land classified by DEEDI that has moderate to severe limitations to cropping) and 2670 hectares of Class C GQAL (land classified as being suitable for improved or high quality native pastures). Of this land, approximately 240 hectares of Class A and B GQAL would be lost as a result of the project proceeding.

State Planning Policy 1/92, 'Development and the Conservation of Agricultural Land', provides a framework for development to be assessed that considers the value of GQAL. The policy acknowledges that there will be developments that can legitimately alienate GQAL because they represent an overriding need for the development in terms of public benefit.

The proponent's progressive rehabilitation strategy, outlined in section 4.5 (Land Rehabilitation) and in Appendix P (draft environmental management plan) of the EIS, proposes to establish self sustaining vegetation communities and grazing land using key native tree, shrub and grass species from the local ecosystems and improved pasture species over GQALs. The proponent's rehabilitation strategy is based on measures that are consistent with practices described in DERM's *Technical guidelines for the environmental management of exploration and mining in Queensland* (1995). DERM contends that the proponent should also utilise *Guideline 18: Rehabilitation requirements for mining projects* as part of their rehabilitation strategy.



Conclusions – GQAL and rehabilitation

Given that the project will involve open cut mining the potential to affect land suitability for uses post-mining is significant. I find that the loss of some GQAL would be an unavoidable consequence of the project's mining activities. I am satisfied the proponent's commitment to partially return the land to productive grazing for most of the mining area would be acceptable for post-mining land use and would limit loss of agricultural production resulting from the project. I note grazing trials being conducted by the proponent on other mining affected land have demonstrated that a return to cattle grazing on rehabilitated land is feasible.

Whilst the proponent's rehabilitation strategy makes a commitment to only a partial return to productive grazing activities post-mine over most of the proposed mining area, I am nevertheless satisfied, as outlined in section 18 (Economic impacts) of the EIS, that there is an over-riding need for the project in terms of broader public benefit that would accrue as a result of new employment, training, increased economic activity, taxes, royalties and other charges associated with the Daunia Coal Mine Development.

Appendix C (Draft environmental authority) of this report describes a number of conditions that relate to the matters I have considered above. Conditions F6 to F8 require the proponent to undertake an annual rehabilitation monitoring program, that must be included in the Daunia Project's plan of operation, that would describe how the rehabilitation objectives will be achieved and verify the success of the proponent's rehabilitation strategy. The content of the rehabilitation monitoring program, which I am advised would be required to conform to Guideline 18: Rehabilitation requirements for mining projects, would have to satisfy DERMs audit and compliance objectives. I am satisfied that the application of these conditions can minimise the loss of GQAL and that the proponent's rehabilitation strategy can be successfully implemented on affected land.

7.3.2 Final void footprint

DERM considered that insufficient information was provided during the impact assessment process in relation to the proposed size and shape of the final residual void footprint. These are matters essential to demonstrate the proponent's ability to achieve its rehabilitation objectives.

It is customary for proponents of open cut mining projects to continually conduct investigations and progressively refine spoil fit, final landform and residual void treatment that reflect changes in technology, operational costs and product demand during the life of the operation. I note in Appendix C (Mine Landform and Final Void Management Plan) of the SEIS that the proponent has made a commitment to continually reassess and redesign the final landform as mining progresses through the Daunia mining areas in order to minimise the final void size from the base case of 360 hectares back to approximately 100 hectares.

Conclusions – final void

I am satisfied that the proponent's commitment to implementing the proposed mitigation measures outlined in Appendix C of the SEIS, would significantly reduce the residual final void footprint of 360 hectares which would lead to a more desirable land rehabilitation outcome.

I note in the draft EA, condition F5 in Appendix C of this report, the proponent is required to complete an investigation into residual voids and submit a report to DERM for its review and comment. I am satisfied that the application of this condition would adequately manage the design and construction of the mine void and final landform of the Daunia Project.

7.4 Mineral waste

A key matter raised by DERM during the impact assessment process was that insufficient information was provided to undertake a full appraisal of the stability of the project's spoil dumps for regulation purposes. DERM contends that if the proponent is unable to satisfactorily prove that the proposed spoil dump structure is stable, any location used to place spoil should be constructed and conditioned as a regulated dam designed to contain flowable material. Two underlying interrelated issues relate to this matter:

- the proposed dewatering method and flow-ability of the dewatered fine coal tailings
- the proposed method of mixing dewatered fine coal tailings and coarse rejects with mine overburden spoil.



In relation to the first matter, section F.3.4 of Appendix F (Tailings and Rejects Management Plan) of the SEIS reports that the coal handling and preparation plant (CHPP) would utilise new continuous belt press filter process technology to dewater and convert fine and coarse coal tailing waste slurry into a stable 'cake' that would be used for mixing with overburden for disposal into mine spoil dumps. I note that BMAs commercial testing of the proposed continuous belt press process was expected to take place in late 2009. I understand that two tests have been completed, with mixed success.

I note the proponent's assurances that significant resources and technical support are being expended on the design and implementation of the belt filter press and tailing management system, and that the company has confidence in the technology.

DERM is concerned that under commercial operating conditions the proposed continuous belt press filter process may not be effective in converting the fine coal tailing waste slurry into a stable 'cake'. However DERM believe that if the cake has a residual shear strength that is equal to or more than 1000 pascals prior to disposal then it will have a sufficient level of stability suitable for spoil dumps. DERM contends that, if the residual shear strength of the fine coal tailing waste 'cake' is less than 1000 pascals prior to disposal, waste should be disposed in regulated dams. DERM have therefore proposed a condition (E4) to specify the criteria for acceptability of this cake. If the cake fails to comply with this criteria, disposal requires a regulated dam. Further conditions proposed in the draft environmental authority specify approval processes for either the regulated dam or the spoil disposal facility.

In relation to the second matter, DERM is concerned that the information provided within the EIS and SEIS, on the proposed method of mixing the dewatered fine and coarse coal tailing waste from the CHPP with other mine spoil, indicate this matter has not been adequately addressed.

Section 5 of Appendix P (draft EM plan) of the EIS did not provide a description of the method for mixing coal waste from the CHPP with mine spoil for the spoil dumps. In response to DERM's submission to the EIS, BMA provided a limited description, in section F.5.3 of Appendix F in the SEIS, of their proposed spoil dump mixing method: 'there will be no co-disposal cells used for the disposal of tailings and/or other rejects, the coal rejects and dewatered tailings will be dumped at a rate of three trucks per 100 trucks of mine spoil and effectively blended into the spoil dumps'. DERM considers that further information relating to the description of the proposed integrated waste disposal method, including details on whether the dumped tailings will be mechanically mixed, is required for it to make a full assessment for regulation purposes.

Appendix C, conditions E5 to E10, of this report states conditions to manage the approval for the spoil disposal facility. The conditions further require the development of an operational plan, submitted to DERM for review, that would include a description of landform development stages of the spoil disposal facility and the placement technique for spoil and waste material from the CHPP on the Daunia Mine site.

Conclusions

I acknowledge that there is uncertainty relating to the final stability or flow-ability of the filter cake going into the dumps under the current proposed dewatering method. However DERM has set the criteria for acceptability of this coal tailings cake so it can be disposed of in the way proposed by the EIS. DERM has further specified the alternative disposal method required if the criteria is not met.

I also acknowledge that the process of mixing fine coal tailings 'cake' with mine spoil has not been satisfactorily described for regulation purposes. I consider the design of spoil dumps is an important part of mine safety and the mine rehabilitation process and therefore any processes involved in their formation should be adequately assessed to minimise any potential impacts.

Correspondingly, DERM has set an acceptance condition requiring that a disposal plan be approved by DERM before operation.

I am satisfied that through the development and implementation of the Daunia Project EM Plan and the application of the conditions recommended by DERM within the draft EA, and contained in Appendix C of this report, the proponent will satisfactorily manage the disposal of the Daunia Project's mineral waste.

7.5 Surface water resources

During the EIS process, DERM considered that insufficient information was provided in the project's EM plan to satisfactorily assess the following matters:



- surface water quality, including levels of selenium and other metals, to determine appropriate discharge limits and receiving environment trigger values
- water quality of dams to determine the hazard category for each dam, and the appropriate design storage allowance and mandatory reporting level
- Daunia Project's relationship to the *Water Resource (Fitzroy Basin) Plan 1999 and the Fitzroy Basin Resource Operations Plan 2006*
- rainfall modelling requires a minimum 100 years real rainfall data to adequately assess the appropriate design storage allowances for the mine's water management system.

7.5.1 Surface water quality

There are limited surface receiving water resources in the vicinity of the proposed project site. Section 6 (Surface water resources) of the EIS reports that there are two unnamed ephemeral drainage paths that traverse the project mining area on ML 1781 and ML 70115, and two ephemeral waterways—New Chum Creek and the Isaac River—that lie within the vicinity of the project site. All these waterways ultimately drain into the Fitzroy River as part of the Fitzroy River Basin system.

I note potential surface water impacts of the project include:

- contamination of rainfall run-off with sediment and salts from spoil dumps
- contamination of run-off from other areas of disturbance (including rehabilitation and infrastructure areas) with sediment or elevated salinity
- contamination from grease, oil and fuel spills
- reduced water flows entering the local drainage systems due to capture of rainfall run-off in mining pits.

Water quality data collected by the Poitrel Mine operation for New Chum Creek is reported to be highly variable with salinity (measured as electrical conductivity) ranging from 237 $\mu\text{S}/\text{cm}$ to 2510 $\mu\text{S}/\text{cm}$ and pH levels ranging from 7.9 units to 8.6 units. The receiving water quality in the Isaac River has been monitored by DERM at the Devrill Gauge and also by the Poitrel Mine operation. They recorded salinity in the ranges of 400 $\mu\text{S}/\text{cm}$ to 1300 $\mu\text{S}/\text{cm}$, with an average salinity of approximately 700 $\mu\text{S}/\text{cm}$. The pH level ranged from 7.1 units to 8.5 units. A limited set of water quality data for unnamed drainage paths indicated conductivity range from 120 $\mu\text{S}/\text{cm}$ to 180 $\mu\text{S}/\text{cm}$ and pH range from 8.1 units to 9.3 units.

DERM considers that due to the high variability of water quality data collected from the monitoring program reported in the EIS, further monitoring of the pre-development water quality of New Chum Creek and the Isaac River is required to set conditions that regulate water quality discharge to these waterways from the project site.

I note in Appendix L of the SEIS, the proponent proposes to establish a surface water quality monitoring program at the following locations:

- upstream and downstream of the infrastructure area on New Chum Creek
- downstream of the mining areas on the Daunia east drainage path
- upstream and downstream of the mining area operations on the Isaac River
- release points from two sediment dams located on the project site.

I have been advised that subsequent to the release of the SEIS, an interim approach for setting discharge conditions has been determined by DERM for the situation where water quality data for receiving waters in the Fitzroy River Basin is insufficient or not currently available. The proposed approach, contained in *Conditions for Coal Mines in the Fitzroy Basin Approach to Discharge Licensing*, aims to minimise the risk of discharges on downstream environmental values of receiving waters and be consistent with current legislation, DERM policy and state/national water quality guidelines. This approach supports the compliance limits, contained in *Final Model Water Conditions for Coal Mines in the Fitzroy Basin*, that are to be applied to end-of-pipe discharge for coal mines operating in the Fitzroy Basin.

Appendix C (draft environmental authority) of this report states conditions (C1 to C43) to manage potential surface water releases as a result of the construction or operation of the proposed mine. These conditions include contaminant release limits, release contaminant investigation levels, receiving environment monitoring, receiving waters contaminant trigger levels, and receiving environment monitoring program. I note these conditions are consistent with the compliance limits contained within *Final Model Water Conditions for Coal Mines in the Fitzroy Basin*. I also note that these conditions provide the opportunity for DERM to assess



changes to compliance limits and trigger values when adequate and relevant reference monitoring data has been obtained and assessed.

Conclusions

I acknowledge that it would be preferable to collect additional surface water quality data prior to the commencement of the project and that recent surface water flows during the summer of 2009 could have been monitored to yield water quality data. However, in an environment where many months or years may pass between rainfall conditions that enable water samples to be collected, such a requirement for extensive data collection before the Daunia Project commences may cause an unacceptable delay to project start-up.

During the interim period while additional water quality data is collected, I am satisfied that the process of adoption of water quality discharge compliance limits detailed in the draft EA conditions of Appendix C of this report, as referred to above, would be adequate to prevent environmental harm for waterways potentially affected by water discharge in the vicinity of the project.

7.5.2 Water quality of dams

I note that in Appendix L (updated EM plan) of the SEIS, the proponent has committed to developing a water management plan prior to commencement of Daunia Project related construction and operational activities. Amongst other matters, key elements that will be considered as part of the water management plan (WMP) include:

- identify on the site plan which dams contain raw, clean, mine, potable and hazardous water
- specify the storage capacity of the facility and the likely standing water volume during normal operation
- detail the maintenance program for the dam and monitoring programs to detect triggers and maintenance
- clearly demonstrate how clean water generated on site is kept separate from the contaminated water
- identify the drains that contribute to the discharge of water from the site, and the quality and quantity of water discharging from the site
- detail how management of off-site water releases will be conducted to minimise sediment and salinity releases and minimise the potential for soil and spoil erosion, soil contamination and acid rock drainage—particularly with regard to first flush flows following rainfall events
- identify the likelihood of discharge (annual exceedence probability) in any year based on modelling of the water management system using long term rainfall information, and calculate the discharge volumes at each catchment and consequence on the receiving environment of these events to ensure protection of the environmental values of the receiving values downstream as it relates to the activity
- incorporate a risk management approach to how changing weather patterns will affect the frequency of floods and drought
- incorporate review and monitoring of the water management system and hydrological processes performance indicators
- the water management plan must be reviewed and revised every three years.

Appendix C (draft environmental authority) of this report states conditions (C32 to C35) relevant to the development and implementation of a WMP. These conditions include timing for completion, development guidelines, and monitoring and review of a WMP.

I note that section G of Appendix C of this report, states conditions to manage the design construction and operation of dams for the proposed mine. These conditions include determination of the hazard category of each dam, design certification and approval of all regulated dams prior to construction.

Conclusions

I am satisfied that the proponent's commitment to complete a water management plan, incorporating the above elements, prior to the commencement of construction and operational activities combined with the application of the conditions recommended by DERM and contained in Appendix C of this report, will ensure that the proponent will either avoid impacts or mitigate any impacts of the Daunia Project's water management system so they do not cause environmental harm.



7.5.3 Receiving environment

In relation to the *Water Resource (Fitzroy Basin) Plan 1999* and the *Fitzroy Basin Resource Operations Plan 2006*, section 6 (Surface water resources) of the EIS reports that removing the mining areas (26 square kilometres) of the project site will reduce the upstream Isaac River catchment (3640 square kilometres) by approximately 0.7 per cent and therefore overland flows into the Isaac River would be marginally reduced and will have negligible impact on downstream water flows of the project site. I note the project will require approximately 600 ML of raw water per annum for use within the CHPP and for dust suppression activities and that the raw water will be sourced from the existing process water dam used by the adjacent Poitrel and Millennium Mines.

I note the proponent did not provide an assessment of the project's impact on overland water flow in relation to the *Water Resource (Fitzroy Basin) Plan 1999* and the *Fitzroy Basin Operations Plan 2006* as part of the EIS process.

DERM has concluded that the proponent needs to undertake monitoring of the receiving environment to ensure that both local and regional environmental values in relation to water management are properly documented.

Conclusions

I find that the impact of the project on overland water flow is not expected to be significant. Nonetheless, I find it is reasonable for the proponent to conduct a monitoring program to identify and describe the extent of local environmental values in the receiving environment and to document the findings so the results can be evaluated by DERM. This program is covered by conditions C20 to C22 in Appendix C of this report. I note that a report on this Receiving Environment Monitoring Program must be submitted to DERM by 1 October 2011.

7.5.4 Rainfall modelling

Section 6 (Surface water resources) of the EIS and Appendix A (Water management plan) reports outcomes of the proponent's stochastic rainfall generation model that utilised approximately 30 years (1963 to 1997) of rainfall data from the Isaac rainfall gauge on the Daunia Project Mine's water management system.

DERM contends that a minimum 100 years of rainfall data is required to be applied to the proponent's stochastic rainfall generation model to adequately determine the hydraulic conditions of the Daunia Project site, that would subsequently determine the appropriate design storage allowances for the mine's water management dams.

The proposed environmental authority (Appendix C) contains a number of conditions (G1, G2 and G7) that require dams, including regulated dams to be designed by a qualified person, and their criteria to be approved by DERM prior to the issue of the environmental authority. I am therefore satisfied that there will be appropriate measures in place to ensure that the limitations of such rainfall modelling would be considered in the design of dams for the project.

7.6 Groundwater

Issues associated with potential impacts of the project on groundwater that were raised in submissions to the EIS and SEIS by DERM and DEEDI relate to the following matters:

- water licence: BMA will require a water licence, regulated under the *Water Act 2000* (Qld) (Water Act) and *Water Regulation 2002* (Qld) (Water Reg), to authorise the extraction of groundwater through mine dewatering if hydrogeological investigations indicate there will be an adverse impact on existing groundwater users
- water quality: further assessment of groundwater resources and quality is required from data obtained at the Daunia site that should account for both the intensity of the potential impacts and the context in which they occur.

Section 7 of the EIS and section 5.7 of the SEIS describe the potential magnitude and extent of impact of the Daunia Mine pit development on the regional groundwater system and users as follows:

- two distinct groundwater aquifers have been identified in the proximity of the project area—these being the 20 metre thick Quaternary age alluvium unit associated with the Isaac River courses at the southern end of the project site and the Permian to Triassic age fractured rocks (that contains the coal deposits)



to a depth of 100 metres. Groundwater flow into the aquifers is expected to be in a south, south-easterly direction towards the Isaac River. The coal seam aquifer will not be dewatered prior to the commencement of mining the Daunia pit

- geological and hydrogeological investigations in the EIS were limited to investigations undertaken on the adjacent Poitrel Mine (owned and operated by BMA) that lies to the west of the mining lease
- the predictive numerical groundwater model was based on these investigations
- the groundwater model in the EIS predicted that for the first 15 years of mine life, only the Permian to Triassic age fractured rock units will incur dewatering and that the impact on regional groundwater resources is expected to be minimal due to mining at the Poitrel Mine
- in years 15 to 20, when the Daunia Mine pit moves south towards the Isaac River, regional groundwater resources are expected to be significantly impacted
- up to four neighbouring bore holes, owned by surrounding landholders and used for stock watering purposes, may be potentially affected as a result of groundwater inflows into the mine pit as the Daunia Mine is developed
- site-specific hydrogeological investigations commenced on the project site in March 2009. The proposed monitoring program is outlined in Appendix B of the SEIS. The data obtained from these investigations will be utilised to further validate the predictive numerical groundwater model to help determine which neighbouring groundwater users may potentially be impacted by the project.

Utilising the initial site specific hydrogeological investigations and further refinement of the predictive model it has been established that impacts to surrounding groundwater uses would be limited.

The requirements for taking water from an aquifer under land that is classified as a declared sub-artesian area are regulated under the *Queensland Water Act 2000* (Water Act) and *Water Regulation 2000* (Water Reg).

The project site lies within the Highlands declared sub-artesian area, as listed in Schedule 11 of the Water Reg and therefore a licence is required to take groundwater.

Before the proponent can undertake any dewatering activities on its land it must obtain a separate water licence under the Water Act. This is a public process and any interested party, including landowners that could be affected, may make submissions on the application. The chief executive under the Water Act must consider these submissions, along with the outcome of the EIS process as set down in this report, in deciding whether to grant the water licence. The Water Act provides a number of appeal provisions.

If the proposed water extraction is likely to result in an undue effect on pre-existing water entitlements, and without pre-empting the decision of the chief executive, it would be usual for the chief executive to include 'make good' provisions as a condition of the water licence. Such a condition would entail the proponent making good the existing water supply at no cost to the affected landowners. The water licence would also contain conditions that require the licensee to regularly monitor the impacts of extractions and, if appropriate, review the modelling on which the impact assumptions are made.

As stated, the chief executive under the Water Act may impose specific conditions to a water licence and would have regard to the findings from the EIS process (set out above) for the project.

I recommend the following points that should be taken into account in such consideration:

- mechanisms should be implemented under approvals, pursuant to the Water Act to ensure that development of the proposed Daunia Coal Mine does not result in an undue adverse impact on the availability and quality of groundwater supplies to neighbouring landholders
- BMA has committed to reaching mutually agreeable arrangements with landholders potentially affected by groundwater drawdown for the provision of alternative supplies throughout the mine life and after mine closure. The alternative supplies should be put in place before supplies from relevant existing landholder bores are adversely affected. The costs associated with changes to landholder extraction of groundwater from bores on affected land should be covered by the proponent
- prior to the surrender of mining leases post-mining, pursuant to the MR Act and EP Act, the conditions under which an alternative supply of groundwater would be provided to any landholders adversely affected by impacts to groundwater directly attributable to the mine dewatering program should be agreed to between the proponent (and its successors and assigns) and the relevant regulators.

While the above mainly concerns groundwater volume and availability, groundwater quality is addressed by provisions of the EA which have been provided by DERM. Such conditions require the proponent to implement



a groundwater program to identify significant changes to water quality values due to the mining project. These are contained in conditions C28 to C35 in Appendix C.

Conclusions

I am satisfied that implementation of the above measures, regulated under the Water Act and EP Act, would provide an early warning of likely impacts to the groundwater supply and quality. I am also satisfied that options for the proponent to provide alternative supplies of water to affected landholders are sufficient to ensure that 'make good' provisions in the water licence could be implemented in a timely manner causing minimal or no disruption to the landholders.

7.7 Terrestrial ecology

7.7.1 Ecological communities

Section 8 (Terrestrial ecology) of the EIS reports that vegetation dominating the project site has a long history of disturbance from grazing, fires, prolonged stress through drought and an extensive weed invasion of buffel grass (*Cenchrus ciliaris*) and parthenium (*Parthenium hysterophorus*). Of the four vegetation types identified as part of the field surveys, two are considered representative of 'endangered' ecological communities under the provisions of the EPBC Act and two are considered representative of 'endangered' regional ecosystems (RE) under the VM Act and one is classified as 'of concern' under the VM Act. Table 4 lists these observed REs on the project site.



Table 4 – Regional ecosystems located on-site

RE Code	Description	VM Act status	EPBC Act status	Occurrence on the project site	Total area cleared
11.3.1	Brigalow (<i>Acacia harpophylla</i>) and/or <i>Casuarina cristata</i> on alluvial plains	Endangered	Endangered	Present with mixed polygons at a scale too small to be mapped under the RE framework	11.83 ha
11.3.2	<i>Eucalyptus populnea</i> woodland to open-woodland	Of concern	Not applicable	Present as the dominant RE within mixed polygons on the Red Mountain Lease	
11.4.9	Open forest, occasionally woodland, dominated by <i>Acacia harpophylla</i> usually with a low tree mid-storey of yellowwood (<i>Terminalia oblongata</i>) and <i>Eremophila mitchellii</i>	Endangered	Endangered	Present as a single, consolidated remnant unit on the western boundary of the Daunia Lease	2.35 ha
11.5.3	<i>Eucalyptus crebra</i> , <i>Callitris glaucophylla</i> , <i>C. endlicheri</i> , <i>E. chloroclada</i> , <i>Angophora leiocarpa</i> on Cainozoic sand plains/remnant surfaces	Not of concern	Not applicable	Present as the dominant RE within elevated portions of the Red Mountain Lease	0.04
11.4.9	Open forest, occasionally woodland, dominated by <i>Acacia harpophylla</i> usually with a low tree mid-storey of yellowwood (<i>Terminalia oblongata</i>) and <i>Eremophila mitchellii</i>	Endangered	Endangered	Present as a single, consolidated remnant unit on the western boundary of the Daunia Lease	



The EIS indicates that both RE 11.4.9 and RE 11.3.1 are highly fragmented and are generally in poor condition, suffering from dieback and extensive weed incursion.

The EIS reports that vegetation communities on the project site do not represent a significant pathway of habitat connectivity within the corridor system at both a local and regional scale. Such regional and local connectivity is provided by the larger vegetated riparian corridors along local watercourses in the vicinity of the project site such as the Isaac River, New Chum Creek and North Creek to the west and east of the project site.

The EIS and SEIS describe practices to be implemented during clearing to minimise:

- disruption of existing vegetation and habitat connectivity
- disturbance to other retained remnant vegetation
- soil erosion and sedimentation control measures.

I note the proponents commitment to establish a flora monitoring program, outlined in section 8.7.4 (Ongoing monitoring of flora and fauna) of the EIS, that would include ongoing monitoring of the protection of 'endangered' and 'of concern' vegetation through pre-clearing checks and the fencing-off of vegetation to be retained outside the mine footprint to avoid construction impacts as well as monitoring the revegetation of 'endangered' and 'of concern' regional ecosystems.

The EIS reported that approximately 14.22 hectares, comprising 2.35 hectares of RE 11.4.9 and 11.83 hectares of mixed vegetation that includes RE 11.3.1, and 0.04 hectares of RE 11.5.3 and 11.4.9 as detailed in Table 4 above, would be cleared for the construction of mine infrastructure (that includes the CHPP), a haul road and light vehicle access road on the Red Mountain lease area.

In a submission to the EIS, DERM considers the proponent should propose a viable long-term vegetation offset, in accordance with the Queensland Government's *Environmental Offsets Policy* (QGEOP), to compensate for the lost ecological values associated with the removal of these two regional ecosystems. In response, the proponent proposed a vegetation offset package, as outlined in Appendix N of the SEIS, that has been designed to mitigate the loss of the two endangered REs (11.3.1 and 11.4.9). I note the environmental offset has been prepared in accordance with the principles and guidelines of QGEOP.

This proposed vegetation offset is approximately 20 hectares of brigalow dominated vegetation, located at the Norwich Park Mine vegetation offset area. The proposed offset area contains remnant RE 11.4.9, which is dominated by Brigalow. The area also contains a substantial area of Brigalow regrowth. The intent of the proponent for this offset area is that it would be protected under a conservation agreement for a nature refuge (NRA). The NRA would be a voluntary agreement between BMA and the Queensland Government that acknowledges a commitment to manage and preserve land with significant conservation values while allowing compatible and sustainable land uses to continue. I have been advised that the NRA has not yet been established, is still under negotiation between DERM and BMA and remains a proposal until it is gazetted in the Queensland Government Gazette.

The proposed vegetation offset area would be contained within the Norwich Park Mine vegetation offset area, located approximately 70 kilometres to the south of the project site. The Norwich Park Mine vegetation offset area was established and designed as an 'offset bank' to acquit vegetation offset obligations of BMA-owned projects and covers a total of 712 hectares that contains both remnant vegetation and regrowth and approximately 350 hectares of brigalow dominated regrowth and approximately 150 hectares of mixed brigalow, Dawson gum and poplar box regrowth. I note the land is owned by Central Queensland Coal Associates Joint Venturers (CQCA) and is managed by BMA.

I also note that other entities currently hold an exploration permit for coal and an authority to prospect for petroleum over the 'offset bank' lands. In this respect there is potential for the tenure of the land to be subject to an application for development under the *Mineral Resources Act 1989* and the *Petroleum Act 1923* hence affecting its protection status for vegetation offsets.

7.7.2 Terrestrial flora

A listing of plant species identified during surveys undertaken in 1990, 2004 and 2008 over, or in the vicinity of, the site, are recorded in Appendix I-1 of the EIS and Appendix D of the SEIS. No plant species listed under the EPBC Act or the *Queensland Nature Conservation Wildlife Regulation 1994* (QNCW Reg) were located on or near the site during field surveys, database searches and literature reviews.



7.7.3 Terrestrial fauna

Detailed information on fauna data sources used and fauna surveys undertaken over and in the vicinity of the project site in 1996, 2004 and 2008 are reported in section 8 of the EIS. I note that the summary of this information provided in section 8 of the EIS was incorrect, and the correct details can be interpolated from Appendix I.1 of the EIS.

Of the four species classified as either vulnerable or rare (under the provisions of the EPBC Act and QNCW Reg, and identified as potentially utilising preferred habitat within the proposed project site, one bird species, the southern squatter pigeon (*Geophaps scripta*), is considered to have the potential to be likely impacted by the project due to potential effects on preferred habitat. A more detailed summary of each vulnerable or rare species identified as potentially utilising habitat within the project area and potential impacts on these species is provided in Tables 8.8 and 8.10 and Appendix C of the EIS.

The southern squatter pigeon was identified in the vicinity of the project site during all three survey periods. The pigeon is classified as vulnerable under both the provisions of the EPBC Act and QNCW Reg. The potential habitat for the pigeon is limited to woodland and riparian habitats along the Isaac River to the south, and along parts of New Chum Creek to the north-west of the project site when water is available. The project is expected to have minimal impact on both these ephemeral water courses, however, I note the removal of approximately 2.35 hectares of brigalow (11.4.9) in the vicinity of New Chum Creek in the north-west of the project site, for a haul road and light vehicle access road, may have a limited impact on the pigeon's possible habitat along New Chum Creek. I acknowledge the proponent's proposal to rehabilitate unaffected woodland habitats on the north-western boundary of the project site during the project's operational phase would partially compensate for this loss and would be beneficial to the southern squatter pigeon's habitat requirements. I also acknowledge the proponent's rehabilitation strategy for the project site, discussed in section 7.3 (Land resources) of this report, would also potentially provide suitable habitat for the pigeon. I note that no management plan has been developed by the proponent that promotes the protection of this species or its habitat.

I acknowledge the proponent's commitment to establish a fauna monitoring program, outlined in section 8.7.4 of the EIS, that would provide ongoing seasonal monitoring on the extent and distribution of the squatter pigeon population.

Conclusions

I accept that given vegetation communities that dominate the project site are highly modified and in poor condition, are subject to high levels of weed incursion, and contain low species diversity, the development for mining purposes is an appropriate land use for the project site.

I am satisfied that the proponent's commitment to rehabilitate land unaffected by the project's construction and operational phases in the vicinity of New Chum Creek would adequately compensate the loss of potential southern squatter pigeon's habitat as a result of the construction of the haul road. I recommend that this rehabilitation should be undertaken sustainably with Indigenous species appropriate to squatter pigeon habitat.

I acknowledge that the actual areas of endangered regional ecosystems lost as a consequence of the project are generally in poor condition, fragmented and hold poor ecological value and that the loss on a regional scale is not significant.

However, I find the likely permanent loss of approximately 4 hectares that is endangered REs (2.35 hectares of RE 11.4.9 and 1.61 hectares of RE 11.3.1 in the 11.83 hectare parcel of land) under the VM Act and EPBC Act warrants the provision of an environmental offset by BMA.

I acknowledge BMA's commitment to provide a vegetation offset, as described in Appendix N of the SEIS, that would be protected under a nature refuge agreement (NRA), to offset the area lost from the two endangered regional ecosystems. The NRA is still under negotiation between DEWHA, DERM and BMA. The implementation of the controls that should be identified in the NRA should mitigate the loss of regional ecosystem vegetation communities as a result of the Daunia Project proceeding. Therefore, I recommend that BMA continue to consult with DERM to gain approval for this agreement.

However, the vegetation offset at the Norwich Park Mine 'offset bank' is covered with an exploration permit for coal under the *Mineral Resources Act 1989* (MRA) and an authority to prospect for petroleum under the *Petroleum Act 1923* (PET Act), held by other entities. Even though the land is owned by CQCA and BMA is the manager and agent of this land on behalf of CQCA, any negotiation for a conservation agreement for a nature



refuge on the land would, of necessity, have to recognise the potential risk for activity related to mining or petroleum or gas activities. A vegetation offset would normally be expected to have protection from a development tenure in a way which can see the area managed sustainability for an indefinite period. It is desirable that a conservation agreement for a nature refuge be obtained over the land, as this would provide some protection from development other than mining or petroleum development. However, due to the prior existence of resource tenures over the land, it is not recommended that a nature refuge agreement be made a condition of approval.

Exploration at the site may find there are economic resources that may be developed, and some or all of BMA's proposed 'offset bank' area may be cleared. Consequently, it is appropriate that an alternative arrangement should be in place during the life of the Daunia Mine in case some or all of the proposed offset area is cleared for another development.

I acknowledge that it may be some years before the fate of the offset bank area is known and that it would not be appropriate to require the proponent to find a particular alternative area at this time. Instead, it would be adequate to require the proponent, should any of the offset area be cleared, or should BMA relinquish management of the offset, to use the services of an offset broker, such as Ecofund Queensland, to find a satisfactory alternative. The alternative could be either the provision of another offset area, or an equitable monetary contribution to Ecofund Queensland's Trust that could be used to purchase land to be added to the protected estate. Payments for any on-going management costs for an alternative offset would also have to be made until the offset attained its remnant status.

In order to ensure that adequate offsets are provided for the cleared native vegetation, I state the following imposed condition:

Condition 1

BMA is required to provide a vegetation offset that must compensate for the loss of any cleared, remnant, endangered and of concern RE and any cleared, remnant not of concern RE on the Daunia Project mining leases. BMA is required to provide a vegetation offset area at the Norwich Park offset bank equating to a ratio of at least 3:1 for any cleared, remnant, endangered and of concern REs and 1:1 for any cleared, remnant not of concern RE. The offset area will be on Lot 2 on SP161100 and shown on a map to be provided by BMA to the Coordinator-General and to the Department of Environment and Resource Management prior to the issuing of the environmental authority.

BMA is to manage the offset area to exclude grazing or other development, except when required by law to provide access to resource tenure holders. BMA will encourage regeneration and regrowth of native vegetation to attain remnant or other protected status within 20 years or prior to the surrender of the environmental authority for the Daunia Mine whichever is sooner.

BMA will report annually to the Department of Environment and Resource Management on activities at the offset area and its progress towards remnant or other protected area status. The report will be provided by a suitably qualified third party acceptable to DERM.

If at any time before the environmental authority for the Daunia Mine is surrendered, any of the offset area is to be cleared, or if BMA relinquishes management of the land or applies to surrender the environmental authority before the offset attains remnant status, BMA will use the services of an offset broker to establish an alternative offset of equal or greater size and quality and of the same regional ecosystems.

If an alternative cannot be found before the clearing takes place or within six (6) months of BMA ceasing to manage the land or the date of the surrender application, BMA will provide an equitable monetary contribution to Ecofund Queensland's environmental trust or equivalent offset broker that could be used to purchase land to be added to the protected estate and which will include any ongoing management costs until the environmental authority for the Daunia Mine is fully surrendered.

BMA will be required to make payment for any residual risk of rehabilitation of the offset area at the time of surrender. The amount of the monetary contribution, management costs and residual risk will be



determined by the offset broker in consultation with the Department of Environment and Resource Management.

The DERM will be responsible for this condition.

7.8 Aquatic ecology

In submissions during the impact assessment process, DEEDI and DERM raised concerns on the following matters:

- the design of the proposed haul road crossing over New Chum Creek has the potential to impact on fish passage along New Chum Creek and should therefore be designed, constructed and operated with due consideration of DEEDIs guidelines
- the removal of native fish species from two drainage lines that traverse the project site
- groundwater impacts on riparian vegetation.

7.8.1 New Chum Creek crossing

I note the crossing at New Chum Creek is an essential part of the mining activity to allow access to the mining lease for heavy and light vehicles from the coal preparation plant and operations maintenance facilities. No alternatives to the crossing were provided during the impact assessment process.

Section 9 (Aquatic ecology) of the EIS reports that New Chum Creek is an ephemeral waterway that flows approximately 8 kilometres before draining into the ephemeral Isaac River that ultimately drains into the Fitzroy River. New Chum Creek provides temporary habitat for a number of native aquatic species and a number of macroinvertebrate species that are representative of an ephemeral environment within the Isaac River. The waterway does not support threatened or endangered aquatic flora or fauna as defined by the EPBC Act and the *Nature Conservation Act* (NC Act).

In its EIS submission, DEEDI was concerned that the proposed pipe culvert design could increase water velocity to levels that would impede or prevent fish passage in New Chum Creek. DEEDI states that the proposed culvert design should have regard to DEEDI's guidelines, *Fisheries guidelines for design of stream crossings* that recommends, amongst other matters, water velocities through culverts be below 1.0 metres per second (m/s) and prefers the use of box culverts (but does not exclude pipe culverts) for waterway crossings.

In response to DEEDI's EIS submission, the proponent's hydraulic analysis, reported in Appendix O of the SEIS, concluded that the current in-stream water velocity range along New Chum Creek is 1.0–1.5 m/s during flow periods and would increase to between 2.0–3.3 m/s through pipe culverts and 2.0–4.3 m/s through box culverts at the waterway crossing. The proponent estimates that a design change to a box culvert would be three times the cost of the proposed pipe culvert design. As a consequence of this analysis, BMA intends to construct the crossing as originally reported in the EIS as:

- existing, pre-development, New Chum Creek water velocity conditions are above DEEDI's guidelines, *Fisheries guidelines for design of stream crossings*, of between 0.3 m/s and less than 1.0 m/s
- the additional cost of constructing a box culvert is not justified as no beneficial mitigation effect to the maximum velocities through the box culvert would result.

DEEDI proposes that a waterway barrier works approval, in accordance with the *Fisheries Act 1994*, will be required for the haul road crossing.

I am aware that discussions between BMA and DEEDI to address this issue have been ongoing subsequent to the release of the SEIS. At the time of finalising this report, I have been advised that BMA and DEEDI have agreed on a methodology to resolve design issues associated with the New Chum Creek haul road crossing prior to the commencement of construction works. The key elements of the methodology include:

- establish the required information relating to the migration, life cycle and movement behaviour of the freshwater fish community in the area of this crossing for the fish types presently identified
- establish the design criteria for this crossing (*Fisheries guidelines for design of stream crossings*) and as further detailed in DTMRs manual *Culvert Fishway – Planning and Design Guidelines*
- concept development and preliminary design and approval of the design before proceeding to final design

- detail design approval incorporating issues raised in the preliminary design review
- peer review by a suitably qualified person from outside the design team
- design update meetings with DEEDI throughout the process
- submission of final design and supporting documentation to DEEDI for approval.

Conclusions

I am satisfied that the agreement between BMA and DEEDI would be the appropriate mechanism to resolve design issues relating to the haul road crossing on New Chum Creek. I am aware that New Chum Creek and other waterways are sometimes ephemeral in their form, and during no flow conditions there may be a view that a waterway barrier works approval may not be required. However, I am aware that approval for a waterway barrier crossing is considered under section 76G of the *Fisheries Act 1994* by the chief executive of the agency administering the Act, and that this is normally an operational works stage approval. In order to remove doubt about the need for an application and to ensure that the haul road over the New Chum Creek Crossing and other waterways are appropriately designed, I set the following imposed condition:

Condition 2

For the haul road crossing of New Chum Creek and any other crossings of defined waterways under the *Fisheries Act 1994*, the proponent will submit an application for approval of waterway barrier works to the Chief Executive of DEEDI in accordance with the requirements of section 76G of the *Fisheries Act 1994*.

DEEDI will be responsible for monitoring compliance with this condition.

7.8.2 Removal of fish species from drainage lines

Section 9 of the EIS reports that the project mining areas are traversed by two unnamed ephemeral drainage paths that converge to the far south-west boundary of the project site before flowing into the Isaac River. For the purposes of the impact assessment process, the proponent has named the drainage paths Daunia and Daunia East and they will be removed as part of the project operation. The drainage paths are head waters with low ecological and aquatic habitat values and are highly degraded due to unrestricted access by livestock and the clearing of the majority of the riparian vegetation. The drainage lines do provide a temporary habitat for a number of native aquatic species and a number of macroinvertebrate species that are representative of an ephemeral environment within the Isaac River. The waterway does not support threatened or endangered aquatic flora or fauna as defined by the EPBC Act and the NC Act.

In a submission to the EIS, DEEDI was concerned that the proponent had not adequately considered the impact on native aquatic species that utilise these habitats and considered removal of native fish trapped within these drainage paths should be in accordance with DEEDI's *Fish Salvage Guidelines*.

In a subsequent submission to the SEIS, DEEDI noted that in the SEIS that given DERM was undertaking an assessment to determine whether the two unnamed drainage lines would be watercourses under the *Water Act 2000*, a waterway barrier works approval under the *Fisheries Act 1994* will be required to remove or divert the drainage lines. I have been advised, subsequent to DEEDI's EIS submission, that DERM has determined that the two drainage unnamed lines are not watercourses defined under the *Water Act 2000*.

Conclusions

I accept that the two unnamed drainage lines hold little ecological and habitat values due to their highly degraded condition and their loss, as a result of mining over the Daunia ML, would have an insignificant impact on the aquatic ecology of the Fitzroy Basin catchment system. Nonetheless, the proponent could provide mitigation measures in their EM plan that allow for the humane treatment of any fish species when the drainage lines are removed during the project's operational activities.

Given that the drainage paths are not defined watercourses as defined under the *Water Act 2000*, I believe the proponent should nevertheless apply mitigation measures, outlined in DEEDI's *Fish Salvage Guidelines*, for the removal of fish species from the drainage paths.

In order to ensure that effect is given to address all potential impacts associated with the removal of fish species from all drainage lines, I recommend that where drainage paths are not defined as watercourses under



the *Water Act 2000*, the proponent should comply with DEEDIs *Fish Salvage Guidelines*, for the removal of fish species from drainage paths removed as a result of the Daunia Project.

7.8.3 Riparian Vegetation

DERM has raised the issue that the potential impacts and mitigation measures of groundwater drawdown associated with the mine dewatering to riparian vegetation situated along the banks of the Isaac River have not been adequately assessed during the impact assessment process.

Sections 9 (Water ecology) and 8 (Terrestrial ecology) of the EIS reports that riparian vegetation along the Isaac River compromise comparatively intact areas of vegetation and may support a number of fauna species, including the southern squatter pigeon (*Geophaps scripta*), that is classified as a 'vulnerable' species under the provisions of both the EPBC Act and QNCW Reg.

Section 7 (Groundwater) of the EIS reports that given the ephemeral nature of the Isaac River, riparian vegetation along the waterway is likely to be drawing on the Quaternary age alluvial aquifer groundwater unit that extends from the southern half of the project area to the Isaac River. It was predicted that the water table is likely to be approximately 3 metres below the riparian vegetation on the river banks. Groundwater modelling for the project, that was based on geological and hydrological investigations undertaken on the adjacent Poitrel Mine site in 2004, predicts that as mining of the Daunia pit moves south towards the Isaac River in between years 15 and 20, mine dewatering is likely to result in the drawdown of the Quaternary age alluvial aquifer of between 0 metres and 9.5 metres with a representative estimate of 3 metres.

In a submission to the EIS, DERM contends that given this level of uncertainty of the likely groundwater drawdown, the proponent should assess the potential impacts on the riparian vegetation and provide measures to avoid or minimise these impacts, and any residual impact that could not be mitigated must be described in detail.

Section 5.7 of the SEIS reported that based on initial site-specific lithological and hydrogeological investigations undertaken by the proponent in the first half of 2009, there was no evidence of an alluvial aquifer extending into the project site and assumptions on which the EIS groundwater model was constructed offer a conservative approach by overestimating both water fluxes toward the mine pit and the likely drawdown of the alluvial aquifer along the Isaac River.

I note that the proponent has made a commitment in the SEIS to provide further assessment of the interaction between groundwater and surface water on the riparian vegetation along the Isaac River as part of the groundwater monitoring program reported in Appendix B of the SEIS, that is expected to:

- determine the nature (or dependency) of riparian vegetation to the groundwater system, and
- provide an early detection of the level of drawdown and potential impacts to riparian vegetation.

Conclusions

I am satisfied that potential impacts on the riparian vegetation community along the Isaac River in the vicinity of the project site would be minimal based upon initial site-specific lithological and hydrogeological investigations undertaken by the proponent in the first half of 2009. The groundwater monitoring program, proposed in Appendix B of the SEIS, would provide further detail on any potential impacts of groundwater drawdown on the riparian vegetation community along the Isaac River.

Nonetheless, given that the riparian vegetation community potentially supports a number of fauna species, including the southern squatter pigeon (*Geophaps scripta*), that are classified as vulnerable species under both the provisions of the EPBC Act and QNCW Reg, I consider the proponent must detail any proposed mitigation measures that would ameliorate any potential impacts.

In order to ensure that any likely impacts on riparian vegetation associated with the Isaac River are adequately managed, the finalised EM plan should detail trigger criteria and corrective actions that will be applied to mitigate these potential impacts to the satisfaction of DERM.

I therefore set the following imposed condition to ensure that groundwater drawdown impacts on riparian vegetation can be incorporated in the project's environmental management plan.



Condition 3

The EM plan should contain management actions to mitigate any potential groundwater drawdown impacts on riparian vegetation along the Isaac River by including the following in the groundwater management program:

- nominate a relevant monitoring point for inclusion in Table 12, condition C48 of the draft environmental authority conditions in Appendix C of this report
- detail trigger criteria for groundwater drawdown levels
- specify corrective actions that will be applied to mitigate any potential groundwater drawdown impacts on riparian vegetation along the Isaac River.

DERM will be responsible for monitoring compliance of this condition.

7.9 Air quality

Both Queensland Health (QH) and Isaac Regional Council (IRC) made submissions on the EIS requesting that the Coordinator-General (CG) ensure that all air emissions impacts are appropriately mitigated. Their comments on the SEIS suggested that conditions should be imposed by the CG to ensure that impacts are mitigated, but only Council provided specific details of such conditions. Council requested that particulate matter not be emitted beyond the mining lease boundary, buffering of ROM stockpiles to reduce potential dust generation and shut down thresholds for dust impacts. I note that these requirements surpass the standards contained in the *Environmental Protection (Air) Policy 2008* (EPP Air).

DERM raised several concerns in their submission to the EIS, regarding: the use of the EPP Air as the appropriate standard for PM10 impacts; the collection of meteorological data during high dust deposition events; the calculation of dust deposition rates on a monthly average; and the use of year 20 as the worst case scenario for dust impacts.

Air quality standards in Queensland are regulated by the *Environmental Protection (Air) Policy 2008* (EPP Air). I note that on 1 January 2009, this legislation was amended, to change the air quality objective for PM10 in Schedule 1, from 150 $\mu\text{g}/\text{m}^3$ over a 24 hour period, down to 50 $\mu\text{g}/\text{m}^3$, with five allowable exceedences per year. The explanatory notes to the legislation state that 'after considering the unique characteristics of Queensland's air environment, the EPA developed objectives informed by the *National Environmental Protection (Ambient Air Quality) Measure*, the *National Environmental Protection (Air Toxics) Measure* and World Health Organisation recommendations' (p.7).

Section 10.3.3 of the EIS reports that ambient or background air quality at the Daunia was assessed as 20 $\mu\text{g}/\text{m}^3$ over a 24 hour period. This measurement was calculated using data collected from the two nearest sensitive receivers at Winchester Downs and Olive Downs Homesteads.

The EIS also contains a comparison of the modelled results against the relevant goals for properties with respect to the EPP Air. One property, Olive Downs, is predicted to experience total dust concentrations that exceed the EPP Air goal for maximum 24 hour concentrations of PM10 of 50 $\mu\text{g}/\text{m}^3$. Table 10–8 shows that the predicted PM10 (24 hour average) for Olive Downs, in year 20, is 79 $\mu\text{g}/\text{m}^3$. The EIS does not outline the number of occasions the project is expected to exceed 50 $\mu\text{g}/\text{m}^3$.

The EIS states that the worst case scenario for dust impacts is likely to occur in year 20. This year was chosen due to mining operations being closest to sensitive receivers and having a longer haul distance from the pit to the CHPP at that time.

The SEIS acknowledged the change in the EPP Air legislation but I note that it did not describe how the project intended to ensure that this new guideline will be met. It also outlined that meteorological data was not collected at the time of the background dust monitoring and provided the requested monthly average dust deposition rates. The SEIS restated the earlier reasons for choosing year 20 as the time of most impact.

Aside from the application of the latest EPP Air standards, which is discussed below, I am satisfied that the other issues raised by DERM have been resolved through the preparation of the SEIS.

Subsequent to the release of the SEIS, DERM provided draft EA conditions regarding air quality, reiterating that the project will be required to conform to the abovementioned air quality objectives contained in the EPP Air.



BMA has argued that this NEPM goal is based on an assessment of health risks identified from epidemiological studies of PM₁₀ exposure in large US cities and is not designed to be used as 'beyond-the-boundary' compliance criteria for specific developments. Furthermore, exceedence of the 24 hour PM₁₀ level of 50 mg/m³ on more than five days per annum at one residence does not constitute a health risk. Queensland Health indicated that the SEIS satisfactorily addressed its concerns. Similarly, DERM were satisfied on this matter based on the information provided in the supplementary report.

Conclusions

I acknowledge that the issue of air quality is a matter of concern to the community, not just locally, but also regionally. I also note that given the mine, at its closest, will still be approximately 25 kilometres from Moranbah, it is therefore unlikely to impact this urban area with regard to dust. The local impact of dust exceedences is contained to one sensitive receiver only—the Olive Downs Homestead.

I note that the state guideline for assessment of the impact of particulates and emissions is the EPP Air, which currently requires that the air quality objective for PM₁₀ is 50 µg/m³. It is not government policy to require that a project maintain background air quality levels. Therefore, to apply the requirements recommended by council would be excessive for the specific circumstances surrounding the development of the Daunia Mine.

The Daunia Mine EM plan details a range of mitigation measures:

- a range of dust control and suppression measures
- a dust monitoring system
- an established complaint process
- a commitment to implement corrective actions if monitoring shows it is necessary.

To address the potential air quality at Olive Downs and Winchester Downs, DERM has provided conditions B2 to B4 requiring the proponent to establishing monitoring points at these locations that would record background air quality particulates concentrations.

Air quality criteria for particulates concentration and dust deposition are included in the draft environmental authority condition B1 provided by DERM for the project.

These conditions are included in the draft environmental authority contained in Appendix C of this report.

7.10 Noise and vibration

Section 12 (Noise and vibration) of the EIS established that construction and operation of the Daunia Project will be carried out in rural areas that typically have low background noise levels. Three sensitive receivers were identified, all rural property homesteads, at various distances within the noise environment surrounding the project lease boundary.

The close proximity of the BMA owned Poitrel Mine operation, that lies approximately 2 kilometres to the west of the Daunia Mine development, and the Peabody Energy-owned Millennium Mine located approximately 2 kilometres north-west of the project site, has the potential to add to the impact noise and vibration levels at these sensitive receptors.

The EIS identified that the most significant noise and vibration sources for the project's construction and operational phases are likely to be:

- the operation of machinery such as light vehicles, excavators, dozers, loaders, draglines and haulage vehicles associated with vegetation clearing and coal removal
- construction of the CHPP, a water pipeline and pump, rail overpass and haul roads during the 16-month construction phase
- drilling and blasting of overburden and exposed coal seams
- operation of the CHPP, crushers and train load-out facilities.

Mining will be based on a 24 hour, seven day a week operation with blasting limited to the hours between 9am and 5pm. Noise levels at sensitive receptors may fluctuate depending on the distance of the sensitive receptors to the pit, the depth of mining equipment in the pit and meteorological conditions.

Section 12 of the EIS reports that noise modelling levels are expected to be within the accepted limits of DERM's guidelines set for noise criteria, *Planning for Noise Control (2004)*, over the life of the project at two of the



sensitive receivers, the Daunia and Mavis Downs Homesteads, but will increase to unacceptable night time noise levels at the Olive Downs Homestead sensitive receiver, in operational years 15 to 20. At the Daunia and Mavis Downs sensitive receptors, vibration modelling levels are predicted to be within the accepted limits of DERMs guidelines set for blasting criteria, *Noise and Vibration for Blasting (2006)*. In operational years 15 to 20, Olive Downs Homestead may experience vibration above acceptable levels.

With regards to the Olive Downs Homestead, DERM considers the proponent's proposed mitigation measure stated, in section 12.10 (Conclusion) of the EIS, that 'continued consultation and negotiation with the Olive Downs property owners will occur during the development and operation of the mine to respond to noise and vibration issues' was unsatisfactory and that a commitment was required to modify operations so that acceptable noise and vibration levels are not exceeded or introduce appropriate mitigation measures.

The EIS reports that as mining progresses south-east, during years 15 to 20, mine operational activities are expected to be approximately 1.3 kilometres from the Olive Downs Homestead. At this distance, cumulative operational noise will exceed the recommended night time criteria of 28 dB(A) L_{eq} by 8 dB(A) L_{eq} in neutral conditions, and 13 dB(A) L_{eq} under adverse meteorological conditions. Low frequency noise levels are expected to exceed the recommended level of 20 dB (A) by 7 dB (A). I note that the analysis of airblast overpressure impacts on Olive Downs was limited to modifying blast conditions to achieve airblast levels to the acceptable limit of 115 dB(linear). Vibration levels are expected to be below DERMs recommended level of 5.0 mm/s.

Schedule D of the draft EA, Appendix C of this report, states conditions to manage potential noise and blast nuisance at any sensitive place as a result of the construction or operation of the proposed mine. These conditions include:

- a schedule of noise and blast limits, measured at a sensitive receptor for different periods of the day and days of the week
- requirements to undertake noise and vibration monitoring in response to a complaint of environmental nuisance
- if this indicates exceedence of the limits, the proponent must address the complaint or immediately implement abatement measures so that emissions of noise or vibration from the activity do not result in further environmental nuisance.

I note that the proponent's range of noise and vibration mitigation strategies in the draft EM plan, reported in Appendix L of the SEIS, does not provide a provision for continued consultation and negotiation with the Olive Downs property owners to respond to noise and vibration issues measures.

I consider Isaac Regional Council's submission during the impact assessment process request that noise and vibration levels not exceed pre-development background levels beyond the mining lease boundaries to be unreasonable given that government policy to protection of the environment from noise and vibration nuisance is achieved by the *Environmental Protection (Noise) Policy 1997*. This policy provides a framework for the determination of appropriate conditions for development permits for EAs.

Conclusions

I consider that due to the nature of the mine's construction and operation, its relatively isolated location and relatively large buffer distance between the mine site and the nearest sensitive receptors, that any noise impacts experienced by persons at sensitive receptors will be minimal over the life of the project.

I acknowledge in operational years 15 to 20, the potential for the Olive Downs Homestead sensitive receptor to experience noise and vibration levels above that acceptable under DERM guidelines is high and requires monitoring by the proponent to allow mitigation of unacceptable operational noise level impacts on a timely basis. I note the proponent has proposed a monitoring program during operational years 10 to 20, as reported in Appendix L (EM plan) of the SEIS, to ensure any potential for excessive noise levels are monitored and mitigation measures implemented. I am satisfied that the proponent's commitment to consult and negotiate with any sensitive receiver affected by noise and vibration above acceptable levels is another appropriate mechanism to respond to noise and vibration issues.

I am satisfied that through the development and implementation of the EM plan and the application of the conditions D1 to D16 recommended by DERM and contained in Appendix C of this report, the proponent will either avoid noise and vibration impacts or mitigate such impacts on receptors so that they do not cause a noise and vibration nuisance, as well as being required to respond to complaints.



7.11 Road Impact

From information provided in the EIS, the Peak Downs Highway will be the primary thoroughfare for the construction and operational phases of the Daunia Mine development. Access to the project site will be via Peak Downs Highway/Millennium and Poitrel Access Road—a road that is also the primary access point for the BMA owned Poitrel Mine and Millennium Mine (majority owned by Peabody Energy Australia) that collectively employ approximately 300 operational staff. During the Daunia Mine development construction phase, BMA would employ approximately 450 personnel and 300 staff once operational. All construction materials for the Daunia Mine development will be transported primarily from Mackay and Brisbane via this access road to the project site.

The Peak Downs Highway, a state-controlled road, is a principal piece of road infrastructure in the Bowen Basin region that connects the towns of Moranbah and Clermont to Mackay and other towns in the Central Highlands district. The Peak Downs Highway also intersects with the Gregory Highway and the Gregory Development Road in Clermont.

In submissions during the impact assessment process, QPS and DTMR were generally concerned that as new mines are developed, there is a high potential to compromise road safety levels along the Peak Downs Highway and generally across the Bowen Basin region.

Accordingly, I consider the requirement to maintain or improve safety levels for all road users on the Peak Downs Highway should be an aim for all new significant developments in the region.

From information provided in section 13 of the EIS and section 5.13 of the SEIS, I consider that the project's road and transportation impacts and mitigation measures proposed by BMA are generally acceptable and when combined with the application of further mitigation measures I have proposed below, I am satisfied that road safety in the Bowen Basin region should be maintained or improved.

7.11.1 Road impact assessment

DTMR contends there is insufficient detail in the EIS and SEIS to complete an assessment of the nature and extent of the likely road pavement impacts of project-related traffic, particularly during the 16-month construction phase. I note the Construction, Forestry, Mining & Energy Union's (CFMEU) submission to the EIS expressed a desire for BMA to contribute funding towards costs to maintain the integrity of the Peak Downs Highway's road pavement as a result of the project's increased traffic interactions.

While a formal road impact assessment (RIA) was not undertaken as part of the impact assessment process, section 13 of the EIS identified that most construction traffic will be generated from:

- the construction workforce, mostly travelling in buses and light vehicles from the MAC Moranbah Accommodation Village at Coppabella
- the movement of over-dimensional and excess mass loads transporting construction equipment and materials
- mining equipment, primarily from Mackay, along the Peak Downs Highway to the project site's access at the Peak Downs Highway/Millennium and Poitrel Access Road intersection.

The analysis in section 13.2.1.6 of the EIS indicates that total heavy vehicle trips during the construction period would represent approximately 0.2 per cent to 0.4 per cent of a forecast road use (measured in equivalent standard axle loadings) (ESA) over a standard 20 year design life, or a net reduction of less than one month in the design life of the affected sections of the Peak Downs Highway. As requested in DTMR's EIS submission, a further analysis of this impact, provided in section 5.13 of the SEIS, indicated that project traffic related to construction activities would generate a 20 per cent increase in ESA, while the impact during the operational phase is expected to generate an increase of approximately 6 per cent against the ESA of existing levels.

I note the assessment trigger for significant road impacts under the DTMR's *Guidelines for Assessment of Road Impacts of Development 200'* for state-owned road infrastructure is a 5 per cent increase in annual average daily traffic (AADT) or ESA loadings over existing levels.



7.11.2 Peak Downs Highway/Millennium and Poitrel Access Road intersection upgrade

DTMR has identified a requirement to upgrade the existing intersection of the Peak Downs Highway/Millennium and Poitrel Access Road with lighting to accommodate traffic efficiency and road safety requirements of the additional traffic generated by the project.

I note that in November 2005 DTMRs predecessor, Department of Main Roads, recommended an upgrade with lighting to the same intersection to ameliorate traffic efficiency and road safety concerns as a result of a separate impact assessment process for construction and operation of the BMA owned Poitrel Mine.

Section 13 of the EIS estimated that 106 light vehicle and 14 bus movements would transport the 450 person construction workforce daily from either the MAC Accommodation Village at Coppabella or from various regional locations through the intersection to the project site.

Sixteen daily deliveries of construction materials and sundry infrastructure modules are expected from a combination of eight over-dimensional, semi-trailer and single unit truck loads would be made to the project site. Service and visitor vehicles travelling to the site are expected to be a combination of three light vehicles and five single truck movements.

During the operational phase, 202 light vehicles transporting staff, and 20 single unit trucks and articulated vehicles are expected to daily interact with the intersection.

DTMR expects that due to the cumulative impact of the increased number of vehicle interactions, particularly those involving heavy trucks at the Peak Downs Highway/Millennium and Poitrel Access Road intersection, there would be an increase in the risk profile beyond the safety standards of the existing 70 metre auxillary lane for the left turn (AUL) into the Millennium and Poitrel Access Road and an auxillary right turn lane (AUR) on to the Peak Downs Highway.

While BMAs analysis in Appendix G, section G.4 of the SEIS indicates that no other remedial works are required to improve the intersection's performance, I note BMA has agreed and made a commitment to effect an upgrade of this intersection in the SEIS to meet DTMRs standards for the determined level of traffic and required level of safety for intersection turning movements.

Conclusions

Given that the Peak Downs Highway is the primary access corridor for the project, I consider the maintenance of the road's pavement a priority to maintain and/or improve safety levels for all road users.

I acknowledge that the analysis implies that the impact of project-related traffic on the road pavement is not expected to be great, nevertheless this impact still requires full assessment to ameliorate any adverse impacts.

I find that BMA must undertake a road impact assessment (RIA) that examines the nature and extent of the likely road pavement impacts of project-related traffic during both the construction and operational phases prior to the commencement of project related activities. A complete RIA will allow proposals to mitigate impacts by various means including infrastructure upgrades or development. If necessary, any infrastructure contributions may be developed for incorporation in an infrastructure agreement.

As BMA has not completed a RIA as required in section 3.9 in the project's terms of reference, DTMR would require adequate time to evaluate the RIA and discuss mitigation strategies which would be detailed in a road use management plan (RMP) and road infrastructure agreements before commencement of project activities.

I accept DTMRs recommendation that a higher level of intersection design is required to ameliorate traffic efficiency and road safety concerns at the intersection of the Peak Downs Highway/Millennium and Poitrel Access Road.

In order to ensure that road pavement impacts and intersection upgrades are properly managed, I set the following as Coordinator-General imposed conditions:

Condition 4

Within three months of appointing a construction contractor for the project, and prior to the commencement of any significant construction works on the project, the proponent shall:



- a) complete a road impact assessment (RIA) that includes details of all project transport impacts on the safety and efficiency of state-controlled roads in accordance with *Guidelines for Assessment of Road impacts of Development (2006)* in consultation with the Manager of DTMR Mackay/Whitsunday Regional Office; then submit the RIA to the Manager DTMR Mackay/Whitsunday Regional Office for review and approval
- b) prepare a road-use management plan (RMP) for all use of state-controlled and other roads for each phase of the project. The RMP will detail traffic volumes, proposed transport routes, required road infrastructure maintenance and/or upgrades to mitigate road impacts, any necessary conditions about access/connection to public roads, transport scheduling, dust control and road safety. DTMR must approve the plan prior to implementation.
- c) enter into a road infrastructure agreement with DTMR to formalise contributions towards any necessary road maintenance and upgrades identified in the finalised RMP to ameliorate any adverse impacts of the road use by the project on the assets of DTMR. This shall include the construction upgrade of the intersection of the Millennium and Poitrel Access Road with the Peak Downs Highway with lighting to DTMR standards to accommodate both construction and operational traffic generated by all mines using the intersection (Millennium, Poitrel and Daunia Mines) for a period of ten years from the final stage of opening of the Daunia Mine. The intersection must be upgraded before commencement of the construction of the Daunia Mine.
- d) access the Daunia mine via a single point of access from the Peak Downs Highway via the Millennium and Poitrel Access Road.

If an infrastructure agreement between the proponent and DTMR is not concluded within six months of the submission of the road use management plan, the parties shall refer the matter to the Coordinator-General.

DTMR is the agency responsible for monitoring compliance of this condition.

7.11.3 Traffic management plans

Both DTMR and Queensland Police Service (QPS) have submitted that BMAs draft traffic management plan (TMP), provided in Appendix H of the SEIS, does not adequately cover all of the key issues identified in the impact assessment process for both the construction and operational phases of the project, such as:

- traffic control plan for the construction of works, in particular, the upgrade of the Peak Downs Highway/Millennium and Poitrel Access Road intersection
- the movement of oversize and wide loads during the construction period
- the location and/or establishment of 'park-up' areas for wide-load and heavy vehicle movements
- the provision of workforce fatigue and road safety training and awareness programs.

I note that QPS has expressed the desire to be involved in the consultation process during the development and implementation of the project's TMPs.

It is not unreasonable for a project proponent to provide further the detail on traffic impact and mitigation measures that DTMR and QPS are requesting in a finalised TMP when specific dates and haulage routes have been agreed with the transport contractor and equipment supplier.

I acknowledge in the draft TMP the proponent has only provided an indication of potential impacts and mitigation measures and a commitment to consult all relevant agencies to finalise and approve all TMPs prior to the commencement of any potentially disruptive transportation activities. I consider this consultation should include DTMR, agencies associated with emergency services (fire and ambulance services) and all relevant local governments and Police Districts that will be affected by these movements.

I further deal with other matters concerning traffic management and safety in the social impact section of this report.



Conclusions

To ensure that impacts associated with traffic management planning for the construction and operational phases of the Daunia Project are properly addressed, I set the following condition:

Condition 5

Within four months of appointing a construction contractor for the project, and prior to the commencement of any significant construction works on the project, the proponent shall prepare traffic management plans for review by DTMR, the Queensland Police Service, and regional councils, and take account of the reviews and incorporate any proposed amendments.

The proposed plan shall incorporate a provision that, prior to commencing any program of oversize transport movements associated with the construction of the Daunia Mine development, the proponent will consult with DTMR and the Queensland Police Service (through the Officer in Charge, Mackay Police District Traffic Branch) and all relevant local governments between Mackay and the Daunia project area.

The proponent shall implement the traffic management plan during construction and commissioning of the project and construction of the access road intersection.

DTMR is the agency responsible for monitoring compliance of this condition.

7.12 Cultural heritage

At the time of the finalisation of this report:

- a cultural heritage management plan (CHMP) had not been completed or agreed upon between BMA and the land's Traditional Owners for the project. It is the intention of BMA and the Traditional Owners to continue detailed negotiations on the development and finalisation of a CHMP for the project
- only a partial cultural heritage survey over the land required for the project was completed (BMA have made a commitment to the Traditional Owners that areas not covered by the partial cultural heritage survey over the project site will be surveyed in accordance with a CHMP prior to disturbance)
- a non-Indigenous cultural heritage plan has not been developed or finalised over the project site.

Section 15 (Cultural heritage) of the EIS identified that there are two registered Native Title claims over the project site: Barada/Barna/Kabelbara/Yetimarala (BBKY) People 3 and Barada/Barna/Kabelbara/Yetimarala (BBKY) People 4, or collectively known as BBKY Traditional Owners. Subsequent to the release of the SEIS, I have been advised that this claim has been modified and a new native title claim registration is currently being undertaken. I note that BMA have held ongoing consultation with the BBKY Traditional Owners during the pre-development stages of the Daunia Project.

Based on a partial cultural heritage survey, two previous field surveys undertaken in 1980 and 2008, and desktop and database searches, the EIS reported that the project has the potential to affect objects or places of Indigenous and non-Indigenous cultural heritage through physical disturbance or changes to cultural heritage values. Some Indigenous archaeological material was located during the partial survey, however this survey was limited due to the extensive cover of buffel grass that reduced ground surface visibility. Desktop database searches revealed that no registered Indigenous cultural heritage sites were identified within the project site. I note that consultation between the proponent and the BBKY Traditional Owners indicated that the project site has limited cultural significance compared to adjacent land that contains a waterway and may have been a setting for more major Indigenous activities.

The partial cultural heritage survey was focused on three priority areas, covering approximately 50 per cent of project land, that will be disturbed in the initial construction and development phase of the Daunia Mine:

- area 1 consists of the northern section of ML 1781 and some of ML 70116 (Red Mountain) on which the infrastructure will be built
- area 2 is ML70115 (Daunia East Mine lease) and a U-shaped section of the southern end of ML1781. Both of these areas are proposed out of pit spoil dumps



- area 3 is the north-western portion of ML 1781 and a thin line in the south east. Both of these areas are part of the proposed open cut pit.

I have been advised that the proponent has made a commitment to BBKY to survey the remainder of the project area as mining progresses over the project's 30 year operational life.

In relation to non-Indigenous cultural heritage, I note from the EIS that during a field survey carried out in 2008 the following were identified: only two non-Indigenous heritage sites, a pioneer gravestone located approximately 1 kilometre east of the Olive Downs Homestead and a collection of metal objects that may relate to the remains of an old drovers camp. I note the EIS did not provide a non-Indigenous cultural heritage management plan that would identify potential impacts and avoidance and mitigation measures for project-related non-Indigenous cultural heritage values.

A search of the Queensland Heritage Register has revealed that the gravesite is not currently protected under the *Queensland Heritage Act 1992 (Qld)* (QH Act). Under section 89 of the QH Act, the Cultural Heritage Branch of DERM needs to be notified that a marked and identifiable grave has been located. This notification is then assessed by the senior heritage officer to ascertain if the grave is of state significance. Based on preliminary discussion between BMA and a senior heritage officer at DERM, it is believed that this gravesite would not be of significance.

The Coroner's Act 2003 (Coroners Act) and *Criminal Code Act 1899* (CC Act) state that discovery of any human remains (marked or unmarked) must be reported to the nearest police or magistrate. These authorities will then advise whether or not the remains are of interest to them with regard to a particular crime or investigation. Discussions between BMA and the Moranbah Police Service indicate that there is no interest in the remains. The Local Police Authority then advised that the remains should be exhumed and relocated to the nearest cemetery.

Neither the QH Act, the Coroners Act or the CC Act pertain to the relocation of graves or exhumation. I have been advised by BMA that the procedures for relocation of graves is a combination of respecting the laws of these Acts, and submitting an exhumation application to local government which generally requires the applicant to provide evidence of:

- the location of the grave
- the details of a new burial place
- a letter of agreement from an undertaker which states that they will undertake the exhumation and re-interment in accordance with all laws and procedures
- evidence of either descendent consent or if a descendent cannot be located evidence showing significant attempts to locate a descendent.

The EIS states that a living female descendant of the deceased has been located in Yeppoon, Queensland. I note that neither the EIS or SEIS outline any attempts to contact that person or obtain the abovementioned consent for relocation of the remains and gravestone. There is however a statement within the EIS to the effect that the proponent will contact any living relatives before relocating the grave.

The proponent acknowledges in the EIS that there exists further potential for Indigenous and non-Indigenous cultural and archaeological sites to be uncovered during cultural heritage surveys over the remainder of the project site and as a result the project's construction and operation activities. Clearing and excavation works may uncover potential artefacts or sites currently buried just beneath the surface and not previously recorded.

Conclusions

I find that there will be some impact upon both Indigenous and non-Indigenous cultural heritage as a result of the project, however,. However this impact is yet to be fully assessed due to the extent of the partial cultural heritage survey that was further limited due to reduced ground surface visibility.

A CHMP for Indigenous cultural heritage is required to be developed and finalised with the Traditional Owners. Apart from the general 'duty of care' provisions under the *Aboriginal Cultural Heritage Act 2003 (Qld)* (ACH Act), to ensure that activities do not harm Aboriginal cultural heritage, the proponent is required to develop a CHMP, though consultation and in partnership with all Traditional Owners. It is also a requirement of the ACH Act that an environmental authority for the project cannot be issued until the CHMP has been developed and approved unless the environmental authority contains conditions requiring that an approved CHMP is in place before any activity that could cause harm to Aboriginal cultural heritage occurs. I also note that the proponent has made a



commitment to prepare a CHMP and implement the agreed strategy described in the plan in full between the proponent and BBKY Traditional Owners, and the CHMP is registered with the relevant state authority.

With regards to non-Indigenous cultural heritage, I find the proponent must complete a non-Indigenous cultural heritage plan as outlined on page 89 of the project's TOR and this plan be approved and registered with the relevant state authority. A finalised non-Indigenous cultural heritage plan would fully identify any potential impacts and avoidance and mitigation measures on non-Indigenous cultural heritage values.

I am satisfied that with the finalisation of both the CHMP and a non-Indigenous cultural heritage plan, cultural heritage impacts of the project proceeding should be minimised.

In order to ensure that non-Indigenous cultural heritage impacts are minimised, I set the following as an imposed condition:

Condition 6

Within four months of appointing a construction contractor for the project, and at least 25 business days prior to the commencement of any disturbance for construction activities taking place, the proponent shall submit a non-Indigenous cultural heritage plan to DERM for review and comment. The plan shall include:

- records and maps detailing all features of potential non-Indigenous cultural heritage significance, an assessment of their significance, a description of possible impacts and proposed processes for mitigation, management and protection of identified non-Indigenous cultural heritage in the project areas—including associated infrastructure developments during both the construction and operational phases of the project
- provisions for the management of the accidental discovery of non-Indigenous cultural heritage, including human remains
- a clear recording process to be developed to assist initial management and reporting of accidental discoveries.

The plan shall be implemented as part of the environmental management plan³.

DERM is the responsible agency for compliance of this condition

7.13 Social impacts

7.13.1 Agency issues

The key issues raised by DEEDI, the Social Impact Unit (SIU) within DIP, Department of Communities (DOC), Queensland Police Service (QPS), the Construction, Forestry, Mining and Energy Union (CFMEU) and Isaac Regional Council, in response to the social impact assessment section of the EIS, relate to:

- the availability and affordability of temporary and permanent accommodation in Moranbah and the surrounding region for both mine workers and employees of other local businesses/services
- the lack of information provided regarding initiatives to address the housing availability and affordability issue within Moranbah and the surrounding region
- pressure upon local services due to increasing populations, with particular reference to the capacity of police and emergency services to respond to service standards and call outs
- impacts upon the culture of local towns such as Moranbah, with the continued and expanded use of contract employees for fly-in/fly-out or drive-in/drive-out employment
- equal opportunity employment prospects with specific regard to disabled and Indigenous people
- opportunities to link with and support local business
- the provision of more detailed information on BMAs community engagement strategy.

7.13.2 The social impact assessment

³ As required under the Environmental Protection Act 1994



The EIS indicates that broad community consultation and information provision by BMA about the Daunia Coal Mine Project was undertaken during this EIS process.

Housing

The proponent clearly identifies in the EIS that the region is experiencing the potential for impacts on housing availability, affordability and related social issues due to the following concerns:

- significant increase in housing prices and rental costs which may cause lower-income earners and members of vulnerable groups to be forced to relocate—adding pressure to coastal towns and a flow on effect on the ability of service agencies and businesses to recruit and retain a local workforce
- insufficient short-term accommodation available which can impact on the tourism market
- difficulties in recruitment of staff for child care centres, kindergartens, schools and community services if no suitable and affordable housing is available
- workers choosing to remain in coastal communities thereby increasing travel time and susceptibility to fatigue whilst driving
- an expressed desire by existing residents for social cohesion by encouraging preference for employees to relocate and settle families in the town and region.

BMA has identified a number of strategies it is undertaking to resolve housing planning issues—the major element being investment of \$60 million in the 2008/2009 year to provide new accommodation in Dysart and Moranbah for company housing requirements. I note that these initiatives include engagement by the Housing Manager of Isaac Regional Council.

I note that: the accommodation of the proponent's intention to accommodate 90 per cent of the construction workforce and 70 per cent of the operational workforce in currently established work camps at Coppabella; the proponent's policy to employ locally; and the housing of some employees in BMA owned housing, will assist in mitigating housing availability issues.

The Department of Communities has expressed its acceptance that sufficient measures are in place to address housing issues for the Daunia Coal Mine Project, nonetheless other key submitters consider housing issues to be a significant impact for the Bowen Basin and further contributed to by the Daunia Coal Mine Project.

Whilst the issues outlined above may be moderate for the Daunia Coal Mine Project at this stage, the EIS recognised that they require further assessment and consideration of mitigation strategies in the context of the potential for cumulative impacts of the BMA Bowen Basin Growth Projects.

Ongoing work is required to ensure suitable and affordable housing options are available to the workforce engaged in the BMA Bowen Basin Growth projects, both to meet BMAs work requirements and the community's desire to welcome new families to the area.

Community engagement

The EIS outlines how BMA works to build its links with communities through the following initiatives:

- the Community Partnerships Program (CPP), which is an initiative of BMA and undertakes a range of community projects including youth recreation, arts and cultural development programs
- the ongoing responsibility of the BMA Community Investment Manager position, which directs the company's community investment strategy targets to address key needs of host communities
- the representation of BMA on the Bowen Basin Local Leadership Group, part of the government's Sustainable Resource Communities Policy. The role is believed to support government in its planning for social infrastructure and service provision addressing growth
- recruitment programs for Indigenous persons—in particular it engages with Traditional Owners employed in ongoing cultural heritage study work for mine development.

During the EIS phase for this project, a community reference group (CRG) was set up to provide a forum for identification of specific project related issues and enable timely responses. Whether this is to be an ongoing mechanism for the Daunia Project as it develops is not clear from the EIS.

Road Safety



In relation to road safety fatigue management, QPS considers that the proponent should provide further fatigue and road safety training or awareness programs to the project's workforce to reduce the incidence of fatigue related traffic accidents. I acknowledge that Appendix I of the SEIS (BMA Hours of Work Standard) provides policies and procedures for managing workforce fatigue. However, due to the increased number of employees and contractors that will be accommodated at MAC Coppabella Accommodation Village and driving on the Peak Downs Highway on a rotational shift basis, I consider that greater awareness of this issue should be considered by BMA. I have been advised by QPS that there are a number of health and safety advisors who provide fatigue and road safety training or awareness programs, and a number of tertiary institutions that are currently researching issues associated with fatigue management. I strongly recommend that BMA investigate the feasibility of providing further fatigue and road safety training or awareness programs by consulting with the QPS (through the Officer in Charge, Mackay Police District Traffic Branch).

It has been submitted by the QPS that resources for road safety policing are a concern as a consequence of the increased traffic generated by the BBCG project and other mine developments of the region. It is expected that this will involve an increased level of police patrols and calls for services to deal with traffic and other offences. The police service QPS recommends that additional police resources in the form of additional vehicles would be necessary to provide this increased level of service for road safety objectives. I support these objectives and the desire by the QPS for a proactive approach to the issue in the context of consideration of a project EIS.

With regards to the movement of oversize and wide loads, QPS has identified the need for one additional marked police vehicle to meet the requirement for traffic patrols and wide load escorts in the Mackay Police District associated with the BBCG Project.

The SEIS indicates that the transport of construction components and mining equipment will require 71 police escorts throughout the Daunia Mine development construction period. This increase along with the cumulative impact of additional resource projects in the district will significantly increase Mackay Police District's need for additional resources over the next four years.

I have been advised by QPS that the resources of the Mackay Police District, in relation to traffic patrols and wide load escorts, are currently fully utilised and any requirement to meet further demands would compromise the performance and service levels without the provision of additional vehicle resources.

Thus there is a call for provision of at least one additional police vehicle to provide for road safety objectives and oversize vehicle escorts in the context of the Bowen Basin Growth Projects.

Conclusions

Whilst the impacts of this project alone on social infrastructure, including housing and social services, may be moderate, analysis of the BMAs growth projects, (including Daunia, Caval Ridge and the Goonyella Riverside Expansion) together with other resource projects in the Bowen Basin, needs to be assessed in some detail to determine the potential for significant cumulative impacts on social infrastructure in the region.

Identifying cumulative impacts and developing mitigation measures for new projects is the responsibility of industry in partnership with local and state governments and community sector stakeholders.

A social impact management plan (SIMP) is not a requirement for the Daunia Coal Mine Project. However, the BMA Bowen Basin Growth Projects BBCG project should consider including a SIMP as best practice in social impact assessments and as an opportunity to showcase BMAs mitigation strategies. I will be requiring that social impact assessments of future projects that form the BBCG project take into account the cumulative aspects of all projects including those impacts that are being experienced from the Daunia Project.

With regard to the Daunia Mine Project, I find there are a number of matters on which I should make observations, and recommendations, on ways in which the proponent of the Daunia Mine can reinforce its commitment to community engagement and social impact management.

It appears from the EIS and supplementary EIS that post EIS engagement with community stakeholders specifically on the impacts of the Daunia Coal Mine Project remains unclear since the future of the community reference group (CRG) is not addressed. I believe that continuation of this group would be desirable for early identification and timely responses to issues arising from communities regarding the implementation of the project.

It is recommended that the CRG, or some similar mechanism, remain in place for the duration of the project to support on-going and active engagement with community members about the project including: social



infrastructure and the implementation of proposed mitigation strategies—particularly if impacts might be experienced on children and the elderly; the interaction of workforce and local residents—particularly women, clubs and recreational facilities; and health services and schools. Membership of this group should include local councils. While initially the CRG would be established to support the Daunia Project, it would be logical to extend its coverage in the future to all BMA Coal Growth Projects.

It is also recommended that the establishment of a formal process of regular communication between the Community Partnerships Program (CPP) Coordinator, site-based community relations personnel and the community investment manager, be extended to include provision of advice to the implementation coordination group of the Whitsunday Hinterland and Mackay Regional Plan, as work undertaken by BMA may contribute to the implementation of this strategic planning framework.

It is recommended that the findings of the review of the CPP by the Centre for Social Responsibility in Mining continue to be implemented, particularly the development of a more regional approach to social investment. This approach will work towards mitigating cumulative and regional impacts on social infrastructure created by the BMA growth projects.

I note that it is claimed that the addition of a new marked police vehicle in the Mackay Police District to meet the need for increased police traffic patrols and wide load escorts along the Peak Downs Highway, would provide resources to maintain road safety levels on this part of the regional road network in the face of increased road use based on BMA coalmine growth developments. Accordingly I make the observation that the company could consider making a commitment to providing a new marked police vehicle to the Mackay Police District, bearing in mind that additional police services for wide load escorts and road safety management are required for development of Bowen Basin Growth Projects of the company.

7.13.3 Future social impact for sustainable resource communities

It is the aim of the State government's sustainable resource communities policy that social impact assessment and development of social impact plans become more widely undertaken, especially for major resource projects, to inform both government and regional communities of the implications of development and the current status of social pressures within communities.

The Social Impact Unit in the Department of Infrastructure and Planning strongly encourages the following messages to proponents:

- the advantages of preparing a full social impact management plan (SIMP) to identify and address all social impacts
- the importance of recording and analysing appropriate and detailed social baseline information, with particular focus upon vulnerable groups
- the importance of identifying impacts at both a local and regional scale
- the need for detail in the description of the current capacity of educational, health and community services in Moranbah and surrounding region—particularly those services for vulnerable groups
- the need for investigation into broader employment opportunities for Indigenous people.

I will require future projects and proponents to complete a SIMP, which will outline the forecast changes to communities in terms of local and cumulative effects, the agreed strategies for mitigating the effects and the responsibility of various parties in relation to the strategies. The development of these plans will be informed by the social impact assessment process from the EIS and better facilitate the partnership and collaboration required to address significant and cumulative issues.

7.14 Health, safety and risk

In submissions during the impact assessment process, the QPS contends that the proponent should recognise the broader impacts of natural disasters that include rain, flood, fire and cyclones under the *Disaster Management Act 2003 (Qld)* (DMA) and the proponent should develop appropriate response plans, consultation processes and resourcing for disasters. I find the EIS does not address issues associated with the DMA.

I note that the main objectives of the DMA are to:

- help communities:
 - a) mitigate the potential adverse effects of an event



- b) prepare for managing the effects of an event
- c) effectively respond to, and recover from, a disaster or an emergency situation
- provide for effective disaster management for the state
- to establish a frame work for the management of the State Emergency Service (SES) and emergency service units to ensure the effective performance of their functions.

The DMA establishes disaster management groups at three levels:

- state
- district
- local (for individual or combined local governments and community councils).

Disaster management groups at all three levels are required to prepare disaster management plans.

I note that the QPS is responsible through the Local District Management Group and the District Disaster Management Group for coordinating the response to disasters under DMA while the local government areas are involved in the development of mitigation plans to reduce the impact or potential of a disaster.

Conclusions

I consider adequate management of both man-made and natural disasters to be an important requirement of all significant developments undertaken in the state. I find that the proponent must prepare disaster management plans that develop appropriate response plans, consultation processes and resourcing for disasters under the DMA. These plans must be undertaken in consultation with the appropriate agencies that include the QPS, Queensland Fire and Rescue Service (QFRS), Queensland Ambulance Service (QAS) Emergency Management Queensland (EMQ) and the Isaac and Mackay Regional Councils.

To ensure that all potential impacts associated with natural disaster management are properly managed, I set the following Coordinator-General's imposed condition:

Condition 7

Prior to commencement of significant construction activities for the project, the proponent shall prepare disaster management plans for mine related responses to rain, flood, fire and cyclone events identified in State Planning Policy 1/03 for review by emergency response agencies including Queensland Police Service, Queensland Fire and Rescue Service, Queensland Ambulance Service, Emergency Management Queensland and the Isaac and Mackay Regional Councils, and take account of the reviews and incorporate any amendments.

Department of Community Safety is the responsible agency for compliance of this condition.



8 Matters of national environmental significance

8.1 Introduction

BHP Billiton Mitsubishi Alliance Pty Ltd (BMA) lodged an initial advice statement (IAS) for the project with the Coordinator-General (CG) on 27 May 2008. Pursuant to section 26 of the SDPWO Act, the CG declared the Bowen Basin Coal Growth Project to be a 'significant project for which an EIS is required' on 18 July 2008.

This section addresses those sections of Part 5 of the *State Development and Public Works Organisation Regulation 1999* (SDPWO Regulation 1999) which deal with the requirements of the Coordinator-General's report for proposals:

- declared as a significant project for which an EIS is required
- for which the Australian Government has accredited assessment of the relevant impacts pursuant to the *Queensland State Development and Public Works Organisation Act 1971* (SDPWO Act).

This section provides an interim evaluation of the potential impacts of the project on the 'controlling provisions' being the matters of national environmental significance (NES).

8.2 Controlling provisions of the project

On 22 September 2008, the Australian Minister for the Environment, Heritage and the Arts determined the Daunia project to be a 'controlled action' under section 75 of the *Environment Protection and Biodiversity Conservation Act 1999* (Cwlth) (EPBC Act), for potential impacts to matters of national environmental significance (EPBC 2008/4418). The controlling provision of part 3, division 1 of the EPBC Act that applies to the project is:

- sections 18 and 18A (Listed threatened species and communities).

The controlled action may be considered for approval under section 133 of the EPBC Act once the Minister has the Coordinator-General's EIS evaluation report from the EIS process prepared under section 35 of the SDPWO Act.

8.3 Public consultation

8.3.1 Terms of reference

A number of Australian, state and local government representatives and other appropriate authorities were invited to participate as advisory agencies for the EIS process and to provide comment on draft terms of reference (TOR).

The Queensland Department of Infrastructure and Planning (DIP), on behalf of the Coordinator-General, coordinated the consultation process between the proponent, the advisory agencies and the public.

The IAS was released for public information and draft terms of reference (TOR) were advertised for public comment on 9 August 2008 in *The Mackay Daily Mercury*, *The Courier-Mail* and *The Weekend Australian*. Comments were accepted until the close of business on Friday 5 September 2008.

Advisory agency briefings were held in Brisbane on 1 September 2008 and Mackay on 2 September 2008.

A total of 15 submissions on the draft TOR were received by DIP: 14 from advisory agencies and 1 anonymous general public submission. Comments, where appropriate, were incorporated into a final TOR. Submissions were received from:



Agencies:

- Department of Communities
- Department of Education, Training and the Arts
- Department of Employment and Industrial Relations
- Department of Housing
- Department of Main Roads
- Department of Natural Resources and Water
- Department of Primary Industries and Fisheries
- Department of Tourism, Regional Development and Industry
- Environmental Protection Agency
- Powerlink
- Queensland Health
- Queensland Police Service
- Queensland Transport
- QR Limited
- Australian Government Department of Environment, Water, Heritage and the Arts.

Public

- Anonymous.

Final TOR were issued to the proponent in November 2008.

8.3.2 Environmental impact statement

The EIS was approved for release and advertised publicly in The Mackay Daily Mercury, The Courier-Mail and The Weekend Australian on Saturday 29 November 2008, inviting submissions until close of business on Monday 2 February 2009. A CD-ROM or USB copy of the EIS was available free of charge from the proponent, and hard copies were available for purchase.

The EIS was displayed at:

- Isaac Regional Council Office, Moranbah
- Mackay Library at the Mackay Civic Centre
- State Library of Queensland, Info Zone, South Bank, Brisbane.

Information on the project was available via the BMA website and DIP's website, and agency consultation was undertaken through advisory agency briefings.

The following advisory agencies were approached formally to conduct an evaluation of the EIS:

- Department of Communities
- Department of Education and the Arts
- Department of Emergency Services
- Department of Employment and Industrial Relations
- Department of Housing
- Department of Local Government, Sport and Recreation
- Department of Main Roads
- Department of Natural Resources and Water
- Department of Primary Industries and Fisheries
- Department of Tourism, Regional Development and Industry
- Environmental Protection Agency
- Powerlink
- Queensland Health
- Queensland Police Service
- Queensland Transport
- QR Limited
- Australian Government Department of Environment, Water, Heritage and the Arts.



Following the eight-week public review of the EIS a total of 19 submissions were received from the following:

Advisory Agencies:

- Department of Communities
- Department of Education and the Arts
- Department of Emergency Services
- Department of Employment and Industrial Relations
- Department of Housing
- Department of Main Roads
- Department of Natural Resources and Water
- Department of Primary Industries and Fisheries
- Department of Tourism, Regional Development and Industry
- Environmental Protection Agency
- Powerlink
- Queensland Health
- Queensland Police Service
- Queensland Transport
- QR Limited
- Isaac Regional Council
- Australian Government Department of Environment, Water, Heritage and the Arts.

Public:

- Construction, Forestry, Mining and Energy Union (CFMEU).

The substantive issues raised in submissions on the EIS were:

- new technologies for dewatering and disposal of coal tailings
- tighter controls on dust emissions
- the management of controlled water releases from mine sites
- interactions with transport and other infrastructure
- the development of adequate mitigation measures to counter the broad range of social impacts experienced by communities across the northern Bowen Basin.

The issues listed above are discussed individually in section 7 of this report. Any conditions necessary to manage the environmental effects of the development are included in each discussion. Where applicable the reasons for each condition are provided.

8.3.3 Supplementary EIS

All submissions on the EIS were forwarded to the proponent for consideration and, following discussions with the proponent and its technical consultants, the Coordinator-General determined that the preparation of a supplementary EIS (SEIS) was necessary to address substantive issues that were raised.

On 3 April 2009 the supplementary SEIS was issued to advisory agencies and other respondents to the EIS. The SEIS was available for review on the BMA website and was accessible via a link on the DIP website.

Advisory agencies were invited to comment on the SEIS and to provide specific advice to the CG for consideration for inclusion as conditions or recommendations in this report. Comments from advisory agencies were due by the close of business on 1 May 2009.



8.3.4 Other public information and consultation activities

The proponent conducted a public information and consultation program throughout the EIS process, as documented in section 16: Community consultation of the EIS.

Consultation included activities such as:

- newsletters distributed to Moranbah residents
- advertising and media releases
- fact sheets
- BMA website
- static and mobile displays
- key stakeholder briefings
- council meetings
- community reference group meeting
- affected property owner discussions
- one-on-one meetings with affected property owners
- community contact points (free call information line and enquiry email address).

8.4 Description of the proposed action

8.4.1 The Bowen Basin Coal Growth Project

The Bowen Basin Coal Growth (BBCG) Project involves the production of an additional 20 million tonnes per annum (mtpa) of coal products through progressive development of four principal components:

- a new open cut: Daunia Mine
- a new open cut: Caval Ridge Mine
- a large expansion of the existing open cut and underground Goonyella Riverside Mine
- construction of a new larger capacity airport in the vicinity of Moranbah.

The mines are located approximately 30 kilometres north, south and south-east of Moranbah and 170 kilometres south-west of Mackay.

8.4.2 The Daunia Mine

The Daunia Project component of the BBCG Project is located approximately 30 kilometres south-east of Moranbah. Daunia is adjacent to the existing open cut BHP Mitsui Poitrel Mine, and is accessed via the existing access road leading from the Peak Downs Highway to the Millennium Project and Poitrel Mine.

The site is also located approximately 2 kilometres to the north of the Isaac River (which forms the southern boundary of the Poitrel Mining Lease) and 15 kilometres south of the Peak Downs Highway (see Figure 1).

The site has been heavily degraded through past clearing and agricultural use. It is currently used for cattle grazing purposes.

The land is generally flat and comprises large areas of rural grassland. Small and isolated patches of remnant and riparian vegetation exist on the site, including some brigalow communities. Two unnamed drainage paths flow north to south through the Daunia and Daunia East Mining Leases.

The coal deposits are located in the Late Permian, Rangal Coal Measures which are approximately 100 metres in thickness. The three potentially commercial coal seams located within the site are the:

- Leichhardt Seam (DL1)
- Lower Leichhardt Seam (DL0)
- Upper Vermont Seam (DV4).

Indicated resources of 149 million tonnes were calculated for the Leichhardt Seams and Upper Vermont Seam.

The Daunia Project involves the production of 4 mtpa of high quality coking coal over a mine life of 21 years. The Daunia Mine development comprises:



- an open cut coal mine on Daunia Mining Lease (ML 1781) generating up to 5.6 mtpa run of mine (ROM) to produce approximately 4 mtpa of product coal for the export market
- out of pit spoil dumps located on the Daunia (ML 1781) and Daunia East (ML 70115) Mining Leases
- mine haul roads and an overpass across the Norwich Park Branch Railway Line, connecting the open cut mine to the coal handling and preparation plant (CHPP) on the Red Mountain Mining Lease (ML 70116)
- a conveyor connecting the CHPP to the train load out area located on the Millennium Mining Lease (ML 70312)
- an upgrade of the Red Mountain rail loop to 12 mtpa capacity.

The Daunia Mine will share some services—including site offices, workshops, storage areas, magazine, communications and carparking—with the adjacent BHP Mitsui Poitrel Mine.

Services will be provided to the site as follows:

- electricity is to be provided via an overhead 60 kilovolt (kV) transmission line from the Millennium Switchyard to the lease boundary adjacent to the proposed Daunia Switchyard. A 66/11 kV transformer and an 11 kV electrical system will deliver power to the CHPP
- process water will be supplied via the Braeside Water Pipeline
- sewage will be pumped to the sewage treatment plant at the Poitrel Mine for treatment and disposal.

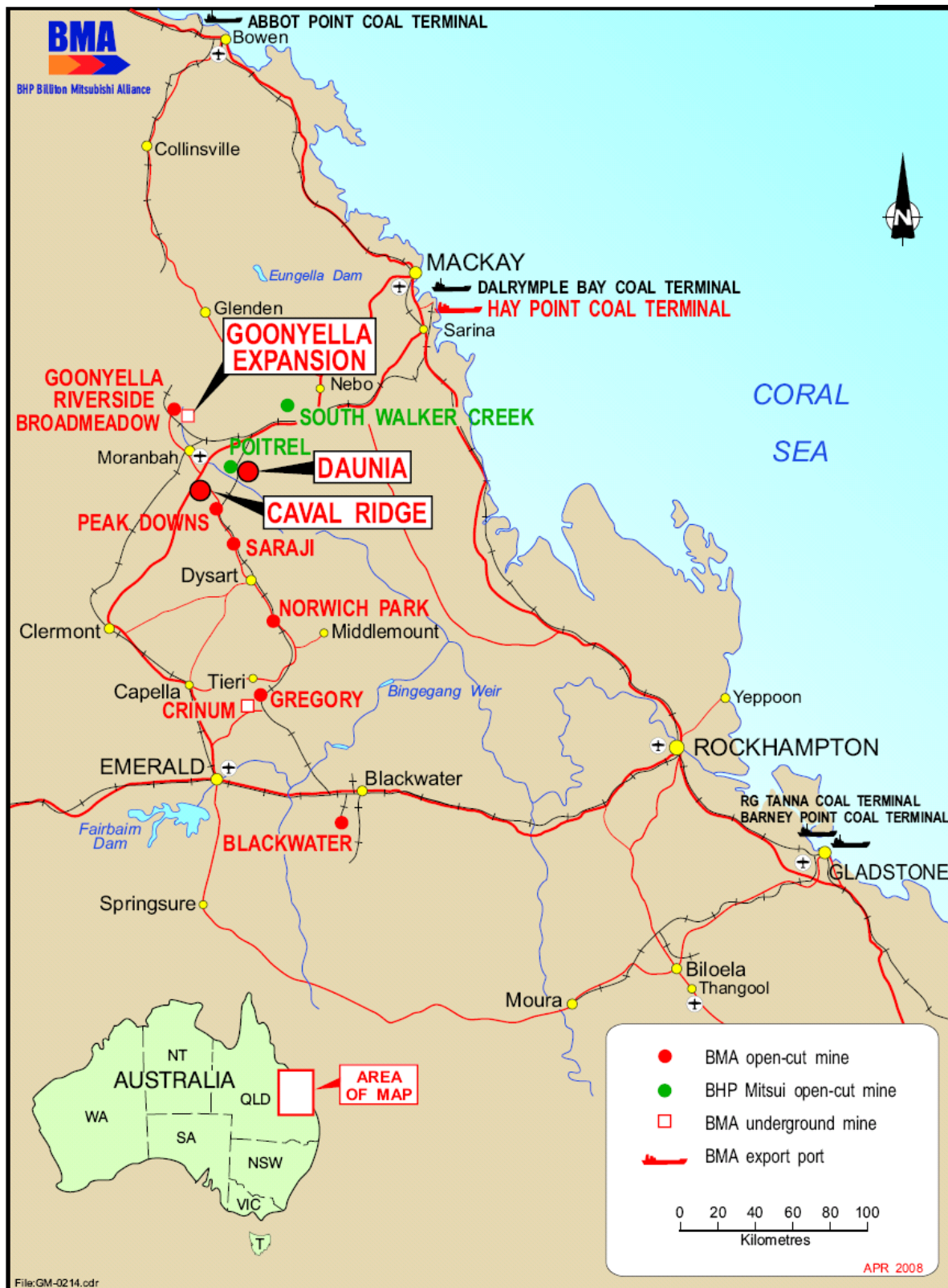
The coal will be transported from Daunia Mine via train from the proposed load-out area, through the Red Mountain Rail Loop to Hay Point and Dalrymple Bay Coal Terminals.

The construction phase of the project is expected to create approximately 450 positions. The operation of the Daunia Mine will require approximately 300 employees.

Up to 90 per cent of the construction workforce is expected to be a contract workforce who will be accommodated at the MAC Accommodation Village at Coppabella, located approximately 20 kilometres from the Daunia Mine. The remaining 10 per cent will be employed directly by BMA and will be housed in local townships, most likely Moranbah.

Up to 70 per cent of the operational workforce are also expected to be housed at the MAC Accommodation Village at Coppabella. As above, the remaining 30 per cent is likely to be accommodated in housing in nearby townships such as Moranbah.

Figure 1





8.5 Places affected by the project

The proposed Daunia Project is located within the existing mining leases:

Mining Tenure	Name	Holder	Development associated with the Daunia Mine
ML 1781	Daunia	BHP Coal Pty Ltd and others (CQCA Joint Venture participants)	Mining and mining related infrastructure
ML 70115	Daunia East	BHP Coal Pty Ltd and others (CQCA Joint Venture participants)	Mining and mining related infrastructure
ML 70116	Red Mountain	BHP Coal Pty Ltd and others (CQCA Joint Venture participants) 50% and BHP Mitsui Coal Pty Ltd 50%	CHPP, workshops, haul road, ROM and product coal stockpiles
ML 70312	Millennium East	Millennium Coal Pty Ltd 50% and BHP Mitsui Coal Pty Ltd 50%	Mining related infrastructure (product conveyor and train load out)
ML 4749	Poitrel	BHP Mitsui Coal Pty Ltd	Mining related infrastructure

8.6 Assessment of potential impacts and mitigation measures

The following sections assess the potential impacts and proposed mitigation measures of the Daunia Mine Project in relation to sections 18 and 18A (Listed threatened species and communities) of the controlling provisions.

The EPBC Act lists all of Australia's protected species and communities. Schedule 3 of the *Nature Conservation Act 1992* and Queensland Nature Conservation (Wildlife) Regulation 1994 (QNCW Reg) lists all Queensland's vulnerable wildlife.

One Commonwealth-listed threatened ecological community, brigalow (*Acacia harpophylla*), and one Commonwealth-listed threatened fauna species, the southern squatter pigeon (*Geophaps scripta*), have been identified within the site.

8.6.1 Threatened ecological communities

Section 8 (Terrestrial ecology) of the EIS reports that vegetation dominating the project site has a long history of disturbance from grazing, fires, prolonged stress through drought and an extensive weed invasion of buffel grass (*Cenchrus ciliaris*) and parthenium (*Parthenium hysterophorus*). Of the four vegetation types identified as part of the field surveys, two are considered representative of 'endangered' ecological communities under the provisions of the EPBC Act, two are considered representative of 'endangered' regional ecosystems (RE) under the *Vegetation Management Act 1999* (VM Act) and one is classified as 'of concern' under the VM Act. The following table lists the REs observed on the project site:



Table 3 Regional Ecosystems proposed to be cleared

RE Code	Description	VM Act status	EPBC Act status	Occurrence on the project site	Total area cleared
11.3.1	Brigalow (<i>Acacia harpophylla</i>) and/or <i>Casuarina cristata</i> on alluvial plains	Endangered	Endangered	Present with mixed polygons at a scale too small to be mapped under the RE framework	11.8 ha
11.3.2	<i>Eucalyptus populnea</i> woodland to open-woodland	Of concern	Not applicable	Present as the dominant RE within mixed polygons on the Red Mountain Lease	
11.4.9	Open forest, occasionally woodland, dominated by <i>Acacia harpophylla</i> usually with a low tree mid-storey of yellowwood (<i>Terminalia oblongata</i>) and <i>Eremophila mitchellii</i>	Endangered	Endangered	Present as a single, consolidated remnant unit on the western boundary of the Daunia Lease	2.35 ha
11.5.3	<i>Eucalyptus crebra</i> , <i>Callitris glaucophylla</i> , <i>C. endlicheri</i> , <i>E. chloroclada</i> , <i>Angophora leiocarpa</i> on Cainozoic sand plains/remnant surfaces	Not of concern	Not applicable	Present as the dominant RE within elevated portions of the Red Mountain Lease	0.04
11.4.9	Open forest, occasionally woodland, dominated by <i>Acacia harpophylla</i> usually with a low tree mid-storey of yellowwood (<i>Terminalia oblongata</i>) and <i>Eremophila mitchellii</i>	Endangered	Endangered	Present as a single, consolidated remnant unit on the western boundary of the Daunia lease	



The EIS indicates that both RE 11.4.9 and RE 11.3.1 are highly fragmented and are generally in poor condition, suffering from dieback and extensive weed incursion.

The EIS reports that vegetation communities on the project site do not represent a significant pathway of habitat connectivity within the corridor system at both a local and regional scale. Such regional and local connectivity is provided by the larger vegetated riparian corridors along local watercourses in the vicinity of the project site such as the Isaac River, New Chum Creek and North Creek to the west and east of the project site.

The EIS and SEIS describe practices to be implemented during clearing to minimise:

- disruption of existing vegetation and habitat connectivity
- disturbance to other retained remnant vegetation
- soil erosion and sedimentation control measures.

I note the proponents commitment to establish a flora monitoring program, outlined in section 8.7.4 (Ongoing monitoring of flora and fauna) of the EIS, that would include ongoing monitoring of the protection of 'endangered' and 'of concern' vegetation through pre-clearing checks and the fencing-off of vegetation to be retained outside the mine footprint to avoid construction impacts as well as monitoring the revegetation of 'endangered' and 'of concern' regional ecosystems.

The EIS reported that approximately 14.22 hectares, comprising 2.35 hectares of RE 11.4.9 and 11.83 hectares of mixed vegetation that includes RE 11.3.1, and 0.04 hectares of RE 11.5.3 and 11.4.9 as detailed in Table 4 above, would be cleared for the construction of mine infrastructure (that includes the CHPP), a haul road and light vehicle access road on the Red Mountain lease area.

In a submission to the EIS, DERM considers the proponent should propose a viable long-term vegetation offset, in accordance with the Queensland Government's *Environmental Offsets Policy* (QGEOP), to compensate for the lost ecological values associated with the removal of these two regional ecosystems. In response, the proponent proposed a vegetation offset package, as outlined in Appendix N of the SEIS, that has been designed to mitigate the loss of the two endangered REs (11.3.1 and 11.4.9). I note the environmental offset has been prepared in accordance with the principles and guidelines of QGEOP.

This proposed vegetation offset is approximately 20 hectares of brigalow dominated vegetation, located at the Norwich Park Mine vegetation offset area. The proposed offset area contains remnant RE 11.4.9, which is dominated by brigalow. The area also contains a substantial area of brigalow regrowth. The intent of the proponent for this offset area is that it would be protected under a nature refuge conservation agreement (NRA). The NRA would be a voluntary agreement between BMA and the Queensland Government that acknowledges a commitment to manage and preserve land with significant conservation values while allowing compatible and sustainable land uses to continue. I have been advised that the NRA has not yet been established, is still under negotiation between DERM and BMA and remains a proposal until it is gazetted in the Queensland Government Gazette.

The proposed vegetation offset area would be contained within the Norwich Park Mine Vegetation Offset Area, located approximately 70 kilometres to the south of the project site. The Norwich Park Mine Vegetation Offset Area was established and designed as an 'offset bank' to acquit vegetation offset obligations of BMA owned projects and covers a total of 712 hectares that contains both remnant vegetation and regrowth—approximately 350 hectares of brigalow dominated regrowth and approximately 150 hectares of mixed brigalow, dawson gum and poplar box regrowth. I note the land is owned by the Central Queensland Coal Associates Joint Venturers (CQCA) and is managed by BMA.

I also note that other entities currently hold an exploration permit for coal and an authority to prospect for petroleum over the 'offset bank' lands. In this respect there is potential for the tenure of the land to be subject to an application for development under the *Mineral Resources Act 1989* and the *Petroleum Act 1923* hence affecting its protection status for vegetation offsets.

8.6.2 Threatened species

Fauna

Detailed information on fauna data sources used and fauna surveys undertaken over and in the vicinity of the project site in 1996, 2004 and 2008 are reported in section 8 of the EIS. I note that the summary of this information provided in section 8 of the EIS was incorrect, and the correct details can be interpolated from Appendix I.1 of the EIS. Appendix D of the SEIS also relates.



Of the four species classified as either vulnerable or rare (under the provisions of the EPBC Act and QNCW Reg), and identified as potentially utilising preferred habitat within the proposed project site, one bird species—the southern squatter pigeon (*Geophaps scripta*)—is considered to have the potential to be likely impacted by the project due to potential effects on preferred habitat. A more detailed summary of each vulnerable or rare species identified as potentially utilising habitat within the project area and potential impacts on these species is provided in Tables 8.8 and 8.10 and Appendix C of the EIS.

The southern squatter pigeon was identified in the vicinity of the project site during all three survey periods. The pigeon is classified as vulnerable under both the provisions of the EPBC Act and QNCW Reg. The potential habitat for the pigeon is limited to woodland and riparian habitats along the Isaac River to the south, and along parts of New Chum Creek to the north-west of the project site when water is available. The project is expected to have minimal impact on both these ephemeral water courses, however, I note the removal of approximately 2.4 hectares of brigalow (11.4.9) in the vicinity of New Chum Creek in the north-west of the project site, for a haul road and light vehicle access road across, may have a limited impact on the pigeon's possible habitat along New Chum Creek. I acknowledge the proponent's proposal to rehabilitate unaffected woodland habitats on the north-western boundary of the project site during the project's operational phase would partially compensate for this loss and would be beneficial to the southern squatter pigeon's habitat requirements. I also acknowledge the proponent's rehabilitation strategy for the project site, discussed in section 7.3 (Land resources) of this report, would also potentially provide suitable habitat for the pigeon. I note that no management plan has been developed by the proponent that promotes the protection of this species or its habitat.

I acknowledge the proponent's commitment to establish a fauna monitoring program, outlined in section 8.7.4 of the EIS, that would provide ongoing seasonal monitoring on the extent and distribution of the squatter pigeon population.

Flora

A listing of plant species identified during surveys undertaken in 1996, 2004 and 2008 over, or in the vicinity of, the site are recorded in Appendix I-1 of the EIS. Appendix D of the SEIS also relates.

No plant species listed under the EPBC Act (critically endangered, endangered or vulnerable) or NCQW Reg (endangered, vulnerable, rare, near threatened or least concern) were located on or near the site during the field surveys, database searches and literature review.

Conclusions

I accept that, given vegetation communities that dominate the project site are highly modified and in poor condition, are subject to high levels of weed incursion, and contain low species diversity, the development for mining purposes is an appropriate land use for the project site.

I am satisfied that the proponent's commitment to rehabilitate land unaffected by the project's construction and operational phases in the vicinity of New Chum Creek would adequately compensate the loss of potential southern squatter pigeon's habitat as a result of the construction of the haul road. I recommend that this rehabilitation should be undertaken sustainably with Indigenous species appropriate to squatter pigeon habitat.

I acknowledge that the actual areas of endangered regional ecosystems lost as a consequence of the project are generally in poor condition, fragmented and hold poor ecological value and that the loss on a regional scale is not significant.

However, I find the likely permanent loss of approximately 4 hectares that is endangered REs (2.35 hectares of RE 11.4.9 and 1.61 hectares of RE 11.3.1 in the 11.83 hectare parcel of land) under the VM Act and EPBC Act warrants the provision of an environmental offset by BMA.

I acknowledge BMAs commitment to provide a vegetation offset, as described in Appendix N of the SEIS, that would be protected under a nature refuge agreement (NRA), to offset the area lost from the two endangered regional ecosystems. The NRA is still under negotiation between DEWHA, DERM and BMA. The implementation of the controls that should be identified in the nature refuge agreement should mitigate the loss of regional ecosystem vegetation communities as a result of the Daunia project proceeding. Therefore, I recommend that BMA continue to consult with DERM to gain approval for this agreement.

However, the vegetation offset at the Norwich Park Mine 'offset bank' is covered with an exploration permit for coal under the *Mineral Resources Act 1989* (MRA) and an authority to prospect for petroleum under the



Petroleum Act 1923 (PET Act), held by other entities. Even though the land is owned by CQCA and BMA is the manager and agent of this land on behalf of CQCA, any negotiation for a conservation agreement for a nature refuge on the land would, of necessity, have to recognise the potential risk for activity related to mining or petroleum or gas activities. A vegetation offset would normally be expected to have protection from a development tenure in a way which can see the area managed sustainability for an indefinite period. It is desirable that a conservation agreement for a nature refuge be obtained over the land, as this would provide some protection from development other than mining or petroleum development. However, due to the prior existence of resource tenures over the land, it is not recommended that a nature refuge agreement be made a condition of approval.

Exploration at the site may find there are economic resources that may be developed, and some or all of BMA's proposed 'offset bank' area may be cleared. Consequently, it is appropriate that an alternative arrangement should be in place during the life of the Daunia mine in case some or all of the proposed offset area is cleared for another development.

I acknowledge that it may be some years before the fate of the offset bank area is known and that it would not be appropriate to require the proponent to find a particular alternative area at this time. Instead, it would be adequate to require the proponent, should any of the offset area be cleared, or should BMA relinquish management of the offset, to use the services of an offset broker, such as Ecofund Queensland, to find a satisfactory alternative. The alternative could be either the provision of another offset area, or an equitable monetary contribution to Ecofund Queensland's Trust that could be used to purchase land to be added to the protected estate. Payments for any on-going management costs for an alternative offset would also have to be made until the offset attained its remnant status.

8.7 Proposed conditions to address environmental impacts

I have provided conditions and recommendations at Appendix A, Appendix B and Appendix C, which will seek to address the environmental impacts of the project. However, I respect that nothing within the conditions or recommendations I have made limits the Australian Government from providing otherwise with regard to matters of national environmental significance.

This report will be provided to the Australian Government Minister for the Environment, Heritage and the Arts, pursuant to section 17(2) of the State Development and Public Works Organisation Regulation, to enable a decision on approval of the controlled action for the project pursuant to section 113 of the EPBC Act.

Within this decision on approval, should the Australian Government find the project is able to proceed, appropriate conditioning of the project will be applied by DEWHA to provide for best practices to ensure protection of listed threatened species and communities.



9 Conclusion

In view of the documentation provided during the EIS process for the Daunia Project, I am satisfied that the requirements of the Queensland Government for impact assessment in accordance with the SDPWO Act have been met. The EIS has provided sufficient information to government and to community to allow an informed evaluation of potential environmental impacts which could be attributed to the project. Careful management of the key construction and operational activities should ensure that any potential environmental impacts will be avoided or mitigated.

The proponent has made commitments throughout the EIS and SEIS which have been presented as a list of commitments in Appendix D. These commitments include actions beyond those required to meet statutory approvals, and their implementation will enhance the mitigation of potential adverse environmental impacts of the project.

I have noted and I accept these commitments to be carried out by the proponent in implementation of the Daunia Project.

Further, the proponent has developed a draft EM plan to address the specific environmental issues identified during the EIS process associated with each element of the project. In reaching a conclusion on the acceptability or otherwise of the management of potential impacts of the project, I have considered these project commitments and the draft EM plan.

Thus on the basis of the information provided, including advice from advisory agencies, I am satisfied that the adverse environmental impacts associated with the project are able to be addressed through:

- implementation of conditions listed in Appendix A of this report (as Coordinator General's imposed conditions under section 54B of the SDPWO Act)
- commitment to recommendations listed in Appendix B of this report
- finalisation and implementation of the project EMP
- obtaining an EA from DERM under the EP Act, based on draft conditions listed in Appendix C of this report
- implementation of the project generally in accordance with the arrangements described in the EIS and the project commitments listed in Appendix D of this report.

I consider that there is a significant economic development benefit for the local, regional, state and Australian economies to be derived from the project.

I recommend that the project, as described in detail in the EIS and SEIS and summarised in section 2 of this report, can proceed.

In the event of any inconsistencies between the EIS documents and the requirements in this report, the requirements in this report prevail.

Copies of this report will be issued to the:

- Department of Environment and Resource Management as Assessment Manager for the environment authority pursuant to the EP Act, water licences pursuant to the *Water Act* and vegetation clearing permits under the *Vegetation Management Act*
- The Departments of Employment, Economic Development and Innovation, Transport and Main Roads and Department of Community Services, for administration of relevant imposed conditions
- Australian Government Minister for the Environment, Heritage and the Arts to make an assessment of the controlled action for the purposes of the EPBC Act. Under the provisions of Part 9 of the EPBC Act, the Commonwealth Minister may approve or refuse the undertaking of the proposed action. In approving the proposed action, the Commonwealth Minister may attach conditions to the approval if he is satisfied that the condition is necessary or convenient to protect a matter of national environmental significance, or to repair or mitigate damage to a matter of national environmental significance.

Other advisory agencies who participated in the EIS process will be notified about the availability of this report.

A copy of this report will also be made available on the Department of Infrastructure and Planning website at www.dip.qld.gov.au/projects.



Appendix A – Conditions of the Coordinator-General

In accordance with section 54A and 54B of the *State Development and Public Works Organisation Act 1971*, I nominate that the following conditions apply to the project to the extent that:

- (a) the project does not involve a material change of use that, under the Integrated Planning Act, is impact assessable
- (b) division 4, subdivision 2 and divisions 5, 6, 6A, and 7 of the *State Development and Public Works Organisation Act* do not apply to the project.

These conditions take effect from the date of this report.

Condition 1

BMA is required to provide a vegetation offset that must compensate for the loss of any cleared, remnant, endangered and of concern RE and any cleared, remnant not of concern RE on the Daunia Project mining leases. BMA is required to provide a vegetation offset area at the Norwich Park offset bank equating to a ratio of at least 3:1 for any cleared, remnant, endangered and of concern REs and 1:1 for any cleared, remnant not of concern RE. The offset area will be on Lot 2 on SP161100 and shown on a map to be provided by BMA to the Coordinator-General and to the Department of Environment and Resource Management prior to the issuing of the environmental authority.

BMA is to manage the offset area to exclude grazing or other development, except when required by law to provide access to resource tenure holders. BMA will encourage regeneration and regrowth of native vegetation to attain remnant or other protected status within 20 years or prior to the surrender of the environmental authority for the Daunia Mine whichever is sooner.

BMA will report annually to the Department of Environment and Resource Management on activities at the offset area and its progress towards remnant or other protected area status. The report will be provided by a suitably qualified third party acceptable to DERM.

If at any time before the environmental authority for the Daunia Mine is surrendered, any of the offset area is to be cleared, or if BMA relinquishes management of the land or applies to surrender the environmental authority before the offset attains remnant status, BMA will use the services of an offset broker to establish an alternative offset of equal or greater size and quality and of the same regional ecosystems.

If an alternative cannot be found before the clearing takes place or within six (6) months of BMA ceasing to manage the land or the date of the surrender application, BMA will provide an equitable monetary contribution to Ecofund Queensland's environmental trust or equivalent offset broker that could be used to purchase land to be added to the protected estate and which will include any ongoing management costs until the environmental authority for the Daunia Mine is fully surrendered.

BMA will be required to make payment for any residual risk of rehabilitation of the offset area at the time of surrender. The amount of the monetary contribution, management costs and residual risk will be determined by the offset broker in consultation with the Department of Environment and Resource Management.

DERM will be responsible for this condition.

Condition 2

For the haul road crossing of New Chum Creek and any other crossings of defined waterways under the *Fisheries Act 1994*, the proponent will submit an application for approval of waterway barrier works to the Chief Executive of Queensland Primary Industries and Fisheries, in accordance with the requirements of section 76G of the *Fisheries Act 1994*.

DEEDI will be responsible for monitoring compliance with this condition.



Condition 3

The EM plan should contain management actions to mitigate any potential groundwater drawdown impacts on riparian vegetation along the Isaac River by including the following in the groundwater management program:

- nominates a relevant monitoring point for inclusion in Table 12, condition C48 of the draft environmental authority conditions in Appendix C of the Coordinator-General's report
- details trigger criteria for groundwater drawdown levels
- specifies corrective actions that will be applied to mitigate any potential groundwater drawdown impacts on riparian vegetation along the Isaac River.

DERM will be responsible for monitoring compliance of this condition.

Condition 4

Within three months of appointing a construction contractor for the project, and prior to the commencement of any significant construction works on the project, the proponent shall:

- a) complete a road impact assessment (RIA) that includes details of all project transport impacts on the safety and efficiency of state-controlled roads in accordance with *Guidelines for Assessment of Road Impacts of Development (2006)* in consultation with the Manager of DTMR Mackay/Whitsunday Regional Office; then submit the RIA to the Manager DTMR Mackay/Whitsunday Regional Office for review and approval
- b) prepare a road-use management plan (RMP) for all use of state-controlled and other roads for each phase of the project. The RMP will detail traffic volumes, proposed transport routes, required road infrastructure maintenance and/or upgrades to mitigate road impacts, any necessary conditions about access/connection to public roads, transport scheduling, dust control and road safety. DTMR must approve the plan prior to implementation.
- c) enter into a road infrastructure agreement with DTMR to formalise contributions towards any necessary road maintenance and upgrades identified in the finalised RMP to ameliorate any adverse impacts of the road use by the project on the assets of DTMR. This shall include the construction upgrade of the intersection of the Millennium and Poitrel Access Road with the Peak Downs Highway with lighting to DTMR standards to accommodate both construction and operational traffic generated by all mines using the intersection (Millennium, Poitrel and Daunia Mines) for a period of ten years from the final stage of opening of the Daunia Mine. The intersection must be upgraded before commencement of the construction of the Daunia Mine.
- d) access the Daunia mine via a single point of access from the Peak Downs Highway via the Millennium and Poitrel Access Road.

If an infrastructure agreement between the proponent and DTMR is not concluded within six months of the submission of the road use management plan, the parties shall refer the matter to the Coordinator-General.

DTMR is the agency responsible for monitoring compliance of this condition.

Condition 5

Within four months of appointing a construction contractor for the project, and prior to the commencement of any significant construction works on the project, the proponent shall prepare traffic management plans for review by DTMR, the Queensland Police Service, and Regional Councils, and take account of the reviews.



The proposed plan shall incorporate a provision that, prior to commencing any program of oversize transport movements associated with the construction of the Daunia Mine development, the proponent will consult with DTMR and the Queensland Police Service (through the officer in charge, Mackay Police District Traffic Branch) and all relevant local governments between Mackay and the Daunia project area.

The proponent shall implement the traffic management plan during construction and commissioning of the project and construction of the access road intersection.

DTMR is the agency responsible for monitoring compliance of this condition.

Condition 6

Within four months of appointing a construction contractor for the project, and at least 25 business days prior to the commencement of any disturbance for construction activities taking place, the proponent shall submit a non-Indigenous cultural heritage plan to DERM for review and comment. The plan shall include:

- records and maps detailing all features of potential non-Indigenous cultural heritage significance, an assessment of their significance, a description of possible impacts, and proposed processes for mitigation, management and protection of identified non-Indigenous cultural heritage in the project areas—including associated infrastructure developments during both the construction and operational phases of the project
- provisions for the management of the accidental discovery of non-Indigenous cultural heritage including human remains
- a clear recording process to be developed to assist initial management and reporting of accidental discoveries.

The plan shall be implemented as part of the environmental management plan⁴.

DERM is the responsible agency for compliance of this condition.

Condition 7

Prior to commencement of significant construction activities for the project, the proponent shall prepare disaster management plans for mine related responses to rain, flood, fire and cyclone events identified in State Planning Policy 1/03 for review by emergency response agencies including Queensland Police Service, Queensland Fire and Rescue Service, Queensland Ambulance Service, Emergency Management Queensland and the Isaac and Mackay Regional Councils, and take account of the reviews.

Department of Community Safety is the responsible agency for compliance of this condition.

⁴ As required under the *Environmental Protection Act 1994*



Appendix B – Recommendations of the Coordinator General

Recommendations

Terrestrial fauna – southern squatter pigeon habitat

I am satisfied that the proponent's commitment to rehabilitate land unaffected by the project's construction and operational phases in the vicinity of New Chum Creek would adequately compensate the loss of potential southern squatter pigeon's habitat as a result of the construction of the haul road. I recommend that this rehabilitation should be undertaken sustainably with Indigenous species appropriate to squatter pigeon habitat.

Aquatic Ecology

In order to ensure that effect is given to address all potential impacts associated with the removal of fish species from all drainage lines, I recommend that where drainage paths are not defined as watercourses under the *Water Act 2000*, the proponent should comply with DEEDIs *Fish Salvage Guidelines*, for the removal of fish species from drainage paths removed as a result of the Daunia Project.

Groundwater

I recommend the following points that should be taken into account in such consideration by the chief executive of an application under the *Water Act* for a water licence:

- mechanisms should be implemented under approvals, pursuant to the *Water Act* to ensure that development of the proposed Daunia Coal Mine does not result in an undue adverse impact on the availability and quality of groundwater supplies to neighbouring landholders
- BMA has committed to reaching mutually agreeable arrangements with landholders potentially affected by groundwater drawdown for the provision of alternative supplies throughout the mine life and after mine closure. The alternative supplies should be put in place before supplies from relevant existing landholder bores are adversely affected. The costs associated with changes to landholder extraction of groundwater from bores on affected land should be covered by the proponent
- prior to the surrender of mining leases post-mining, pursuant to the *MR Act* and *EP Act*, the conditions under which an alternative supply of groundwater would be provided to any landholders adversely affected by impacts to groundwater directly attributable to the mine dewatering program should be agreed to between the proponent (and its successors and assigns) and the relevant regulators.

Terrestrial flora – vegetation offsets

I accept BMAs commitment to provide a vegetation offset, as described in Appendix N of the SEIS, that would be protected under a nature refuge agreement (NRA), to offset the area lost from the two endangered regional ecosystems. The NRA is still under negotiation between DEWHA, DERM and BMA. The implementation of the controls that should be identified in the nature refuge agreement should mitigate the loss of regional ecosystem vegetation communities as a result of the project proceeding. Therefore, I recommend that BMA consult with DERM to approve this agreement.

Social impacts – Community Reference Group

It is recommended that the CRG, or some similar mechanism, remain in place for the duration of the project, to support on-going and active engagement with community members about the project including social infrastructure and the implementation of proposed mitigation strategies, particularly if impacts might be experienced on children and the elderly, the interaction of workforce and local residents, particularly women, clubs and recreational facilities, health services and schools. Membership of this group should include local councils. While initially the CRG would be established to support the Daunia Project, it would be logical to extend its coverage in the future to all BMA coal growth projects.



Social impacts - communication

It is also recommended that the establishment of a formal process of regular communication between the Community Partnerships Program (CPP) Coordinator, site-based community relations personnel and the community investment manager, be extended to include provision of advice to the implementation coordination group of the Whitsunday Hinterland & Mackay Regional Plan as work undertaken by BMA may contribute to the implementation of this strategic planning framework.

Social impact – review of Community Partnerships Program

It is recommended that the findings of the review of the CPP, by the Centre for Social Responsibility in Mining, continue to be implemented, particularly the development of a more regional approach to social investment. This approach will work towards mitigating cumulative and regional impacts on social infrastructure created by the BMA growth projects.

Social impact – road safety

I strongly recommend that BMA investigate the feasibility of providing further fatigue and road safety training or awareness programs by consulting with the QPS (through the Officer in Charge, Mackay Police District Traffic Branch).

I make the observation that the company could in the context of the Daunia Mine Project consider making a commitment to providing this resource to the Mackay Police District, also bearing in mind that additional police services for wide load escorts and road safety management will be required for development of other Bowen Basin Growth Projects of the company.



Appendix C – Draft environmental authority

Recommended conditions:

Departmental interest: general

Prevent and/or minimise likelihood of environmental harm

- A1** In carrying out the environmentally relevant activities, you must take all reasonable and practicable measures to prevent and/or to minimise the likelihood of environmental harm being caused. Any environmentally relevant activity, that, if carried out incompetently, or negligently, may cause environmental harm, in a manner that could have been prevented, shall be carried out in a proper manner in accordance with the conditions of this authority.
- A2** This environmental authority does not authorise environmental harm unless a condition contained within the authority explicitly authorises that harm. Where there is no condition or the authority is silent on a matter, the lack of a condition or silence shall not be construed as authorising harm.

Departmental interest: air

- B1** When requested by the administering authority or as a result of a complaint (which is neither frivolous nor vexatious nor based on mistaken belief in the opinion of the authorised officer), dust and particulate monitoring must be undertaken, and the results thereof notified to the administering authority within **fourteen (14) days** following completion of monitoring. Monitoring must be carried out at a place(s) relevant to the potentially affected dust sensitive place. Dust and particulate matter must not exceed the following levels when measured at any sensitive or commercial place:
- a) dust deposition of 120 milligrams per square metre per day, when monitored in accordance with *Australian Standard AS 3580.10.1 of 2003* (or more recent editions)
 - b) a concentration of particulate matter with an aerodynamic diameter of less than 10 micrometre (μm) (PM_{10}) suspended in the atmosphere of 50 micrograms per cubic metre over a 24 hour averaging time, at a sensitive or commercial place in proximity to the site, when monitored in accordance with:
 - i. Australian Standard AS 3580.9.6 of 2003 (or more recent editions) Ambient air – Particulate matter – Determination of suspended particulate PM_{10} high-volume sampler with size-selective inlet – Gravimetric method or
 - ii. any alternative method of monitoring PM_{10} which may be permitted by the *Air Quality Sampling Manual* as published from time to time by the administering authority.

Background dust and particulate matter monitoring

- B2** The holder of the environmental authority must develop and implement a background dust and particulate matter monitoring program. The program must be able to detect a significant change to dust levels to sensitive receptors due to activities that are part of this mining project.
- B3** The program must include, but not be limited to, the details as specified in Table 1 – Background dust and particulate matter monitoring.
- B4** The holder of the environmental authority must report the results and analysis of dust and particulate matter monitoring to the administering authority on request.



Table 1 (Background dust and particulate matter monitoring)

Air quality determination	Monitoring point location (GDA94)	Monitoring point description
A concentration of particulate matter with an aerodynamic diameter of less than 10 micrometre (μm) (PM_{10}) suspended in the atmosphere over a 24 hour averaging time	(To be provided by proponent)	Olive Downs residence
	(To be provided by proponent)	Winchester Downs residence

Odour nuisance

- B5** The release of noxious or offensive odour(s) or any other noxious or offensive airborne contaminant(s) resulting from the mining activity must not cause an environmental nuisance at any nuisance sensitive or commercial place.
- B6** When requested by the administering authority, odour monitoring must be undertaken within a reasonable and practicable timeframe nominated by the administering authority to investigate any complaint (which is neither frivolous nor vexatious nor based on mistaken belief in the opinion of the authorised officer) of environmental nuisance at any sensitive or commercial place, and the results must be notified within fourteen (14) days to the administering authority following completion of monitoring.
- B7** If the administering authority determines the odour released to constitute an environmental nuisance, then the environmental authority holder must:
- address the complaint including the use of appropriate dispute resolution if required
 - immediately implement odour abatement measures so that emissions of odour from the activity do not result in further environmental nuisance.

Department interest: water

Contaminant release

- C1** Contaminants that will or have the potential to cause environmental harm must not be released directly or indirectly to any waters except as permitted under the conditions of this environmental authority.
- C2** The release of contaminants to waters must only occur from the release points specified in Table 2 (Contaminant release points, sources and receiving waters) and depicted in Figure X [<Proponent to provide a plan or plans locating all monitoring \(water quality and flow\) and release points>](#) attached to this environmental authority.



Table 2 (Contaminant release points, sources and receiving waters)

Release point (RP)	Latitude (GDA94)	Longitude (GDA94)	Contaminant source and location	Monitoring point	Receiving waters description
RP 1	XXXX	XXXX	e.g. Stormwater dam spillway overflow	e.g. Dam spillway	XXXX Creek
RP 2	XXXX	XXXX	e.g. Dam overflow pipe	e.g. Sampling tap on pipe where the pipe enters XXXX Creek	XXXX Creek



- C3** The release of contaminants to waters must not exceed the release limits stated in Table 3 (Contaminant release limits) when measured at the monitoring points specified in Table 2 (Contaminant release points, sources and receiving waters) for each quality characteristic.

Table 3 (Contaminant release limits)

Quality characteristic	Release limits	Monitoring frequency
Electrical conductivity ($\mu\text{S}/\text{cm}$)	1000 (maximum)	Daily during release (the first sample must be taken within 2 hours of commencement of release)
pH (pH Unit)	6.5 (minimum) 9.0 (maximum)	Daily during release (the first sample must be taken within 2 hours of commencement of release)
Turbidity (NTU)	NA*	Daily during release* (first sample within 2 hours of commencement of release)
Suspended solids (mg/L)	Limit to be determined based on receiving water reference data and achievable best practice sedimentation control and treatment	Daily during release* (first sample within 2 hours of commencement of release)
Sulfate (SO_4^{2-}) (mg/L)	Limit to be determined. e.g. 250 (Maximum) for the protection of drinking water environmental value OR 1000 (Maximum) for the protection of irrigation environmental value	Daily during release* (first sample within 2 hours of commencement of release)

Note: NA – not available, * local trigger values need to be developed



- C4** The release of contaminants to waters from the release points must be monitored at the locations specified in Table 2 (Contaminant release points, sources and receiving waters) for each quality characteristics and at the frequency specified in Table 3 (Contaminant release limits) and Table 4 (Release contaminant trigger investigation levels).

Table 4 (Release contaminant trigger investigation levels)

Quality characteristic	Trigger levels (µg/L)	Monitoring frequency
Aluminium	100	Commencement of release and thereafter weekly during release
Arsenic	13	
Cadmium	0.2	
Chromium	1	
Copper	2	
Iron	300	
Lead	10	
Mercury	0.2	
Nickel	11	
Zinc	8	
Boron	370	
Cobalt	90	
Manganese	1900	
Molybdenum	34	
Selenium	10	
Silver	1	
Uranium	1	
Vanadium	10	
Ammonia	900	
Nitrate	1100	
Petroleum hydrocarbons (C6-C9)	20	
Petroleum hydrocarbons (C10-C36)	100	
Fluoride (total)	2000	

Note:

1. All metals and metalloids must be measured as total (unfiltered) and dissolved (filtered). Trigger levels for metal/metalloids apply if dissolved results exceed trigger.
2. The list of quality characteristics required to be monitored as per Table 3 (Contaminant release limits) will be reviewed once the results of the monitoring data is gathered for the interim period until 31 December 2011 or an earlier date if the data is, or becomes, available and if it is determined that there is no need to monitor for certain individual quality characteristics these can be removed from Table 3 (Contaminant release limits).



- C5** If quality characteristics of the release exceed any of the trigger levels specified in Table 4 (Release contaminant trigger investigation levels) during a release event, the environmental authority holder must compare the down stream results in the receiving waters to the trigger values specified in Table 4 (Release contaminant trigger investigation levels) and:
- a) where the trigger values are not exceeded then no action is to be taken, or
 - b) where the down stream results exceed the trigger values specified in Table 4 (Release contaminant trigger investigation levels) for any quality characteristic, compare the results of the down stream site to the data from background monitoring sites, and
 - c) if the result is less than the background monitoring site data, then no action is to be taken, or
 - d) if the result is greater than the background monitoring site data, complete an investigation in accordance with the ANZECC & ARMCANZ 2000 methodology, into the potential for environmental harm and provide a written report to the administering authority in the next annual return, outlining:
 - i. details of the investigations carried out
 - ii. actions taken to prevent environmental harm.

Note: Where an exceedence of a trigger level has occurred and is being investigated, in accordance with C5 (2)(b)(ii) of this condition, no further reporting is required for subsequent trigger events for that quality characteristic.

- C6** If an exceedence in accordance with condition C5 (2)(b)(ii) is identified, the holder of the authority must notify the administering authority within 14 days of receiving the result.

Contaminant release events

- C7** The holder must install, operate and maintain a stream flow gauging station to determine and record stream flows at the locations upstream of each release point as specified in Table 2 (Contaminant release points, sources and receiving waters) for any receiving water into which a release occurs.
- C8** Notwithstanding any other condition of this environmental authority, the release of contaminants to waters must only take place during periods of natural flow events specified as minimum flow in Table 5 (Contaminant release during flow events) for the contaminant release point(s) specified in Table 2 (Contaminant release points, sources and receiving waters).



Table 5 (Contaminant release during flow events)

Receiving water description	Release point	Gauging station description	Latitude (GDA94)	Longitude (GDA94)	Minimum flow in receiving water required for a release event	Flow recording frequency
XXX Creek	XXXX	Gauging station 1	XXXX	XXXX	Depending on individual catchment this minimum flow trigger will be either the release comprising less than 20% of the natural flow or any natural flow in the receiving environment. The volume of flow can be determined by height of water or flow. The actual flow must be a quantifiable measure. e.g. $\geq 5\text{m}^3/\text{sec}$	Continuous (minimum daily)

C9 The volume released through the release point(s) must not exceed XXm^3/s (minimum flow specified in Table 5 (Contaminant release during flow events) divided by 4).

C10 The daily quantity of contaminants released from each release point must be measured and recorded at the monitoring points in Table 2 (Contaminant release points, sources and receiving waters).

C11 Releases to waters must be undertaken so as not to cause erosion of the bed and banks of the receiving waters, or cause a material build up of sediment in such waters.

Notification of release event

C12 The authority holder must notify the administering authority as soon as practicable (no later than 6 hours of having commenced releasing mine affected water to the receiving environment). Notification must include the submission of written verification to the administering authority of the following information:

- release commencement date/time
- expected release cessation date/time
- release point/s
- release volume (estimated)
- receiving water/s including the natural flow rate
- any details (including available data) regarding likely impacts on the receiving water(s).

Note: Notification to the administering authority must be addressed to the Manager and Project Manager of the local Administering Authority via email or facsimile.

C13 The authority holder must notify the administering authority as soon as practicable, (nominally within twenty four (24) hours after cessation of a release) of the cessation of a release notified under Condition C12 and within 28 days provide the following information in writing:

- release cessation date and time
- natural flow volume in receiving water
- volume of water released



- d) details regarding the compliance of the release with the conditions of agency interest: Water of this environmental authority (i.e. contamination limits, natural flow, discharge volume)
- e) all in-situ water quality monitoring results
- f) any other matters pertinent to the water release event.

Notification of release event exceedance

- C14** If the release limits defined in Table 3 (Contaminant release limits) are exceeded, the holder of the environmental authority must notify the administering authority within twenty four (24) hours of receiving the results.
- C15** The authority holder must, within twenty eight (28) days of a release that exceeds the conditions of this authority, provide a report to the administering authority detailing:
- a) the reason for the release
 - b) the location of the release
 - c) all water quality monitoring results
 - d) any general observations
 - e) all calculations
 - f) any other matters pertinent to the water release event.

Monitoring of water storage quality

- C16** Water storages stated in Table 6 (Water storage monitoring) which are associated with the release points must be monitored for the water quality characteristics specified in Table 7 (Onsite water storage contaminant limits) at the monitoring locations and at the monitoring frequency specified in Table 6 (Water storage monitoring).

Table 6 (Water storage monitoring)

Water storage description	Latitude (GDA94)	Longitude (GDA94)	Monitoring location	Frequency of monitoring
XXXX	XXXX	XXXX	To be negotiated—will depend on the individual storage structure volume. This will deal with stratification—depth profiles and be appropriate to in situ quality characteristics.	Quarterly

- C17** In the event that waters storages defined in Table 6 exceed the contaminant limits defined in Table 7 (Onsite water storage contaminant limits), the holder of the environmental authority must implement measures, where practicable, to prevent access to waters by all livestock.



Table 7 (Onsite water storage contaminant limits)

Quality characteristic	Test value	Contaminant limit
pH (pH unit)	Range	Greater than 4, less than 9 ²
EC (µS/cm)	Maximum	5970 ¹
Sulfate (mg/L)	Maximum	1000 ¹
Fluoride (mg/L)	Maximum	2 ¹
Aluminium (mg/L)	Maximum	5 ¹
Arsenic (mg/L)	Maximum	0.5 ¹
Cadmium (mg/L)	Maximum	0.01 ¹
Cobalt (mg/L)	Maximum	1 ¹
Copper (mg/L)	Maximum	1 ¹
Lead (mg/L)	Maximum	0.1 ¹
Nickel (mg/L)	Maximum	1 ¹
Zinc (mg/L)	Maximum	20 ¹

Note: ¹ Contaminant limit based on ANZECC & ARMCANZ (2000) stock water quality guidelines.

² Page 4.2-15 of ANZECC & ARMCANZ (2000) 'Soil and animal health will not generally be affected by water with pH in the range of 4–9'.

Note: Total measurements (unfiltered) must be taken and analysed.

Receiving environment monitoring and contaminant trigger levels

C18 The quality of the receiving waters must be monitored at the locations specified in Table 9 (Receiving water upstream background sites and downstream monitoring points) for each quality characteristic and at the monitoring frequency stated in Table 8 (Receiving waters contaminant trigger levels).



Table 8 (Receiving waters contaminant trigger levels)

Quality characteristic	Trigger level	Monitoring frequency
pH	6.5–8.0	Daily during the release
Electrical conductivity ($\mu\text{S}/\text{cm}$)	1000	
Suspended solids (mg/L)	Trigger level to be determined. Turbidity may be required to assess ecosystems impacts and can provide instantaneous results.	
Sulfate (SO_4^{2-}) (mg/L)	Trigger level to be determined. 250 for the protection of drinking water environmental value or 1000 for the protection of irrigation environmental value	



Table 9 (Receiving water upstream background sites and downstream monitoring points)

Monitoring points	Receiving waters location description	Latitude or northing (GDA94)	Longitude or easting (GDA94)
Upstream background monitoring points			
Monitoring point XX	XXXX Creek XX metres upstream of RP XX	XXXX	XXXX
Monitoring point XX	XXXX Creek XX metres upstream of RP XX	XXXX	XXXX
Downstream monitoring points			
Monitoring point XX	XXXX Creek XX metres downstream of RP XX	XXXX	XXXX
Monitoring point XX	XXXX Creek XX metres downstream of RP XX	XXXX	XXXX

Notes:

- a) the upstream monitoring point should be within Xkm of the release point.
- b) the downstream point should not be greater than Xm from the release point.
- c) the data from background monitoring points must not be used where they are affected by releases from other mines.

- C19** If quality characteristics of the receiving water at the downstream monitoring points exceed any of the trigger levels specified in Table 8 during a release event the environmental authority holder must compare the down stream results to the upstream results in the receiving waters and:
- a) where the downstream result is the same or a lower value than the upstream value for the quality characteristic then no action is to be taken; or
 - b) where the down stream results exceed the upstream results complete an investigation in accordance with the ANZECC & ARMCANZ 2000 methodology, into the potential for environmental harm and provide a written report to the administering authority in the next annual return, outlining:
 - i. details of the investigations carried out
 - ii. actions taken to prevent environmental harm.

Note: Where an exceedence of a trigger level has occurred and is investigated, in accordance with C19 (ii) of this condition, no further reporting is required for subsequent trigger events for that quality characteristic.



Receiving environment monitoring program (REMP)

C20 A REMP must be developed and implemented within three months of the date of issue of this environmental authority to monitor and record the effects of the release of contaminants on the receiving environment periodically and whilst contaminants are being discharged from the site, with the aims of identifying and describing the extent of any adverse impacts to local environmental values, and monitoring any changes in the receiving water. A copy of the REMP must be provided to the administering authority prior to its implementation and due consideration given to any comments made on the REMP by the administering authority.

For the purposes of the REMP, the receiving environment is the waters of the XX and connected waterways within XX (e.g. Xkm) downstream of the release.

C21 The REMP must address (but not necessarily be limited to) the following:

- a) description of potentially affected receiving waters including key communities and background water quality characteristics based on accurate and reliable monitoring data that takes into consideration any temporal variation (e.g. seasonality)
- b) description of applicable environmental values and water quality objectives to be achieved (i.e. as scheduled pursuant to the *Environmental Protection (Water) Policy 1997*)
- c) any relevant reports prepared by other governmental or professional research organisations that relate to the receiving environment within which the REMP is proposed
- d) water quality targets within the receiving environment to be achieved, and clarification of contaminant concentrations or levels indicating adverse environmental impacts during the REMP
- e) monitoring for any potential adverse environmental impacts caused by the release
- f) monitoring of stream flow and hydrology
- g) monitoring of toxicants should consider the indicators specified in Table 4 to assess the extent of the compliance of concentrations with water quality objectives and/or the ANZECC & ARM CANZ 2000 guidelines for slightly to moderately disturbed ecosystems
- h) monitoring of physical chemical parameters as a minimum those specified in Table 3 (in addition to dissolved oxygen saturation and temperature)
- i) monitoring biological indicators (for macroinvertebrates in accordance with the AusRivas methodology) and metals/metalloids in sediments (in accordance with ANZECC & ARM CANZ 2000, BATLEY and/or the most recent version of AS5667.1 *Guidance on Sampling of Bottom Sediments*) for permanent, semi-permanent water holes and water storages
- j) the locations of monitoring points (including the locations specified in Table 9 which are background and downstream impacted sites for each release point)
- k) the frequency or scheduling of sampling and analysis sufficient to determine water quality objectives and to derive site specific reference values within two years (depending on wet season flows) in accordance with the *Queensland Water Quality Guidelines 2006*. For ephemeral streams, this should include periods of flow irrespective of mine or other discharges;
- l) specify sampling and analysis methods and quality assurance and control
- m) any historical datasets to be relied upon
- n) description of the statistical basis on which conclusions are drawn
- o) any spatial and temporal controls to exclude potential confounding factors.

C22 A report outlining the findings of the REMP, including all monitoring results and interpretations in accordance with conditions C20, must be prepared and submitted in writing to the administering authority by 1 October 2011. This should include an assessment of background water quality, any assimilative capacity for those contaminants monitored and the suitability of current discharge limits to protect downstream environment values.



Water reuse

- C23** Water contaminated by mining activity may be piped, trucked or transferred by some other means that does not contravene the conditions of this authority during periods of dry weather for the purpose of supplying stock water to properties directly adjoining properties owned by the environmental authority holder or a third party and subject to compliance with the quality release limits specified in Table 10 (Stock water release limits).

Table 10 (Stock water release limits)

Quality characteristic	Units	Minimum	Maximum
pH	pH units	6.5	8.5
Electrical conductivity	µS/cm	N/A	5000

- C24** Water contaminated by mining activity may be piped, trucked or transferred by some other means that does not contravene the conditions of this authority during periods of dry weather for the purpose of supplying irrigation water to properties directly adjoining properties owned by the environmental authority holder or a third party and subject to compliance with quality release limits in Table 11 (Irrigation water release limits).

Table 11 (Irrigation water release limits)

Quality characteristic	Units	Minimum	Maximum
pH	pH units	6.5	8.5
Electrical conductivity	µS/cm	N/A	Site specific value to be determined in accordance with ANZECC & ARMCANZ (2000) Irrigation Guidelines



- C25** Water contaminated by mining activity may be piped or trucked off the mining lease for the purpose of supplying water to a third party for purpose of construction and/or road maintenance in accordance with the conditions of this environmental authority.
- C26** Water contaminated by mining activity may be piped or trucked for the purpose of supplying water to <name adjoining mine> in accordance with the conditions of this environmental authority. The volume, pH and electrical conductivity of water transferred to <name adjoining mine> must be monitored and recorded.
- C27** If the responsibility of water contaminated by mining activities (the water) is given or transferred to another person in accordance with conditions C23, C24, C25 or C26:
- a) the responsibility of the water must only be given or transferred in accordance with a written agreement (the third party agreement); and
 - b) include in the third party agreement a commitment from the person utilising the water to use water in such a way as to prevent environmental harm or public health incidences and specifically make the persons aware of the General Environmental Duty (GED) under section 319 of the *Environmental Protection Act 1994*, environmental sustainability of the water disposal and protection of environmental values of waters.

Water general

- C28** All determinations of water quality must be:
- a) performed by a person or body possessing appropriate experience and qualifications to perform the required measurements
 - b) made in accordance with methods prescribed in the latest edition of the Department of Environment and Resource Management Water Quality Sampling Manual
 - c) collected from the monitoring locations identified within this environmental authority, within XX hour of each other where possible
 - d) carried out on representative samples
 - e) laboratory testing must be undertaken using a laboratory accredited (e.g. NATA) for the method of analysis being used.
- C29** The release of contaminants directly or indirectly to waters:
- a) must not produce any visible discolouration of receiving waters, nor
 - b) must not produce any slick or other visible or odorous evidence of oil, grease or petrochemicals nor contain visible floating oil, grease, scum, litter or other objectionable matter.



Annual water monitoring reporting

- C30** The following information must be recorded in relation to all water monitoring required under the conditions of this environmental authority and submitted to the administering authority in the specified format with each annual return:
- a) the date on which the sample was taken
 - b) the time at which the sample was taken
 - c) the monitoring point at which the sample was taken
 - d) the measured or estimated daily quantity of the contaminants released from all release points
 - e) the release flow rate at the time of sampling for each release point
 - f) the results of all monitoring and details of any exceedences with the conditions of this environmental authority
 - g) water quality monitoring data must be provided to the administering authority in the specified electronic format upon request.

Temporary interference with waterways

- C31** Temporarily destroying native vegetation, excavating, or placing fill in a watercourse, lake or spring necessary for and associated with mining operations must be undertaken in accordance with Department of Environment and Resource Management *Guideline – Activities in a Watercourse, Lake or Spring associated with Mining Activities*.

Water management plan

- C32** A water management plan must be developed and implemented within three months of the date of issue of this environmental authority that provides for the proper and effective management of the actual and potential environmental impacts resulting from the mining activity and to ensure compliance with the conditions of this environmental authority.
- C33** The water management plan must be developed in accordance with DERM *Guideline for Preparing a Water Management Plan 2009* or any updates that become available from time to time and must include at least the following components:
- a) contaminant source study
 - b) site water balance and model
 - c) water management system
 - d) saline drainage prevention and management measures
 - e) acid rock drainage prevention and management measures (if applicable)
 - f) emergency and contingency planning
 - g) monitoring and review.



C34 Each year the holder of the environmental authority must undertake a review of the water management plan prior to the wet season (i.e. by 1 November) and a further review following the wet season (i.e. by 1 May the following year) to ensure that proper and effective measures, practices or procedures are in place so that the mine is operated in accordance with the conditions of this environmental authority and that environmental harm is prevented or minimised.

C35 A copy of the water management plan and/or a review of the water management plan must be provided to the administering authority on request.

Saline drainage

C36 The holder of this environmental authority must ensure proper and effective measures are taken to avoid or otherwise minimise the generation and/or release of saline drainage.

Acid rock drainage

C37 The holder of this environmental authority must ensure proper and effective measures are taken to avoid or otherwise minimise the generation and/or release of acid rock drainage.

Stormwater and water sediment controls

C38 An erosion and sediment control plan must be developed and implemented for all stages of the mining activities on the site which has been certified by a certified professional in sediment and erosion control (CPESC), or a professional with appropriate experience and or qualifications accepted by the administering authority.

C39 Appropriate measures to achieve compliance with condition C38 for the mining activity must be described in the water management plan and include:

- a) diverting uncontaminated stormwater run-off around areas disturbed by mining activities or where contaminants or wastes are stored or handled that may contribute to stormwater
- b) contaminated stormwater run-off, incident rainfall and leachate is collected; and treated, reused, or released in accordance with the conditions of this environmental authority
- c) roofing or minimising the size of areas where contaminants or wastes are stored or handled
- d) using alternate materials and or processes (such as dry absorbents) to clean up spills that will minimise the generation of contaminated waters
- e) erosion and sediment control structures are placed to minimise erosion of disturbed areas and prevent the contamination of any waters
- f) an inspection and maintenance program for the erosion and sediment control features
- g) provision for adequate access to maintain all erosion and sediment control measures especially during the wet season months from December to March
- h) identification of remedial actions that would be required to ensure compliance with the conditions of this environmental authority.

C40 Erosion protection measures and sediment control measures must be implemented and maintained to minimise erosion and the release of sediment and contamination of storm water.

C41 The maintenance and cleaning of any vehicles, plant or equipment must not be carried out in areas from which contaminants can be released into any waters or a stormwater drainage system.

C42 Any spillage of wastes, contaminants or other materials must be cleaned up as quickly as practicable. Such spillages must be cleaned up using dry methods that minimise the release of wastes, contaminants or materials to any stormwater drainage system or waters.

Fitzroy River Basin Study

C43 The administering authority and the holder of this environmental authority both acknowledge that the conditions for release of contaminants to waters in the Fitzroy River Basin in this environmental authority have been calculated without the benefit of the findings of projects proposed to be undertaken as per recommendations 2 and 3 of the *Study of cumulative impacts on water quality of mining activities in the Fitzroy River Basin* (April 2009). The administering authority may, based on the information



provided in the study report when it becomes available, all relevant information available at the time and the regulatory framework applicable at that time, consult with the holder of this environmental authority about the conditions in the environmental authority concerning the treatment and disposal of waste water.

The aim of the consultation shall be the meaningful review of the contaminant release limits imposed in this authority having regard to:

- a) the study results
- b) near field monitoring results
- c) Queensland Water Quality Guidelines
- d) best practice environmental management.

If this review leads to a change in the requirements on this environmental authority holder, this shall be advanced by way of an authority amendment or a transitional environmental program and as is necessary or desirable.

Groundwater

- C44** The holder of the environmental authority must develop and implement a groundwater monitoring program. The program must be able to detect a significant change to ground water quality values (consistent with the current suitability of the groundwater for domestic and agricultural use) due to activities that are part of this mining project.

Background groundwater monitoring program

- C45** A background groundwater monitoring program must be developed to include bore(s) that are located an appropriate distance from potential sources of impact from mining activities to provide the following:
- a) representative groundwater samples from the aquifers potentially affected by mining activities
 - b) at least twelve (12) sampling events (monthly sampling) to determine background groundwater quality as far as practicable
 - c) background groundwater quality in hydraulically isolated background bore(s) that have not been affected by any mining activities
 - d) final groundwater contaminant trigger levels and limits required in condition C46.
- C46** Groundwater contaminant trigger levels as per Table 13 (Groundwater contaminant trigger levels) must be finalised based on a background groundwater monitoring program defined in condition C45 and submitted to the administering authority by **1 December 2011**.
- C47** The groundwater monitoring data must be reviewed on an annual basis by a suitably qualified and experienced hydrogeologist. The review must include the assessment of groundwater levels and quality data, and the suitability of the monitoring network. The assessment must be submitted to the administering authority within twenty eight (28) days of receiving the report.
- C48** Groundwater must be monitored in conjunction with condition C44 and at the locations and frequency defined in Table 12 (Groundwater monitoring locations and frequency).



Table 12 (Groundwater monitoring locations and frequency)

Monitoring point	Description	Latitude (GDA 94)	Longitude (GDA94)	Monitoring frequency
Monitoring point X				Monthly
Monitoring point X				
Monitoring point X				
Monitoring point X				
Monitoring point X				
Monitoring point X	(To be provided by proponent)			
Monitoring point X				
Monitoring point X				
Monitoring point X				
Monitoring point X				

- C49** The holder of the environmental authority must report the results and analysis of groundwater monitoring to the administering authority on request.
- C50** Subject to condition C45 groundwater levels must be monitored and groundwater draw down fluctuations in excess of two (2) metres per year, not resulting from the pumping of licensed bores, must be notified within **fourteen (14) days** to the administering authority following completion of monitoring.
- C51** The method of water sampling required by the environmental authority must comply with that set out in the current edition of the Department of Environment and Resource Management's Water Quality Sampling Manual, or subsequent updated versions. The following information must also be recorded in relation to all groundwater water sampling:
- the date on which the sample was taken
 - the time at which the sample was taken
 - the monitoring point at which the sample was taken
 - the results of all monitoring.
- C52** Subject to condition C45, if the groundwater contaminant trigger levels defined in Table 13 (Groundwater contaminant trigger levels) are exceeded then the environmental authority holder must complete an investigation into the potential for environmental harm and notify the administering authority within **twenty eight (28) days** of receiving the analysis results.



Table 13 (Groundwater contaminant trigger levels)

Parameter	Unit	Trigger levels	Limit type
pH	pH Units	6.5 - 8.5	Minimum/maximum
Electrical conductivity	µS/cm		Maximum
Total dissolved solids	mg/L		
Calcium	µg/L		
Magnesium	µg/L		
Sodium	µg/L		
Potassium	µg/L		
Chlorine	µg/L		
SO ₄	µg/L		
CO ₃	µg/L		
HCO ₃	µg/L	(To be referenced in accordance with condition C46)	
Iron	µg/L		
Aluminium	µg/L		
Silver	µg/L		
Arsenic	µg/L		
Mercury	µg/L		
Antimony	µg/L		
Molybdenum	µg/L		
Selenium	µg/L		
Total petroleum hydrocarbons	µg/L		

Departmental interest: noise and vibration

Noise nuisance

- D1** Noise from activities must not cause an environmental nuisance at any sensitive or commercial place.
- D2** All noise from activities must not exceed the levels specified in Table 14 (Noise limits) at any sensitive or commercial place.



Noise monitoring

- D3** When requested by the administering authority, noise monitoring must be undertaken to investigate any complaint (which is neither frivolous nor vexatious nor based on mistaken belief in the opinion of the authorised officer) of noise nuisance at any sensitive or commercial place, and the results notified within fourteen (14) days to the administering authority. Monitoring must include:
- $L_{Ar,1 \text{ hour}}$
 - the level and frequency of occurrence of impulsive or tonal noise
 - atmospheric conditions including wind speed and direction
 - effects due to extraneous factors such as traffic noise
 - location, date and time of recording.
- D4** Noise is not considered to be a nuisance under condition D1 if monitoring shows that noise does not exceed the following levels in the time periods specified in Table 14 (Noise limits).

Table 14 (Noise limits)

Noise level [dB(A)] measured as $L_{Ar,1 \text{ hour}}$	Monday to Saturday			Sundays and public holidays		
	7am–6pm	6pm–10pm	10pm–7am	9am–6pm	6pm–10pm	10pm–9am
	Noise measured at a 'sensitive place'					
Olive Downs Station	45	45	32	45	45	32
Daunia Station	53	45	35	53	45	35
Mavis Downs Station	42	45	33	42	45	33

Note: $L_{Ar,1 \text{ hour}}$ is the rating level, equal to $L_{Aeq,adj,1 \text{ hour}}$.

- D5** If monitoring indicates exceedence of the relevant limits in condition D4, then the environmental authority holder must:
- address the complaint including the use of appropriate dispute resolution if required
 - immediately implement noise abatement measures so that emissions of noise from the activity do not result in further environmental nuisance.
- D6** The method of measurement and reporting of noise monitoring must comply with the current edition of the Department of Environment and Resource Management's *Noise Measurement Manual* and any subsequent versions.

Vibration nuisance

- D7** Vibration from blasting operations on the premises must not exceed the limits defined in Table 15 (Vibration limits) and must not cause an environmental nuisance at any sensitive or commercial place.
- D8** When requested by the administering authority, vibration monitoring must be undertaken within a reasonable and practicable timeframe nominated by the administering authority to investigate any complaint (which is neither frivolous nor vexatious nor based on mistaken belief in the opinion of the authorised officer) of environmental nuisance at any sensitive or commercial place, and the results must be notified within fourteen (14) days to the administering authority following completion of monitoring.
- D9** Vibration monitoring must include the following descriptors, characteristics and conditions:
- location of the blast(s) within the mining area (including which bench level)
 - atmospheric conditions including temperature, relative humidity and wind speed and direction
 - location, date and time of recording.



- D10** If monitoring indicates exceedence of the relevant limits in Table 15 (Vibration limits), then the environmental authority holder must:
- address the complaint including the use of appropriate dispute resolution if required
 - immediately implement vibration abatement measures so that vibration from the activity does not result in further environmental nuisance.

Table 15 (Vibration limits)

Location	Vibration measured
Sensitive or commercial place	5mm/s peak particle velocity for nine (9) out of ten (10) consecutive blasts and not greater than 10mm/s peak particle velocity at any time.

- D11** The method of measurement and reporting of vibration levels must comply with the current edition of the Department of Environment and Resource Management's *Noise Measurement Manual* and any subsequent versions.

Airblast overpressure nuisance

- D12** The airblast overpressure level from blasting operations on the premises must not exceed the limits defined in Table 16 (Airblast overpressure level) at any sensitive or commercial place.

Table 16 (Airblast overpressure level)

Location	Airblast overpressure measured
Sensitive or commercial place	Airblast overpressure level of 115 dB (linear peak) for nine (9) out of ten (10) consecutive blasts initiated and not greater than 120 dB (linear peak) at any time.

- D13** When requested by the administering authority, airblast overpressure monitoring must be undertaken within a reasonable and practicable timeframe nominated by the administering authority to investigate any complaint (which is neither frivolous nor vexatious nor based on mistaken belief in the opinion of the authorised officer) of environmental nuisance at any sensitive or commercial place, and the results must be notified within fourteen (14) days to the administering authority following completion of monitoring.
- D14** Airblast overpressure monitoring must include the following descriptors, characteristics and conditions:
- location of the blast(s) within the mining area (including which bench level)
 - atmospheric conditions including temperature, relative humidity and wind speed and direction
 - location, date and time of recording.
- D15** If monitoring indicates exceedence of the relevant limits in Table 16 (Airblast overpressure level), then the environmental authority holder must:
- address the complaint including the use of appropriate dispute resolution if required
 - immediately implement airblast overpressure abatement measures so that airblast overpressure from the activity does not result in further environmental nuisance.
- D16** The method of measurement and reporting of airblast overpressure levels must comply with the current edition of the Department of Environment and Resource Management's *Noise Measurement Manual* and any subsequent versions.



Departmental interest: waste

- E1** Disposing of scrap tyres resulting from the authorised activities in spoil emplacements is acceptable provided tyres are placed as deep in the spoil as reasonably practicable. A record must be kept of the number and location for tyres disposed.

Waste management

- E2** A waste management plan, in accordance with the *Environmental Protection (Waste Management) Policy 2000*, must be implemented and must cover:
- a) how the environmental authority holder will recognise and apply the waste management hierarchy
 - b) identify characterisations of wastes generated from the project and general volume trends over the past 5 years
 - d) waste commitments with auditable targets to reduce, reuse and recycle
 - e) waste management control strategies including:
 - i. the type of wastes
 - ii. segregation of the wastes
 - iii. storage of the wastes
 - iv. transport of the wastes
 - v. monitoring and reporting matters concerning the waste
 - vi. emergency response planning
 - vii. disposal, reuse and recycling options
 - f) identify the potential adverse and beneficial impacts of the wastes generated
 - g) hazardous characteristics of the wastes generated including:
 - i. disposal procedures for hazardous wastes
 - ii. processes to be implemented to allow for continuous improvement of the waste management systems
 - iii. identification of responsible staff (positions) for implementing, managing and reporting on the waste management plan
 - iv. staff awareness and induction programs that encourage re-use and recycling.

- E3** Records of trade and regulated wastes or material leaving the mining lease for recycling or disposal, including the final destination and method of treatment, must be in accordance with the *Environmental Protection (Waste Management) Policy 2000*.

Coal handling and preparation plant waste

- E4** Waste from the coal handling and preparation plant must be disposed of in:
- a) regulated dams in accordance with conditions G1 to G18 of this environmental authority if the residual shear strength of the waste is less than 1000 pascals prior to disposal; or
 - b) the authorised spoil disposal areas in accordance with conditions E5 to E10 if the residual shear strength of the waste is equal or more than 1000 pascals prior to disposal.

Spoil disposal facility – certification and operation

- E5** Authorised spoil disposal facilities, used for the disposal of waste are located within the control points defined in Table 17 (Location of spoil disposal facility).



Table 17 (Location of spoil disposal facility)

Name of spoil disposal facility	Control points	
	Latitude (GDA 94)	Longitude (GDA 94)
North spoil area	(A list of control points to be provided by the proponent)	(A list of control points to be provided by the proponent)

- E6** Spoil disposal facility(s) shall be designed to prevent environmental harm arising from contaminants being generated in the facility, leachate and run-off from the facility or other sources.
- E7** Authorised spoil disposal facility(s) must be constructed and maintained in accordance with certified design plans submitted to the administering authority.
- E8** Design plans for the authorised spoil disposal facility(s) must include performance indicators, such that:
- a) during operations the spoil disposal facility(s) will be operated with minimal or no potential for adverse environmental harm resulting from collapse of any component of facility;
 - b) the potential for leachate generation will be minimal or non existent; and
 - c) adequate drainage structures, erosion protection and storage are provided to manage seasonal and rare rainfall events with minimal or no environmental harm.
- E9** Construction of any spoil disposal facility detailed in Table 17 (Location of spoil disposal facilities) must not commence unless:
- (a) the environmental authority holder has submitted to the administering authority two copies of a design plan; and
 - (b) certification from a suitably qualified and experienced person that the design of the spoil disposal facility(s) will deliver the performance stated in that design plan and that it will be compliant in all other respects with this environmental authority, and
 - (c) at least 20 business days has passed since the receipt of those documents by the administering authority; or
 - (d) the administering authority notifies the environmental authority holder that a design plan and certification, has been submitted for that disposal facility.

Operational plan – spoil disposal facility

- E10** An operational plan must be developed and maintained for the spoil disposal facility. The operational plan must include but not be limited to:
- a) description of landform development stages of the spoil disposal facility;
 - b) placement technique for spoil and waste material from the coal handling and preparation plant on the Daunia Mine site;
 - c) management of any containment structures within the spoil disposal facility designed to contain materials from the coal handling and preparation plant on the Daunia Mine site;
 - d) demonstration of how operations of the spoil disposal facility are consistent with the accepted design plan for the facility; and
 - e) decommissioning and rehabilitation strategies for the spoil disposal facility that demonstrate consistency with conditions of this environmental authority.



Departmental interest: land

Preventing contaminant release to land

- F1** Contaminants must not be released to land in a manner which constitutes nuisance, material or serious environmental harm.

Topsoil

- F2** Topsoil must be strategically stripped ahead of mining in accordance with a topsoil management plan.

- F3** A topsoil inventory which identifies the topsoil requirements for the mining project and availability of suitable topsoil on site must be detailed in the plan of operations.

Rehabilitation landform criteria

- F4** Progressive rehabilitation must commence within two (2) years when areas become available within the operational land.

Residual void outcome

- F5** Complete an investigation into residual voids and submit a report to the administering authority proposing acceptance criteria to meet the outcomes in F4 and landform design criteria for departmental review and comment. On acceptance of the criteria proposed in the residual void management plan, the criteria must be specified in the environmental authority.

The investigation must at a minimum include the following:

- a) a study of options available for minimising final void area and volume;
- b) develop design criteria for rehabilitation of final voids;
- c) a void hydrology study, addressing the long-term water balance in the voids, connections to groundwater resources and water quality parameters in the long term;
- d) a pit wall stability study, considering the effects of long-term erosion and weathering of the pit wall and the effects of significant hydrological events;
- e) a study of void capability to support native flora and fauna; and
- f) a proposal/s for end of mine void rehabilitation success criteria and final void areas and volumes.

These studies will be undertaken during the life of the mine, and will include detailed research and modelling.

Rehabilitation monitoring program

- F6** Once rehabilitation has commenced, the holder of the environmental authority must conduct a rehabilitation monitoring program on a yearly basis, which must include sufficient spatial and temporal replication to enable statistically valid conclusions as established under the rehabilitation program.

- F7** The rehabilitation monitoring program must be developed and implemented by a person possessing appropriate qualifications and experience in the field of rehabilitation management, nominated by the environmental authority holder.

- F8** The rehabilitation monitoring program must be included in the plan of operations and updated with each subsequent plan of operations, describing:

- a) how the rehabilitation objectives will be achieved, and
- b) verification of rehabilitation success.

Post closure management plan

- F9** A post closure management plan for the site must be prepared at least 18 months prior to the final coal processing on site and implemented for a nominal period of:

- a) at least thirty (30) years following final coal processing on site, or



- b) a shorter period if the site is proven to be stable and it can be demonstrated to the satisfaction of the administering authority that the probability that environmental harm will occur within the foreseeable future is less than 1 per cent.

F10 The post closure management plan must include the following elements:

- a) operation and maintenance of:
 - i. wastewater collection and reticulation systems
 - ii. wastewater treatment systems
 - iii. the groundwater monitoring network
 - iv. final cover systems
 - v. vegetative cover
- b) monitoring of:
 - i. surface water quality
 - ii. groundwater quality
 - iii. seepage rates
 - iv. erosion rates
 - v. the integrity and effectiveness of final cover systems
 - vi. the health and resilience of native vegetation cover.

Mining waste management

F11 A mining waste management plan together with the certification by an appropriately qualified person must be developed and implemented during the continuation of the environmental authority. The mining waste management plan must at a minimum include:

- a) characterisation programs to ensure that all mining waste is progressively characterised during disposal for net acid producing potential, salinity and the following contaminants: pH, electrical conductivity (EC), acid neutralising capacity (ANC), net acid generation (NAG) (reporting NAG capacity and NAG pH after oxidation), net acid producing potential (NAPP), total sulfur (S), chromium reducible sulfur (Scr), boron (B) cadmium (Cd), iron (Fe), aluminium (Al), copper (Cu), magnesium (Mg), manganese (Mn), calcium (Ca), sodium (Na), zinc (Zn) and sulfate (SO₄).
- b) characterisation programs to ensure that the physical properties of the mining waste is progressively characterised during disposal
- c) the availability or leachability of metals from the mining waste
- d) quantity of PAF mining waste
- e) review potential impacts of PAF mining waste on the success of proposed rehabilitation methods
- f) management actions for mining waste that has been identified as having a high availability or leachability of metals in accordance with condition F12
- g) management actions for mining waste that has been defined as PAF
- h) identification of environmental impacts and potential environmental impacts
- i) control measures for routine operations to minimise likelihood of environmental harm
- j) contingency plans and emergency procedures for non-routine situations
- k) periodic review of environmental performance and continual improvement.

Acid mine drainage and leachate management



- F12** Subject to the release limits defined in C1 to C52, all reasonable and practicable measures must be implemented to prevent hazardous leachate being directly or indirectly released or likely to be released as a result of the activity to the environment.

Storage and handling of flammable and combustible liquids

- F13** All flammable and combustible liquids must be contained within an on-site containment system and controlled in a manner that prevents environmental harm and maintained in accordance with the current version of AS 1940 – Storage and Handling of Flammable and Combustible Liquids.
- F14** Spillage of all flammable and combustible liquids must be controlled in a manner that prevents environmental harm.

Storage and handling of chemicals

- F15** All chemicals must be contained within an on-site containment system and controlled in a manner that prevents environmental harm and maintained in accordance with the current version of the relevant Australian standard.
- F16** Spillage of all chemicals must be controlled in a manner that prevents environmental harm.

Department interest: dams

All dams

- G1** The hazard category of each dam must be determined by a suitably qualified and experienced person, prior to its construction and at least once each year thereafter.
- G2** The holder of this environmental authority must not commence construction of any dam determined to be in the significant or high hazard category, for example, a regulated dam unless the location, basic details, and hydraulic performance of that dam are specifically referenced in Table 18 (Location of regulated dams), Table 19 (Basic details of regulated dams) and Table 20 (Hydraulic performance of regulated dams) of this environmental authority.
- G3** The holder of this environmental authority must not abandon any dam but must decommission each dam so as to avoid any environmental harm.
- G4** As a minimum, decommissioning must be conducted such that each dam:
either:
- i. must be a stable landform, that no longer contains flowable substances, or
 - ii. is approved or authorised under relevant legislation for a beneficial use, or
 - iii. is a void authorised by the administering authority to remain after decommissioning, and
 - iv. is compliant with the rehabilitation requirements of this environmental authority.



Regulated dams – location

G5 The following regulated dams must be located within the control points defined in Table 18 (Location of regulated dams).

Table 18 (Location of regulated dams)

Name of regulated dam	Control points	
	Latitude (GDA 94)	Longitude (GDA 94)
Daunia sediment dam 1		
Daunia sediment dam 2		
Daunia sediment dam 3	(To be referenced in accordance with condition G2)	
Daunia sediment dam 4		
Daunia sediment dam 5		
Daunia sediment dam 6		



- G6** The regulated dams listed in the first column of Table 19 (Basic details of regulated dams) must conform to the criteria in their respective rows of Table 19 (Basic details of regulated dams).

Table 19 (Basic details of regulated dams)

Name of regulated dam	Hazard category	Maximum surface area of dam (ha)	Maximum volume of dam (m ³)	Maximum depth of dam (m)	Use of dam
Daunia sediment dam 1			44 000		Environmental dam for industrial area
Daunia sediment dam 2			63 000		Environmental dam for industrial area
Daunia sediment dam 3	(To be referenced in accordance with condition G2)		200 000		Environmental dam for disturbed areas and pits
Daunia sediment dam 4			1 500 000		Environmental dam for disturbed areas and pits
Daunia sediment dam 5			150 000		Environmental dam for disturbed areas and pits
Daunia sediment dam 6			800 000		Environmental dam for disturbed areas and pits



- G7** The following regulated dams must meet the hydraulic performance criteria specified in Table 20 (Hydraulic performance of regulated dams).

Table 20 (Hydraulic performance of regulated dams)

Name of regulated dam	Spillway capacity or diversion capacity (levees) AEP	Design storage allowance (dams other than levees) AEP	Mandatory reporting level (Dams other than levees) AEP
Daunia sediment dam 1			
Daunia sediment dam 2			
Daunia sediment dam 3	(To be referenced in accordance with condition G2)		
Daunia sediment dam 4			
Daunia sediment dam 5			
Daunia sediment dam 6			

Regulated dams – certification and operation

- G8** The holder of this environmental authority must not commence construction of a regulated dam unless:
- (a) the holder has submitted to the administering authority two copies of a design plan, together with the certification of a suitably qualified and experienced person that the design of the regulated dam will deliver the performance stated in the design plan and that it will be compliant in all other respects with this environmental authority, and
 - (b) at least 20 business days has passed since the receipt of those documents, or the administering authority notifies the holder that a design plan and certification, has been received.
- G9** When construction of any regulated dam is complete, the holder of this environmental authority must submit to the administering authority two copies of a set of 'as constructed' drawings, together with the certification of a suitably qualified and experienced person that the dam 'as constructed' will deliver the performance stated in the design plan and it is compliant in all respects with this environmental authority.
- G10** An operational plan must be kept current for each regulated dam.
- G11** Where an operational plan covers decommissioning and rehabilitation, those operations are to be consistent with the design plan for the dam and the rehabilitation requirements of this environmental authority.
- G12** The holder of this environmental authority must notify the administering authority immediately the level in any regulated dam reaches the mandatory reporting level (MRL), and immediately act to prevent or minimize any actual or potential environmental harm.



Regulated dams – annual inspection and report

- G13** Each regulated dam must be inspected annually by a suitably qualified and experienced person.
- G14** At each annual inspection, the condition and adequacy of each regulated dam must be assessed for dam safety and against the necessary structural, geotechnical and hydraulic performance criteria.
- G15** At each annual inspection, if a mandatory reporting level is required, it must be determined and marked on each regulated dam.
- G16** A final assessment of adequacy of available storage in each regulated dam must be based on a dam level observed within the month of October and result in an estimate of the level in that dam as at 1 November.
- G17** For each annual inspection two copies of a report on the condition and adequacy of each regulated dam, certified by the suitably qualified and experienced person and including any recommended actions to be taken to ensure the integrity of each regulated dam, must be provided to the administering authority by 1 December.
- G18** The holder of this environmental authority must, upon receipt of the annual inspection report, consider the report and its recommendations, and take action to ensure that each regulated dam safely performs its intended functions.

Department interest: community

Complaint response

- H1** All complaints received must be recorded including investigations undertaken, conclusions formed and action taken. This information must be made available to the administering authority on request.
- H2** The holder of this environmental authority must record the following details for all complaints received and provide this information to the administering authority on request:
 - a) time, date, name and contact details of the complainant
 - b) reasons for the complaint
 - c) conclusions formed
 - d) any actions taken.
- H3** In consultation with the administering authority, cooperate with and participate in any community environmental liaison committee established in respect of either the licensed place specifically or the industrial estate where the licensed place is located.

End of conditions.



Definitions

Words and phrases used throughout this environmental authority are defined below except where identified in the Environmental Protection Act 1994 or subordinate legislation. Where a word or term is not defined, the ordinary English meaning applies, and regard should be given to the Macquarie Dictionary.

'20th percentile flow' means the 20th percentile of all daily flow measurements (or estimations) of daily flow over a 10 year period for a particular site. The 20th percentile calculation should only include days where flow has been measured (or estimated), for example, not dry weather days.

'accepted engineering standards' in relation to dams means those standards of design, construction, operation and maintenance that are broadly accepted within the profession of engineering as being good practice for the purpose and application being considered. In the case of dams, the most relevant documents would be publications of the Australian National Committee on Large Dams (ANCOLD), guidelines published by Queensland Government departments, and relevant Australian and New Zealand standards.

'acceptance criteria' means the measures by which the actions implemented to rehabilitate the land are deemed to be complete. The acceptance criteria indicate the success of the rehabilitation outcome or remediation of areas which have been significantly disturbed by the mining activities. Acceptance criteria may include information regarding:

- a) vegetation establishment, survival and succession
- b) vegetation productivity, sustained growth and structure development
- c) fauna colonisation and habitat development
- d) ecosystem processes such as soil development and nutrient cycling, and the recolonisation of specific fauna groups such as collembola, mites and termites which are involved in these processes
- e) microbiological studies including recolonisation by mycorrhizal fungi, microbial biomass and respiration
- f) effects of various establishment treatments such as deep ripping, topsoil handling, seeding and fertiliser application on vegetation growth and development
- g) resilience of vegetation to disease, insect attack, drought and fire
- h) vegetation water use and effects on ground water levels and catchment yields.

'acid mine drainage (AMD)' means any contaminated discharge emanating from a mining operation formed through a series of chemical and biological reaction, when geological strata is disturbed and exposed to oxygen and moisture as a result of mining operations.

'administering authority' means the Department of Environment and Resource Management or its successor.

'AEP' means the annual exceedence probability, which is the probability that at least one event in excess of a particular magnitude will occur in any given year.

'airblast overpressure' means energy transmitted from the blast site within the atmosphere in the form of pressure waves. The maximum excess pressure in this wave, above ambient pressure is the peak airblast overpressure measured in decibels linear (dBL).

'ambient (or total) noise' at a place means the level of noise at the place from all sources (near and far), measured as the Leq for an appropriate time interval.

'ANZECC' means the Australian and New Zealand Guidelines for Fresh Marine Water Quality 2000.

'appropriately qualified person' means a person who has professional qualifications, training, skills or experience relevant to the nominated subject matter and can give authoritative assessment, advice and analysis on performance relative to the subject matter using the relevant protocols, standards, methods or literature.

'assessed' or 'assess' by a suitably qualified and experienced person in relation to a hazard assessment of a dam, means that a statutory declaration has been made by that person and, when



taken together with any attached or appended documents referenced in that declaration, all of the following aspects are addressed and are sufficient to allow an independent audit at any time:

- a) exactly what has been assessed and the precise nature of that assessment
- b) the relevant legislative, regulatory and technical criteria on which the assessment has been based
- c) the relevant data and facts on which the assessment has been based, the source of that material, and the efforts made to obtain all relevant data and facts
- d) the reasoning on which the assessment has been based using the relevant data and facts, and the relevant criteria.

‘associated works’ in relation to a dam means:

- a) operations of any kind and all things constructed, erected or installed for that dam, and
- b) any land used for those operations.

‘authority’ means environmental authority (mining activities) under the *Environmental Protection Act 1994*.

‘bed and banks’ for a waters, river, creek, stream, lake, lagoon, pond, swamp, wetland or dam means land over which the water of the waters, lake, lagoon, pond, swamp, wetland or dam normally flows or that is normally covered by the water, whether permanently or intermittently; but does not include land adjoining or adjacent to the bed and banks that is from time to time covered by floodwater.

‘beneficial use’ in respect of dams means that the current or proposed owner of the land on which a dam stands, has found a use for that dam that is:

- a) of benefit to that owner in that it adds real value to their business or to the general community
- b) in accordance with relevant provisions of the *Environmental Protection Act 1994*
- c) sustainable by virtue of written undertakings given by that owner to maintain that dam
- d) the transfer and use have been approved or authorised under any relevant legislation.

‘biosolids’ means the treated and stabilised solids from sewage.

‘blasting’ means the use of explosive materials to fracture:

- a) rock, coal and other minerals for later recovery, or
- b) structural components or other items to facilitate removal from a site or for reuse.

‘bunded’ means within bunding consistent with Australian Standard 1940.

‘certification’ or **‘certified’** by a suitably qualified and experienced person in relation to a design plan or an annual report regarding dams, means that a statutory declaration has been made by that person and, when taken together with any attached or appended documents referenced in that declaration, all of the following aspects are addressed and are sufficient to allow an independent audit at any time:

- a) exactly what is being certified and the precise nature of that certification
- b) the relevant legislative, regulatory and technical criteria on which the certification has been based
- c) the relevant data and facts on which the certification has been based, the source of that material, and the efforts made to obtain all relevant data and facts
- d) the reasoning on which the certification has been based using the relevant data and facts, and the relevant criteria.

‘chemical’ means:



- a) an agricultural chemical product or veterinary chemical product within the meaning of the *Agricultural and Veterinary Chemicals Code Act 1994* (Commonwealth), or
- b) a dangerous good under the dangerous goods code, or
- c) a lead hazardous substance within the meaning of the Workplace Health and Safety Regulation 1997, or
- d) a drug or poison in the Standard for the Uniform Scheduling of Drugs and Poisons prepared by the Australian Health Ministers' Advisory Council and published by the Commonwealth, or
- e) any substance used as, or intended for use as:
 - i. a pesticide, insecticide, fungicide, herbicide, rodenticide, nematocide, miticide, fumigant or related product, or
 - ii. a surface active agent, including, for example, soap or related detergent, or
 - iii. a paint solvent, pigment, dye, printing ink, industrial polish, adhesive, sealant, food additive, bleach, sanitiser, disinfectant, or biocide, or
 - iv. a fertiliser for agricultural, horticultural or garden use, or
- f) a substance used for, or intended for use for:
 - i. mineral processing or treatment of metal, pulp and paper, textile, timber, water or wastewater, or
 - ii. manufacture of plastic or synthetic rubber.

'commercial place' means a work place used as an office or for business or commercial purposes, which is not part of the mining activity and does not include employees accommodation or public roads.

'competent person' means a person with the demonstrated skill and knowledge required to carry out the task to a standard necessary for the reliance upon collected data or protection of the environment.

'construction' includes building a new dam and modifying or lifting an existing dam.

'contaminate' means to render impure by contact or mixture.

'contaminated' means the substance has come into contact with a contaminant.

'contaminant' can be:

- a) a gas, liquid or solid
- b) an odour
- c) an organism (whether alive or dead), including a virus
- d) energy, including noise, heat, radioactivity and electromagnetic radiation, or
- e) a combination of contaminants.

'control measure' means any action or activity that can be used to prevent or eliminate a hazard or reduce it to an acceptable level.

'cover material' means any soil or rock suitable as a germination medium or landform armouring.

'dam' means a land-based structure or a void that is designed to contain, divert or control flowable substances, and includes any substances that are thereby contained, diverted or controlled by that land-based structure or void and associated works. However, a dam does not mean a fabricated or manufactured tank or container designed to a recognised standard, nor does a dam mean a land-based structure where that structure is designed to an Australian standard. In case there is any doubt, a levee (dyke or bund) is a dam, but (for example) a bund designed for spill containment to AS1940 is not a dam.

'design plan' is the documentation required to describe the physical dimensions of the dam, the materials and standards to be used for construction of the dam, and the criteria to be used for



operating the dam. The documents must include design and investigation reports, specifications and certifications, together with the planned decommissioning and rehabilitation works and outcomes. A design plan may include 'as constructed' drawings.

'design storage allowance (DSA)' means the minimum storage required in a dam at the first of November each year in order to meet the hydraulic performance requirements.

'development approval' means a development approval under the *Integrated Planning Act 1997* in relation to a matter that involves an environmentally relevant activity under the *Environmental Protection Act 1994*.

'domestic waste' means waste, other than domestic clean-up waste, green waste, recyclable waste, interceptor waste or waste discharged to a sewer, produced as a result of the ordinary use or occupation of domestic premises.

'dwelling' means any of the following structures or vehicles that is principally used as a residence:

- a) a house, unit, motel, nursing home or other building or part of a building, or
- b) a caravan, mobile home or other vehicle or structure on land, or
- c) a water craft in a marina.

'effluent' treated waste water discharged from sewage treatment plants.

'end-of-pipe' means the location at which water is released to waters or land.

'environmental authority' means an environmental authority under Chapter 5 of the *Environmental Protection Act 1994*.

'environmental authority holder' means the holder of this environmental authority.

'environmentally relevant activity' means an environmentally relevant activity as defined under section 18 of the *Environmental Protection Act 1994* and listed under Schedule 1 of the *Environmental Protection Regulation 1998*.

'financial assurance' means a security required under the *Environmental Protection Act 1994* by the administering authority to cover the cost of rehabilitation or remediation of disturbed land or to secure compliance with the environmental authority.

'floodwater' means water overflowing, or that has overflowed, from waters, river, creek, stream, lake, pond, wetland or dam onto or over riparian land that is not submerged when the watercourse or lake flows between or is contained within its bed and banks.

'flowable substance' means matter or a mixture of materials which can flow under any conditions potentially affecting that substance. Constituents of a flowable substance can include water, other liquids fluids or solids, or a mixture that includes water and any other liquids fluids or solids either in solution or suspension.

'foreseeable future' is the period used for assessing the total probability of an event occurring. Permanent structures and ecological sustainability should be expected to still exist at the end of a 150 year foreseeable future with an acceptable probability of failure before that time.

'general waste' means waste other than regulated waste.

'hazard' in relation to a dam as defined, means the potential for environmental harm resulting from the collapse or failure of the dam to perform its primary purpose of containing, diverting or controlling flowable substances.

'hazard category' means a category, either of low significance or high, into which a dam is assessed as a result of the application of tables and other criteria in the Site Water Management Technical Guideline for Environmental Management of Exploration and Mining in Queensland (DME 1995).

'hazardous waste' means a substance, whether liquid, solid or gaseous that, if improperly treated, stored, disposed of or otherwise managed, is likely to cause environmental harm.

'hydraulic performance' means the capacity of a regulated dam to contain or safely pass flowable substances based on a probability (AEP) of performance failure specified for the relevant hazard



category in the Site Water Management Technical Guideline for Environmental Management of Exploration and Mining in Queensland (DME 1995).

'infrastructure' means water storage dams, roads and tracks, buildings and other structures built for the purpose of mining activities but does not include other facilities required for the long-term management of mining impacts or the protection of potential resources. Such other facilities include dams, waste rock dumps, voids, or ore stockpiles and buildings as well as other structures whose ownership can be transferred and which have a residual beneficial use for the next owner of the operational land or the background land owner.

'LA 10, adj, 10 mins' means the A-weighted sound pressure level, (adjusted for tonal character and impulsiveness of the sound) exceeded for 10 per cent of any 10 minute measurement period, using fast response.

'LA 1, adj, 10 mins' means the A-weighted sound pressure level, (adjusted for tonal character and impulsiveness of the sound) exceeded for 1 per cent of any 10 minute measurement period, using fast response.

'LA, max adj, T' means the average maximum A-weighted sound pressure level, adjusted for noise character and measured over any 10 minute period, using fast response.

'LAr,1 hour' means the rating level, equal to LAeq,adj, 1 hour.

'lake' includes:

- a) lagoon, swamp or other natural collection of water, whether permanent or intermittent
- b) the bed and banks and any other element confining or containing the water.

'land' in the **'land schedule'** of this document means land excluding waters and the atmosphere.

'land capability' as defined in the DME 1995 Technical Guidelines for the Environmental Management of Exploration and Mining in Queensland.

'land suitability' as defined in the DME 1995 Technical Guidelines for the Environmental Management of Exploration and Mining in Queensland.

'land use' term to describe the selected post mining use of the land, which is planned to occur after the cessation of mining operations.

'landfill' means land used as a waste disposal site for lawfully putting solid waste on the land.

'levee' means a dam, dyke or bund that is designed only to provide for the containment and diversion of stormwater or flood flows from a contributing catchment, or containment and diversion of flowable materials resulting from unplanned releases from other works of infrastructure during the progress of those stormwater or flood flows or those unplanned releases, and does not store any significant volume of water or flowable substances at any other times.

'mandatory reporting level (MRL)' means a warning and reporting level determined in accordance with the Site Water Management Technical Guideline for Environmental Management of Exploration and Mining in Queensland (DME 1995).

'mg/L' means milligrams per litre.

'mineral' means a substance which normally occurs naturally as part of the earth's crust or is dissolved or suspended in water within or upon the earth's crust and includes a substance which may be extracted from such a substance, and includes:

- a) clay if mined for use for its ceramic properties, kaolin and bentonite
- b) foundry sand
- c) hydrocarbons and other substances or matter occurring in association with shale or coal and necessarily mined, extracted, produced or released by or in connection with mining for shale or coal or for the purpose of enhancing the safety of current or future mining operations for coal or the extraction or production of mineral oil therefrom
- d) limestone if mined for use for its chemical properties
- e) marble

- f) mineral oil or gas extracted or produced from shale or coal by in situ processes
- g) peat
- h) salt including brine
- i) shale from which mineral oil may be extracted or produced
- j) silica, including silica sand, if mined for use for its chemical properties
- k) rock mined in block or slab form for building or monumental purposes

But does not include:

- a) living matter
- b) petroleum within the meaning of the *Petroleum Act 1923*
- c) soil, sand, gravel or rock (other than rock mined in block or slab form for building or monumental purposes) to be used or to be supplied for use as such, whether intact or in broken form
- d) water.

‘mine water’ means process water and contaminated storm water.

‘natural flow’ means the flow of water through waters caused by nature.

‘nature’ includes:

- a) ecosystems and their constituent parts
- b) all natural and physical resources, and
- c) natural dynamic processes.

‘noxious’ means harmful or injurious to health or physical well being.

‘offensive’ means causing reasonable offence or displeasure; is disagreeable to the sense; disgusting, nauseous or repulsive, other than trivial harm.

‘operational land’ means the land associated with the project for which this environmental authority has been issued.

‘operational plan’ means a document that amongst other things sets out procedures and criteria to be used for operating a dam during a particular time period. The operational plan as defined herein may form part of a plan of operations or plan otherwise required in legislation.

‘palletised’ means stored on a movable platform on which batteries are placed for storage or transportation.

‘peak particle velocity (ppv)’ means a measure of ground vibration magnitude which is the maximum rate of change of ground displacement with time, usually measured in millimetres per second (mms-1).

‘protected area’ means:

- a) a protected area under the *Nature Conservation Act 199*; or
- b) a marine park under the *Marine Parks Act 1992*, or
- c) a world heritage area.

‘progressive rehabilitation’ means rehabilitation (defined below) undertaken progressively or a staged approach to rehabilitation as mining operations are ongoing.

‘process water’ means water used or produced during the mineral development activities.

‘receiving environment’ means all groundwater, surface water, land, and sediments that are not disturbed areas authorised by this environmental authority.



‘receiving waters’ means all groundwater and surface water that are not disturbed areas authorised by this environmental authority.

‘recycled water’ means appropriately treated effluent and urban stormwater suitable for further use.

‘reference site’ or **‘analogue site’** may reflect the original location, adjacent area or another area where rehabilitation success has been completed for a similar biodiversity. Details of the reference site may be as photographs, computer generated images and vegetation models etc.

‘regulated dam’ means any dam in the significant or high hazard category as assessed using the Site Water Management Technical Guideline for Environmental Management of Exploration and Mining in Queensland (DME 1995).

‘regulated waste’ means non-domestic waste mentioned in schedule 7 of the *Environmental Protection Regulation 1998* (whether or not it has been treated or immobilised), and includes:

- a) for an element – any chemical compound containing the element, and
- b) anything that has contained the waste.

‘rehabilitation’ means the process of reshaping and revegetating land to restore it to a stable landform and in accordance with the acceptance criteria set out in this environmental authority and, where relevant, includes remediation of contaminated land.

‘representative’ means a sample set which covers the variance in monitoring or other data either due to natural changes or operational phases of the mining activities.

‘residual void’ means an open pit resulting from the removal of ore and/or waste rock which will remain following the cessation of all mining activities and completion of rehabilitation processes.

‘saline drainage’ means the movement of waters, contaminated with salt(s), as a result of the mining activity.

‘self sustaining’ means an area of land which has been rehabilitated and has maintained the required acceptance criteria without human intervention for a period nominated by the administering authority.

‘sensitive place’ means:

- a) a dwelling, residential allotment, mobile home or caravan park, residential marina or other residential premises, or
- b) a motel, hotel or hostel, or
- c) an educational institution, or
- d) a medical center or hospital, or
- e) a protected area under the *Nature Conservation Act 1992*, the *Marine Parks Act 1992* or a World Heritage Area, or
- f) a public park or gardens.

‘sewage’ means the used water of person’s to be treated at a sewage treatment plant.

‘spillway’ means a weir, channel, conduit, tunnel, gate or other structure designed to permit discharges from the dam, normally under flood conditions or in anticipation of flood conditions.

‘stable’ in relation to land, means land form dimensions are or will be stable within tolerable limits now and in the foreseeable future. Stability includes consideration of geotechnical stability, settlement and consolidation allowances, bearing capacity (trafficability), erosion resistance and geochemical stability with respect to seepage, leachate and related contaminant generation.

‘stormwater’ means all surface water run-off from rainfall.

‘suitably qualified and experienced person’ in relation to dams means one who is a Registered Professional Engineer of Queensland (RPEQ) under the provisions of the *Professional Engineers Act 1988*, or registered as a National Professional Engineer (NPER) with the Institution of Engineers Australia, or holds equivalent professional qualifications to the satisfaction of the administering



authority for the Act; and the administering authority for the Act is satisfied that person has knowledge, suitable experience and demonstrated expertise in relevant fields, as set out below:

- a) knowledge of engineering principles related to the structures, geomechanics, hydrology, hydraulics, chemistry and environmental impact of dams
- b) a total of five years of suitable experience and demonstrated expertise in at least four of the following categories, with the 'geomechanics of dams' category being compulsory:
 - i. geomechanics of dams with particular emphasis on stability, geology and geochemistry
 - ii. investigation, design or construction of dams
 - iii. operation and maintenance of dams
 - iv. hydrology with particular reference to flooding, estimation of extreme storms, water management or meteorology
 - v. hydraulics with particular reference to sediment transport and deposition, erosion control, beach processes
 - vi. hydrogeology with particular reference to seepage, groundwater
 - vii. solute transport processes and monitoring thereof
 - viii. dam safety.

'trackable waste' means a waste or combination of waste stated in Schedule 1 of the *Environmental Protection (Waste Management) Regulation 2000*.

'trivial harm' means environmental harm which is not material or serious environmental harm and will not cause actual or potential loss or damage to property of an amount of, or amounts totalling more than \$5000.

'tolerable limits' means a range of parameters regarded as being sufficient to meet the objective of protecting relevant environmental values. For example, a range of settlement for a tailings capping, rather than a single value, could still meet the objective of draining the cap quickly, preventing pondage and limiting infiltration and percolation.

'void' means any man-made, open excavation in the ground.

'waste' as defined in section 13 of the *Environmental Protection Act 1994*.

'waste management hierarchy' has the meaning given by the Environmental Protection (Waste Management) Policy 2000.

'waste management principles' has the meaning given by the Environmental Protection (Waste Management) Policy 2000.

'waste water' means used water from the activity, process water or contaminated storm water.

'water quality' means the chemical, physical and biological condition of water.

'waters' includes:

- a) river, creek, stream in which water flows permanently or intermittently either:
 - i. in a natural channel, whether artificially improved or not, or
 - ii. in an artificial channel that has changed the course of the river, creek or stream
- b) lake, lagoon, pond, swamp, wetland, dam
- c) unconfined surface water
- d) storm water channel, storm water drain, roadside gutter

- 
- e) bed and banks and any other element of a river, creek, stream, lake, lagoon, pond, swamp, wetland, storm water channel, storm water drain, roadside gutter or dam confining or containing water
 - f) groundwater
 - g) non-tidal or tidal waters (including the sea)
 - h) any part thereof.

'**µg/L**' means micrograms per litre.

'**µs.cm-1**' means microsiemens per centimetre.

End of environmental authority.



Appendix D – List of commitments

The terms of reference requires a list of all commitments made by BMA in the EIS, together with a reference to the relevant section in the EIS. The following tables of BMA commitments are grouped into sections reflective of the EIS and SEIS.

Table – 1 Environmental management

Proponent commitment	EIS section
All BMA sites are certified to ISO14001. The project will also seek to achieve certification to this standard in the early years of operation.	1.2

Table – 2 Land resources

Proponent commitment	EIS section
The post-mine land use for disturbed areas within the project site will be a mosaic of self sustaining vegetation communities and grazing land, using appropriate native tree, shrub and grass species, and improved pasture species as appropriate. This will be achieved by: 1) 1 returning the approximate original contour for a significant area of the final landform 2) 2 constructing gentle slopes (10 per cent or less) for the spoil dumps 3) 3 backfilling as much of the final void as is practicable 4) re4 Re-grading the rehabilitated final void to slopes less than 17 per cent.	4.3.2.1
A return to productive grazing is proposed for most of the mining area and a final grade of 10 per cent or less are proposed for the spoil dumps.	4.3.2.1
A return to bushland for limited areas will be considered by BMA in conjunction with an overall grazing use for rehabilitated areas at the project site.	4.3.2.1
Disturbed areas will be stabilised as quickly as practical to limit erosion, with progressive revegetation undertaken. Erosion and sediment control measures will be employed, which are consistent with the practices described in the 'Technical Guidelines for Environmental Management for Exploration and Mining in Queensland' (DME, 1995).	4.3.2.2



Proponent commitment	EIS section
Erosion control measures to be employed throughout mine life are: <u>Cleared land</u> ■ restrict clearing to areas essential for the works ■ windrow vegetation debris along the contour ■ minimise length of time soil is exposed ■ divert run-off from undisturbed areas away from the works ■ direct run-off from cleared areas to sediment dam. <u>Exposed subsoils</u> ■ minimise length of time subsoil is exposed, for example, limit topsoil stripping forward of mining activity to no more than two mining strips ■ direct run-off from exposed areas to sediment dams. <u>Spoil dumps</u> ■ direct all run-off from dumps to sediment dams ■ avoid placement of sodic waste material on final external batters ■ control surface drainage to minimise the formation of active gullies ■ use soil and rock mulching to armour long slopes ■ direct run-off from rehabilitated areas to sediment dams. <u>Rehabilitated final void</u> ■ progressive backfill during operations ■ re-grade treatments for erosion and geotechnically unstable voids ■ use of rock mulch to control erosion ■ apply seed and fertilizer as necessary to ensure rapid re-establishment of pasture and native trees.	4.3.2.2, Table 4-11
<u>Dams</u> ■ leave useful water storages to support grazing use ■ rehabilitate any dam not required post mining by re-grading embankments, capping any residual saline material, replace topsoil, rip on the contour and seed. <u>Infrastructure</u> ■ provide protection in drains (e.g. rip rap, grass) where water velocity may cause scouring ■ confine traffic to maintained tracks and roads ■ install sediment traps, silt fences, hay bales where necessary to control sediment ■ rehabilitate disturbed areas around construction sites promptly.	4.3.2.2, Table 4-11
Standard procedures for the storage, containment, disposal and spill response for potentially hazardous materials will be implemented. All hydrocarbons will be stored and handled in accordance with the bunding requirements of AS 1940:2004: <i>The Storage and handling of combustible and flammable liquids</i> .	4.2.2
Chemical storage areas will be suitably bunded and constructed to minimise the potential for leaks to cause environmental harm. All chemicals will be stored, handled and used according to provisions in their MSDS.	4.2.2
To minimise the risk associated with fuel oil leaking during tanker unloading, the following measures will be implemented: ■ a program of regular equipment inspection and testing will be implemented to ensure reliable performance ■ operators will be trained in the safe operation of the system and emergency procedures in the event of fuel oil leakage ■ spill containment equipment will be available at the unloading pad for use in the event of spillage ■ a sump will be provided to collect any spillage and allow recovery ■ ignition sources will be strictly controlled and limited to avoid a fire ■ appropriate fire fighting materials and equipment will be available to suppress fires ■ an approved fire protection system will be installed around hydrocarbon storage areas.	4.2.2



Proponent commitment	EIS section
The following measures will be taken to minimise the potential for the leakage of fuel oil from storage tanks: ■ adequate bunding will be constructed to contain spill, in accordance with AS 1940:2004 ■ tank level indicators will be installed on fuel oil tanks for monitoring of fuel oil levels ■ maintenance of fuel oil tanks will be undertaken, to ensure safe and effective operation of all components ■ tanks will be designed in accordance with AS 1692:2006: 'Steel tanks for flammable and combustible liquids' to minimise the potential for failure of the diesel storage vessel.	4.2.2
The post-mine land use for disturbed areas within the project site will be a mosaic of self sustaining vegetation communities and grazing land, using appropriate native tree, shrub and grass species, and improved pasture species as appropriate.	4.5.1
The criteria for achieving self-sustaining final landforms will be developed during the operation as part of the BMA Closure Plan for the Project, based upon site-specific rehabilitation trials, monitoring and research programs.	4.5.1
The spoil dumps will be constructed in 10 m lifts on external dump faces, with a maximum working dump lift height of 10 m on external dump faces. Final dump slopes will be re-graded to a maximum angle of 10 per cent (or about 5.70 degrees), with contour drainage benches retained between the 10 m dump lifts.	4.5.1
At the completion of mining, most voids will have been progressively backfilled, however, a final void will remain. The depth and slope of the final void will be minimised through backfilling and re-grading, using spoil material from adjacent out of pit dumps.	4.5.1
With the use of side cast blasting where required, the batters of the remaining final void will be cut back to a 1 in 6 slope.	4.5.1
Where lack of competent material poses a stability risk, rock armouring will be applied.	4.5.1
A progressive rehabilitation program will be implemented throughout the project, with an indicative rehabilitation schedule presented in Table 4-12 of the EIS.	4.5.2
The project's rehabilitation strategies will address all areas of disturbance and will be reviewed on a regular basis in order to take into account any changes to mine operations, changes in legislative requirements and/or results of ongoing studies and monitoring.	4.5.3
The project's rehabilitation strategy will consist of the following integrated measures: ■ appropriate pre-disturbance preparation such as vegetation removal, topsoil salvage and management plans ■ excavation and spoil placement programs which support the creation of a landform characterised by slopes generally less than 10 per cent grade and a rehabilitated final void battered back to 17 per cent or less (unless a steeper slope using durable rock mulch is utilized) ■ implementation of practical drainage designs to ensure that disturbed areas will be sufficiently drained to ensure that pre existing productive uses can be returned ■ refinement of the preferred post-mine land use consistent with local environmental constraints ■ sampling and testing to define any potentially acid forming (PAF) material and any acid neutralising capacity (ANC) material, such as rejects and tailings ■ selective placement and burial of PAF waste rock materials to control AMD. Appropriate spoil dump design and optimum depth of burial will be further investigated from the results of characterisation and modelling. ■ avoiding the placement of sodic/dispersive materials near the surface of the spoil dumps, or within the plant root zone ■ revegetation trials, for selection of appropriate revegetation species and methodologies ■ progressive rehabilitation of disturbed areas, using rehabilitation procedures appropriate to the type of disturbance ■ a rehabilitation monitoring program to assess the success of rehabilitation ■ a corrective action program to address areas of failed rehabilitation ■ preparation of a final rehabilitation report prior to surrender of the mining leases.	4.5.3
Suitable topsoil will be stripped for use in the rehabilitation program. The topsoil will either be stockpiled until suitable re-contoured areas are available, or re-spread immediately across the area to be rehabilitated.	4.5.4

Proponent commitment	EIS section
Stockpiles will be managed so that: ■ soil types with significantly different properties will be stockpiled separately ■ locations are recorded using GPS and data recorded relating to the soil type and volume ■ stockpiles are clearly marked to prevent covering with spoil ■ stockpile surfaces are ripped and seeded (if natural revegetation does not provide adequate cover).	4.5.4
Revegetation methods that will be undertaken at the project site will typically consist of the following: ■ re-spreading stockpiled or freshly stripped topsoil ■ contour ripping ■ seeding with an appropriate seed mix ■ application of appropriate fertiliser for plant establishment if required.	4.5.5
The revegetation of areas will normally occur prior to the commencement of the wet season (i.e. during October to December) to maximise the benefits of subsequent rainfall. Local plant species will predominantly be used so as to restore elements of the pre-mining communities to the rehabilitation assemblages.	4.5.5
Rehabilitation will be undertaken to achieve the success criteria listed in Table 4.5.6 in the EIS.	4.5.5
BMA will use the following criteria for successful rehabilitation for return to native bushland: ■ tree and shrub density ■ tree and shrub species diversity ■ indicators of suitable habitat ■ percentage ground cover ■ indicators for rill and gully erosion ■ downstream water quality.	4.5.6
Rehabilitated areas will be monitored in order to identify any areas in need of maintenance at an early stage and re-treated as appropriate.	4.5.7
The decommissioning and final rehabilitation of the project site will occur on a staged basis over several years. On the completion of mining, infrastructure will be treated as follows: ■ mine roads will be left behind for use as farm roads, or rehabilitated ■ water dams will remain if required by the subsequent landowner and approved by regulators, otherwise, they will be breached ■ built areas (e.g. CHPP, buildings, wash plants, workshops) will be demolished and the areas covered with topsoil and returned to at least the previous grazing capability.	4.5.9
Visual mitigation methods that will be utilised include: ■ retaining existing vegetation where possible ■ progressively rehabilitating disturbed areas as soon as they become available ■ retaining and/or establishing of a buffer of vegetation between the project site and the Olive Downs homestead ■ consulting with the occupiers of the nearby residences in order to determine if the visual impact requires mitigation and if so, discuss what form of mitigation is acceptable ■ locating night lights as required for safety and security, but ensuring lights are limited to the areas and application required, with shields around the globes to limit light spill where necessary.	4.8.3

Table – 3 Mineral waste

Proponent commitment	EIS section
Spoil material will continue to be evaluated regularly during mining operations to assess acid generating capacity. Spoil found to contain sufficient sulphides to generate acid conditions should be isolated and/or mixed with spoil having an excess acid neutralisation capacity (NAPP < 10 kg/t H₂SO₄ equivalent).	5.6

Proponent commitment	EIS section
To minimise these effects of high sodicity in revegetation of spoil dumps, they will be managed by: ■ stripping topsoil ahead of mining operations and directly placing topsoil on rehabilitation where possible, otherwise manage topsoil stockpiles for later use ■ application of fertilisers and other soil treatments as required ■ rehabilitating spoil dumps with appropriate species.	5.6

Table – 4 Surface water resources

Proponent commitment	EIS section
The water management for the project site will be undertaken using the following principles: ■ undisturbed area run-off from the mining areas of the project site and its vicinity will be diverted away from disturbed areas by diversion drains, which will drain to the Isaac River ■ undisturbed area run-off from the infrastructure area of the project site will be diverted away from disturbed areas into New Chum Creek ■ disturbed area run-off will be captured in sediment dams and used preferentially for dust suppression or as process water in the CHPP ■ an ability to transfer water between the mine and the CHPP to optimise the use of water on site.	6.1.2.4
The water from the sediment dams will be used to satisfy site water demands, including dust suppression, and transferred to the process water dam to be used for process water in the CHPP.	6.1.2.4
The proposed design criteria of the sediment dams are: ■ retain the flow from a 10 year ARI event, 24 hour storm for the catchment for sufficient time to settle 0.05 mm diameter (coarse silt) particles ■ maximise the length of the dam relative to the width of the dam to maximise hydraulic retention time and deposition.	6.1.2.4
To minimise uncontrolled discharges, a controlled release strategy will be developed maximising water use on site. Controlled releases will be managed to minimise impacts by: ■ releasing water into the Isaac River only during periods of natural flow ■ only releasing water that has an acceptable water quality at the release point, typically: ■ EC < 2,500 µS/cm ■ pH 6.5 - 9	6.1.2.4
All storages of the mine water management system will be more than 60 cm deep, the minimum depth recommended to minimise mosquito breeding.	6.1.2.5
BMA will implement the following key mitigation measures to prevent or minimise adverse water quality impacts: ■ hydrocarbon spills from the CHPP area, vehicles, and other plant and equipment contaminating surrounding water with chemicals, hydrocarbons, oil and grease ■ clearing of vegetation and stripping of topsoils ■ handling and storage of fuels during construction ■ short-term decreases in water quality from rainfall events and construction related activities (i.e. soil disturbance and construction run-off such as hydrocarbons) ■ any releases of water from the site from site sedimentation dams.	6.2.4.1

Proponent commitment	EIS section
The following water management mitigation measures will be implemented at construction: ■ sediment control measures will be established to reduce the amount of run-off from areas that have had vegetation removed ■ bunding and appropriate storage of fuels and other hazardous/ flammable materials in accordance with AS1940:2004 ■ refuelling locations and handling of fuels shall be undertaken away from all waterways including creeks and drainage paths ■ a mine water management plan will be developed for the project to ensure the protection of surrounding waterways from mine activities ■ a water quality monitoring program will be developed for the construction phase of the project. The program will ensure that the mine water management plan is effective and downstream water quality (physico-chemical parameters) are not adversely effected. ■ work methods will be developed and included in the contractor environmental management plans. These methods will detail appropriate control and mitigation measures for the project.	6.2.5.1
The following water management mitigation measures will be implemented at operation: ■ A mine water management plan will be developed for the operational phase of the project to ensure the protection of surrounding waterways during operation. ■ Sediment dams, environmental dams and pit water storage will be used as part of the mine water management plan. ■ The separation of water based on quality. ■ <u>Clean</u> – areas of the mining lease (ML) that are not impacted by mining operations. Water in this area will be diverted around the operational areas so that it does not come into contact with contaminants. Drains will be constructed as per industry practice. ■ <u>Disturbed</u> – areas within the ML that have been disturbed by mining operations. These areas may generate sediments but are generally free of containments. These areas include rehabilitated areas, topsoil dumps and access roads for light vehicles. The water will be diverted to sediment dams where the sediment can be removed before any flows into natural waterways occur. ■ <u>Operational</u> – these areas are defined as potentially contaminated and include areas such as coal stockpiles, infrastructure areas, processing and waste rock dumps. This water will be contained within the mine water dam and will, preferably, be reused. ■ A water quality monitoring program will be developed for the operational phase of the project. The program will ensure that the mine water management plan is effective and downstream water quality is not significantly affected, and meet the proposed environmental authority conditions. ■ Appropriate sediment management controls will be implemented in areas with exposed soils. ■ On-going revegetation/maintenance of areas impacted by construction and operational activities will be undertaken in order to reduce the amount of exposed soil. ■ Management of banded fuel tanks, dangerous goods containers, hazardous chemicals and workshop wastes (filters, batteries) plus handling and storage of fuels during operation will be implemented. ■ Spill recovery equipment should be available when working adjacent to rivers and drainage paths. If a spill occurs, work is to stop immediately and the spill appropriately cleaned up as per best practice methods. ■ Refuelling locations and handling of fuels shall be undertaken away from creeks and drainage paths.	6.2.5.2

Table – 5 Groundwater resources

Proponent commitment	EIS section
BMA will seek to reach mutually agreeable arrangements with affected neighbouring groundwater users for the provision of alternative supplies throughout the project life, and after mine closure.	7.2.1.7

Proponent commitment	EIS section
Alternative groundwater supplies can be put in place before supplies from relevant existing landholder bores are adversely affected. Due to the progressive nature of drawdown within the aquifers, the provision of alternative supplies is likely to be staged. Options for alternative supplies include: ■ installation of new pumps capable of extracting groundwater from greater depths within existing bores ■ deepening of existing bores ■ installation of a new bore at another location on the property. The specific arrangements for affected properties will be discussed with each relevant landholder with a view to reaching a mutually acceptable agreement.	7.2.1.7
The rehabilitated final void in the southern half of the project site will be backfilled to an elevation of about 160 mAHd.	7.2.2.1
Surface water run-off from the spoil dumps will be directed into the rehabilitated final void to assist groundwater recovery.	7.2.2.1
Groundwater monitoring will be conducted on a regular basis during operation of the project. The monitoring network will be established prior to the commencement of mining at the project site to ensure there is sufficient baseline information on groundwater levels and quality. The monitoring data (level and chemistry) will be entered into a BMA managed groundwater database to enable a regular assessment of the potential groundwater impacts. The monitoring program will be such that significant groundwater level drawdown will be identified prior to any impacts being experienced by neighbouring landholders.	7.3.1
Prior to relinquishment of the mining leases, BMA will discuss with the parties with whom it has had alternative water supply arrangements the nature, scope and resourcing of an on-going groundwater monitoring program.	7.3.1
Post mining groundwater monitoring will be undertaken within monitoring bores that were installed during the operational phase of the project. Post mining groundwater monitoring will be subject to detailed closure/relinquishment conditions.	7.3.2

Table – 6 Terrestrial ecology

Proponent commitment	EIS section
Vegetation loss has been minimised by locating the mine footprint outside of remnant vegetation. The only remnant vegetation to be cleared will be within the Red Mountain Mining Lease. Where possible, those areas that are already disturbed would be used in preference to clearing remnant vegetation.	8.7.1.2
Where an area of remnant vegetation is required to be cleared and then revegetated post-mining, the following measures would be applied: ■ the boundary would be fenced and the area cleared in such a way that it would not be extended during clearing works ■ soil erosion and sedimentation control measures would be constructed in stages to minimise the area of unstable or unprotected soil surface.	8.7.1.2
The project will develop a weed management plan that is consistent with any local authority plans. Ongoing monitoring as part of the management plan will determine if weed species are spreading into riparian buffer areas and rehabilitated areas, and effective response to weed infestation will be implemented as required.	8.7.2.1
Measures to avoid fauna mortality on internal and external roads connecting the project site will be implemented. Appropriate measures include the provision of fauna crossing signs to warn drivers and speed reduction measures.	8.7.2.3
Revegetation and rehabilitation will be carried out progressively during the construction and operational phases of the project.	8.7.3
Areas of vegetation that are considered significant (i.e. 'endangered' or 'of concern') and are to be retained on the project site will be identified and have protective fencing and/or signage erected, to restrict access to these areas. These areas should also be maintained and regenerated by way of a weed removal program and a project specific revegetation plan, which would include methods to ensure long-term viability of these areas.	8.7.3

Proponent commitment	EIS section
Several areas of former brigalow woodland are currently in a state of young regrowth. Those areas not to be cleared for the project will be allowed to naturally rehabilitate with the aid of the project's weed management plan.	8.7.3
Any freshwater sediment dams constructed on the project site will be developed with the aim of providing aquatic habitat for frogs and waterbirds. Where practicable, the dams will be designed with shallow perimeters, and rocks or logs placed near the edges to provide basking areas. Where practicable, these dams should be fringed by native grasses and herbs, improving habitat quality for the squatter pigeon.	8.7.3
A flora and fauna monitoring program will be established. Issues to be addressed in the monitoring program include: ■ monitoring the protection of 'endangered' and 'of concern' vegetation through pre-clearing checks and the fencing-off of vegetation to be retained outside the mine footprint to avoid construction impacts; ■ monitoring the revegetation of 'endangered' and 'of concern' regional ecosystems; ■ seasonal monitoring of birds, in particular identifying the extent and distribution of the squatter pigeon population and monitoring use of the lease and surrounding areas by aquatic and migratory species; and ■ weed monitoring.	8.7.4

Table – 7 Aquatic ecology

Proponent commitment	EIS section
The following mitigation will be implemented to minimise impacts on aquatic flora and fauna during construction in the mining areas: ■ limit disturbance as much as possible through the BMA Permit to Disturb procedure ■ divert clean run-off, from undisturbed areas, away from mining activities ■ design sedimentation dams to capture any run-off from disturbed areas according to the criteria outlined in section 6 of the EIS ■ construct sedimentation dams prior to disturbing land for other purposes to prevent run-off from disturbed areas ■ construct components of the water management system during the dry season where possible ■ revegetate clean water diversions to minimise potential erosion.	9.6.1
In the infrastructure area, the haul road crossing over New Chum Creek will be designed, constructed and operated as per an approved riverine protection permit.	9.6.1
Other mitigation measures in the infrastructure area include: ■ limit disturbance as much as possible through the BMA Permit to Disturb procedure ■ divert clean run-off from undisturbed areas away from infrastructure areas ■ provide adequate bunding of chemical storage areas and other materials as outlined in section 19 of the EIS ■ design sedimentation dams to capture any run-off from infrastructure areas according to the criteria outlined in section 6 of the EIS ■ construct the two sedimentation dams in the infrastructure area during the dry season ■ construct sedimentation dams prior to commencing construction of the CHPP and infrastructure ■ rock apron erosion protection at either end of the haul road crossing culvert.	9.6.1
The control measures for bunding fuels, oils and other toxic substances will be implemented and maintained during the operation of the project, especially with works near watercourses and drainage lines.	9.6.2
A mine water management plan, described in section 6 of the EIS, will be developed for the operational phase of the project to ensure the protection of surrounding waterways during operation. The plan will involve mitigation measures such as sediment dams, pit water storage, clean water run-off and a water quality monitoring program.	9.6.2

Table – 8 Air quality

Proponent commitment	EIS section
The following dust mitigation measures will be implemented to reduce the potential for air quality impacts: ■ exposed areas (particularly haul roads) will be watered during operations as required ■ provide dust suppression sprays at locations in coal handling facilities that produce excessive dust (e.g. crushers) ■ speed limits for light vehicles on unsealed roads will be limited to a maximum speed of 80 km/h ■ supervisors and operators will pay particular attention to the management of topsoil stripping such that dust does not become a safety hazard or severe nuisance ■ land disturbance will be restricted to that necessary for the works ■ progressive rehabilitation of disturbed areas will occur including disused roads, overburden dumps and topsoil to reduce the potential for dust generation ■ avoid burning cleared vegetation when wind is blowing towards sensitive receivers ■ all exposed coal faces in the final voids will be covered during final rehabilitation to prevent spontaneous combustion ■ any spontaneous combustion of coal material anywhere on the project site will be extinguished or prevented through rehabilitation ■ all complaints about dust will be investigated promptly and appropriate action taken to reduce dust nuisance ■ a register of dust complaints will be maintained.	10.4.6
Ongoing dust deposition monitoring will be undertaken at Olive Downs to detect if the mine is generating potential nuisance impacts. Consultation with the landholder and implementing dust mitigation measures should assist in reducing the potential for dust nuisance.	10.4.6

Table – 9 Greenhouse gases and climate change

Proponent commitment	EIS section
The following management measures will be implemented to minimise greenhouse gas emissions during operation: ■ mine planning (e.g. minimising haul distances) and operation to improve efficiency and minimise energy use ■ consider fuel efficiency of mining equipment and haul trucks during procurement ■ maintaining mining equipment and haul trucks in good working order so fuel efficiency of equipment is maximised ■ using appropriately sized equipment ■ estimate and report annual greenhouse gas emissions to the relevant regulatory authority, as required, to assist with the ongoing management of energy efficiency programs ■ review annual energy use to identify potential energy efficiency opportunities on a regular and ongoing basis.	11.5
The following corporate management measures will be implemented to minimise greenhouse gas emissions. ■ energy excellence program ■ mine methane management ■ Australian Emissions Trading Scheme	11.5

Table – 10 Noise and vibration

Proponent commitment	EIS section
The following measures are proposed to reduce noise impacts at Daunia Station and Mavis Downs where required: - proper maintenance and operation procedures to minimise nuisance noise emissions from equipment, including servicing and maintenance of exhaust systems on mine equipment - formal complaints to be investigated to determine the source of the nuisance noise and, where appropriate, noise monitoring to be conducted at the affected residence - the speed of heavy vehicle traffic on the haul road to be limited - positioning noisy equipment away from sensitive receivers - planning for containment within pits of noisy equipment such as haul trucks and excavators. This may involve haul road placement inside the pit. - application of noise mitigation technologies on individual equipment - the implementation of a noise monitoring program at the three sensitive receivers.	12.9.1
Noise monitoring will be undertaken at Daunia, Mavis Downs, and Olive Downs in years 1, 5 and 10. Monitoring will be undertaken at Olive Downs every two years, during years 10 to 20 due to the potential for increased noise levels over this period.	12.9.1
Continued consultation and negotiation with the Olive Downs property owners will occur during the development and operation of the mine to respond to noise and vibration issues.	12.9.1
Blasting times should be limited to between 9 am and 5 pm. No blasting should take place at night.	12.9.2
The following are a number of mitigation measures that may be applied in conjunction with monitoring to minimise vibration and airblast impacts where required: - reducing the maximum instantaneous charge (MIC) by using delays, reduced hole diameter and/or deck loading - changing the burden and spacing by altering the drilling pattern and/or delay layout, or altering the hole inclination - ensuring stemming depth and type is adequate - restricting blasts to favourable weather conditions.	12.9.2

Table – 11 Infrastructure and traffic

Proponent commitment	EIS section
It is proposed that the accommodation village at Coppabella will be used to accommodate the project workforce.	13.2.1.4
To avoid potential pavement damage during wet weather, oversize and over-mass loads will not be delivered to the site on roads affected by flooding or waterlogging as advised by DMR. Heavy materials haulage will also be avoided under these conditions.	13.2.1.6
The potential mitigation measures for transporting people and materials to and from the construction sites include but are not limited to: - avoiding haulage tasks during peak traffic periods and school drop-off and pick-up times - using the established truck routes and arterial roads for the haulage of construction materials in order to minimise truck traffic on local roads - minimising congestion effects by effectively staging construction work - continually monitoring the construction conditions in order to address any negative impact - notifying the local communities about proposed changes to local traffic access due to construction activities and providing clear signage of changed traffic conditions - providing traffic control measures designed for the safe movement of vehicles - providing adequate on-site parking to accommodate employee vehicles and instructing the commuting employees to use the designated parking facilities to avoid traffic disruptions potentially caused by road side parking - providing buses and encouraging car pooling for transportation of the construction workforce - maintaining at least one lane open for traffic at any time near the construction sites.	13.2.1.7

Proponent commitment	EIS section
The effect of heavy vehicle traffic generated by the project on pavement life and maintenance needs will be assessed in detail in accordance with the DMR (2000) Guidelines, and BMA will consult with DMR about mitigation of any effects identified.	13.2.2.3
In order to limit the impact of light vehicles trips on the surrounding road network, the following mitigation measures will be implemented: ■ providing adequate on-site parking to accommodate employee vehicles and instructing the commuting employees to use the designated parking facilities to avoid traffic disruptions potentially caused by road side parking ■ providing buses and encouraging car pooling for transportation of the construction workforce ■ providing cycling facilities and encouraging staff to use these facilities.	13.2.2.4

Table – 12 Waste management

Proponent commitment	EIS section
The waste management strategies proposed for the project consider waste management from the concept and planning stages through design, construction and operation.	14.2
Adequate separation of components of the waste stream at the point of generation will be practiced by the project. For example, steel, glass, paper and aluminium cans will be segregated.	14.2
There are likely to be opportunities to reuse and recycle aluminium cans, some containers such as glass bottles, and paper, and scrap steel. Some other wastes will be recycled or reused on site, such as pallets, or disposed of by waste management contractors. BMA will review the marketability of its waste for recycling and reuse on a regular basis.	14.2
The environmental management plan for the project addresses waste management and endeavours to minimise the quantity of waste generated and improve on the waste disposal and management techniques adopted.	14.2.2
All waste generated on-site during the construction and operation phase will be disposed of in accordance with the EM plan, which will include: ■ waste stream characterisation and separation ■ assessment of waste reduction opportunities for identified waste ■ management of waste in accordance with the waste management hierarchy.	14.2.2
Training will be provided to personnel and contractors in waste management.	14.2.2
Aspects of the project that will contribute to cleaner production outcomes include: ■ selection of the best available practicable technology for coal extraction (fixed and mobile plant and equipment) to ensure appropriate energy intensity and production efficiency of ROM coal ■ location of the mining and infrastructure areas to minimise the clearing of vegetation ■ selection of the best available practicable technology for the CHPP to ensure optimum water use efficiency and energy efficiency, minimum dust emissions and waste minimisation ■ use of the most appropriate processes and equipment for operation and maintenance, such as the reuse of wastewater within the mine water management system ■ ensuring the shortest practical water supply pipeline route (extension of the Poitrel and Millennium Project water supply pipeline to Daunia) and the use of best practice procurement and construction methods on the CHPP and pipeline, ensuring minimum wastes are produced ■ recycling of glass, aluminium, steel and cardboard.	14.2.3
Contracts with construction companies will be prepared to encourage all contractors to adopt best practice waste minimisation procedures.	14.2.3
The environmental management plan/s for the project will incorporate an approved waste tracking system for those wastes that require tracking.	14.2.4
Sites that become contaminated will be investigated, managed and remediated in accordance with the requirements of the contaminated land provisions of the EP Act.	14.2.5

Proponent commitment	EIS section
Where there is potential for some spill containment areas to collect incident rainfall. In these circumstances water will be tested prior to either releasing to the internal sedimentation dams for reuse or off-site disposal as regulated waste.	14.2.5
Waste monitoring and auditing will be undertaken at the project.	14.2.6
During construction and operation, colour-coded, signed bins will be used to segregate and collect food wastes, paper and recyclables. The bins will be located throughout offices and site infrastructure areas to achieve maximum economic waste recovery. These bins will be emptied into larger bins or skips regularly. All smaller bins and larger bins or skips will have lids, to reduce the potential for attracting insects and vermin.	14.3.3
General wastes will be collected regularly and transported for disposal to the Moranbah landfill on Goonyella Road. Recyclables will be transported to the material recycling facility in Mackay.	14.3.3
The type and quantity of waste likely to be generated during mine operation and their specific management method are shown in Table 14-1 of the EIS.	14.3.3

Table – 13 Cultural heritage

Proponent commitment	EIS section
BMA has committed to prepare a cultural heritage management plan (CHMP) and implement the agreed strategy described in the CHMP in full.	15.1.1.1
The BBKY Traditional Owners have been involved in the project from its inception. Consultation between BMA and Woora Consulting (representatives for BBKY) has been ongoing throughout the project.	15.1
BMA will discuss with any relatives how the remains of Cristina Sutherland McKenzie and the headstone should be removed. BMA propose that the remains will be reinterred at a nearby cemetery and that either the existing headstone or a new headstone will be placed with the remains.	15.3.1
Due to the almost universal lack of ground surface visibility throughout the survey area, there is a possibility that previously unrecorded cultural material might not have been identified in the project site. To facilitate this arrangement Hatte (2008) recommended that: - salvages be undertaken of all removable items of cultural heritage that remain within the boundaries of the proposed impact areas - a comprehensive CHMP be developed cooperatively between BBKY and BMA - scope of any additional follow up cultural heritage work, other than that referred to above, should be agreed between Woora Consulting for the BBKY traditional Owners, and BMA.	15.3.2
In the event that unrecorded cultural heritage sites or materials are discovered in surface or sub-surface deposits during monitoring or other operations, all work in the immediate vicinity should cease to enable Woora monitors to salvage any exposed material and to ascertain the likelihood of more cultural finds.	15.3.2
All personnel and contractors involved in construction and operation will undergo a cultural heritage awareness program. This program will be established in consultation with the BBKY Traditional Owners and provide locally relevant information on Aboriginal history and culture, the types of cultural heritage sites recorded within the project site, guidelines for the identification and protection of these sites and penalties for damage to cultural material.	15.3.2
In the highly unlikely event that skeletal material is discovered during the construction process, all operations within 100 m of the skeletal material will cease immediately upon its discovery. The Cultural Heritage Unit, DERM and senior BBKY personnel will be contacted immediately.	15.3.2

Table – 14 Community consultation

Proponent commitment	EIS section
Community engagement will now focus on continuing discussions with the community and stakeholders and responding to key issues and concerns. Mobile displays will continue during the display of the EIS and BMA representatives and their consultants will be available to answer questions and provide further detail. Ongoing contact with participants, through stakeholder briefings, the CRG, and meetings with council will ensure issues are identified before project development and mitigation strategies are prepared in collaboration.	16.5

Table -15 Social

Proponent commitment	EIS section
The impact of the project's operational personnel would be addressed through the: ■ construction of 10 new residences to alleviate pressure on the housing market in addition to the existing BMA owned accommodation ■ allocation of accommodation from BMA owned housing in Moranbah depending on the individual circumstances of personnel ■ recruitment of operational employees from existing members of the Moranbah community ■ provision of additional accommodation for operation personnel at the accommodation facilities in Coppabella ■ use of accommodation facilities at Coppabella to house contractors involved in short term maintenance activities.	17.2.2.2
The ongoing demand for accommodation as a result of the project will be monitored by BMA and consideration will be given to options to meet the demand for workforce accommodation and minimise impacts on the Moranbah and Nebo local housing markets.	17.2.2.2
As part of the recruitment strategy, BMA and the operating contractor(s) would seek to recruit local people for roles at the project.	17.2.3
BMA would continue to work with government, education facilities and industry to collaboratively address the skills shortage throughout the region. BMA would also continue discussions with regional employment providers to encourage employment and training within the local region.	17.2.3
In consultation with the Isaac Regional Council and local businesses, BMA will establish a process to advise them of the contract packages available during the construction and operation phases of the project and of the issue of tenders for work.	17.2.4
Contractors would be encouraged to use local goods and services as much as possible and those tendering for work and contracts would be required to identify the component of their proposal to be sourced locally. The proportion of local content would be considered by BMA when selecting contractors.	17.2.4
Communication with local and regional services providers and the general community would be ongoing during the approval phase of the project.	17.2.4
As a strategy to assist with reducing the potential for local enterprises to experience skill shortages, BMA proposes to recruit people with a range of skill profiles, including people with minimal or no previous experience in mining operations.	17.2.5
A relationship with Queensland TAFE and other training organisations would be developed to ensure these agencies are aware of project requirements and build them into long-term training and upskilling plans. Partnerships with the community and agencies, that help to develop skills within the community, would also be considered by BMA.	17.2.5
BMA proposes the implementation of a broader community education program to promote awareness within the community of mitigation approaches and of the guidelines to protect health and property.	17.2.9
BMA significantly contributes to the road safety alliance which operates in the Central Queensland region to improve road safety on regional highways. BMA would continue this involvement and would work with the alliance to address potential traffic issues during construction and operation of the project.	17.2.10.1

Proponent commitment	EIS section
BMA and its sites currently have a community partnerships program that focuses on working with communities to develop partnerships that create sustainable value for all. Opportunities and issues associated with the project would be incorporated into this community partnerships program. In managing expectations and reducing misconceptions during the project, two-way communication between the regional council and BMA will be a priority.	17.2.12
Existing employment, training and community initiatives already used by BMA would be put in place to ensure that the project workforce is encouraged to become part of the community. During the operational phase counselling services would also be extended to families of all employees, including those who do not reside in Moranbah.	17.2.13
Restrictions are likely to be put on employees regarding allowable distances travelled before commencing shifts. This restriction would be imposed in an effort to protect the safety of those employees and other road users. Employees who, but for the restriction, would exceed the daily travel limit would be required to reside locally whilst on roster. This restriction would form part of each employee's contract of employment.	17.2.13
BMA will also provide local transportation, which will coincide with shift commencements and completions to manage fatigue risk and to encourage employees to minimise their personal use of transportation.	17.2.13
BMA has committed to prepare a cultural heritage management plan (CHMP) and implement the agreed strategy described in the CHMP in full.	17.2.15

Table – 16 Economy

Proponent commitment	EIS section
The project will be operational for 21 years with expected yearly operational costs in the order of A\$200 to A\$250 million. Once operational the project is predicted to employ a workforce of approximately 300 people. The composition of the workforce is expected to be 250 operators and fitter contractors, 25 personnel for the CHPP and 12 BMA personnel for management, health and safety, and environmental roles.	18.2.3
In order to address the skill shortage in the local region BMA is committed to work with the government, education facilities and industry to promote various programs. These programs are aimed to raise awareness of mining-related careers, ensure the accessibility of training and education and improve skills retention within the company. Programs initiated by BMA include the Skills for Growth Program, which is part of BMAs community investment commitment. Through programs such as this BMA support scholarships, the Engineering Extension Program, cadetships, universities and whole of industry measures such as the Queensland Mining and Energy Academy.	18.2.5.4
BMA will continue to implement and evolve its community partnerships program throughout the Bowen Basin. An avenue for the implementation and monitoring of any economic initiatives will be through the established 'Growing BMA' Community Reference Group. This group includes representatives from government agencies, social service providers and business development groups.	18.2.5.5

Table – 17 Health, safety and risk

Proponent commitment	EIS section
BMA will implement the BHP Billiton Health, Safety, Environment and Community Management Standards that are currently in use at all BMA operations and provide the basis for effective management of employee and public health and safety.	19.3
The project will use a number of dangerous goods, in accordance with the <i>Australian Code for the Transport of Dangerous Goods by Road and Rail</i> .	19.4
The project will use a number of hazardous substances, which are managed in accordance with BMA standard operating procedures that are based on National Occupational Health and Safety Council guidelines and a risk management approach.	19.4
Material Safety Data Sheet (MSDS) information will be obtained and communicated to all site personnel involved in the storage, handling, use and disposal of dangerous goods and hazardous substances.	19.4.1



Proponent commitment	EIS section
The approved separation distances of dangerous goods/hazardous substances will be maintained during the storage of these materials/substances as defined in Australian Standard AS 1940:2004: <i>The storage and handling of flammable and combustible liquids</i> . Also, the storage, handling and use of these goods/substances will be in accordance with current Australian standards and industry codes of practice.	19.4.2
The storage of explosives, detonators and boosters, will meet the requirements of AS 2187 <i>Explosives—Storage, transport and use</i> and the additional requirements of Chapter 3, Part 4 – Explosives in the <i>Coal Mining Safety and Health Regulation 2001</i> .	19.4.2
Designated first aid and emergency rescue facilities and equipment will be available during the construction and operation phases of the project. Appropriately trained personnel will be on-site throughout the life of the project to provide first aid and respond to on-site emergencies. First aid response and provision will be included in the site induction training that will be provided to all staff members.	19.6.1
The project site will have a fire brigade approved fire response/fighting system. All fire fighting facilities and equipment will be installed, serviced, maintained and inspected by a certified body.	19.6.1
Stores, workshops and offices will be fitted with approved and certified fire detection (smoke detectors) and sprinkler systems. First aid fire fighting equipment (hand held extinguishers and fire hoses) will be installed at strategic points within each building. Fire fighting equipment and exit locations will be suitably signed. All work areas will be within the required distance to reach emergency exits.	19.6.1
Induction training will include fire response techniques. The project site will have a fire truck or suitably equipped water truck or trailer that can support fire response requirements. Site fire fighting capabilities also will be addressed in the emergency response plan.	19.6.1
Fire drills will be undertaken on a regular basis. Permanent facilities, such as fuel storage areas, will have a dedicated fire alarm, suppression and fire fighting systems.	19.6.1
BMA will liaise with local State Emergency Services, Queensland Ambulance Services (QAS) and local ambulance and hospital services with respect to planning for emergency response.	19.6.1
Construction workers operating vehicles on-site will be trained and licensed, so that these vehicles are driven in a safe and appropriate manner. Speed control (signage), driving to conditions, and prescribed driving procedures on the mine site will be used to control the risk. All site vehicles will be fitted with radios for two-way communication.	19.6.3.2
Haul roads will be designed to comply with the regulatory requirements and roads will be graded to an adequate and safe level of operation for heavy and light vehicles.	19.6.3.2
All fuels will be stored and handled in accordance with the bunding requirements (section 5.8 Bunds and Compounds) of AS 1940:2004: 'The Storage and handling of combustible and flammable liquids'.	19.6.3.4
Mitigation measures for flyrock and airblast effect include the use of appropriately trained and qualified personnel to undertake safe blast design, control of access (including temporary mine site road closure) and evacuation warnings before blasting. Personnel in the vicinity of a blast will wear PPE and all personnel will observe safe distances during blasting activities.	19.6.3.5
Blasting operations will be carried out by an explosive contractor, which has an established record of operation in the mining industry and adherence to the Australian Explosives Manufacturer Safety Committee (AEMSC) Code of Practice.	19.6.3.5
The training and management of the blast crew will be required to ensure appropriate knowledge and skill by personnel involved in blasting activities.	19.6.3.5
Specialist electrical engineers will undertake the construction of the 66 kV power line, and mine site and CHPP reticulation systems, using approved codes of practice and procedures. There will be specific and detailed standard operating procedures implemented to address the safety risks posed by high voltage exposure. The residual high risk can be managed by ensuring the preventative controls are well implemented and monitored.	19.6.3.6
Where working at heights is unavoidable, safe operating procedures for working at heights will be used to control this risk. Mandatory personal protective equipment (PPE) on a construction site that protects against objects falling from height includes steel capped boots and hard hats (both are worn at all times).	19.6.3.7
Where operators are required to work at height at the CHPP and during maintenance or repair duties, safe operating procedures for working at height will be used to control this risk.	19.6.3.7

Proponent commitment	EIS section
The project site will be enclosed with suitable fencing. Prior to being given access to the site, visitors will complete mandatory registration and an environmental, health and safety induction. The scope of induction will reflect those areas of the site that the visitor will be permitted access.	19.6.4
BMA will make mandatory for all staff/visitors the following PPE: ■ safety helmet ■ steel cap boots ■ safety glasses ■ high visibility clothing .	19.6.4
BMA will adopt a health and safety management system similar to those presently implemented throughout BMAs other coal mine operations.	19.7
A hazard and operability study will be carried out for the project prior to construction commencing.	19.8
Monitoring will be undertaken to assess whether project health and safety measures are being implemented and are effective. Monitoring will involve the compilation and assessment of data relating to health and safety issues, such as reported near misses, accident reports and any health surveillance data (e.g. sickness data).	19.9
An emergency response plan will be prepared for construction and operations.	19.10
The Isaac Regional Council Counter Disaster Plan and the Mines Rescue Service will be considered when preparing the emergency response plan in accordance with the BMA Emergency Management System. Consultation will also occur with the State Emergency Service, Ambulance Service and Fire Brigade.	19.10

Table – 18 Supplementary report

Proponent commitment	SEIS section
BMA confirms that the New Chum Creek crossing works will be undertaken in accordance with the Departmental Guideline—activities in a watercourse, lake or spring associated with mining operations.	Table 4-2
Water management infrastructure will be removed post mining. If other arrangements are planned, such as retaining dams for local farmer use, this will be done in consultation with the Department of Environment and Resource Management (DERM).	Table 4-2
BMA will consult with DERM over any changes to the Water Resource (Fitzroy Basin) Plan 1999 that may have implications for the project.	Table 4-2
BMA will enter into agreements with landholders whose water supply may be affected by the operation of the mine for the provision of alternative supplies throughout the project life, and after mine closure. These agreements will include a dispute resolution process to deal with future impacts. Alternative supplies will be put in place before supplies from relevant existing landholder bores are adversely affected, as outlined in the EM plan.	Table 4-2
The groundwater monitoring program covers the first 6 months of monitoring. Subsequent to this BMA will provide quarterly reports to DERM on the results of the monitoring program and a yearly report which include an assessment of the impacts of mining and the need to review the predicted future impacts.	Table 4-2
Should any changes to be made to mine plans that would impact on stock routes, the DERM will be consulted.	Table 4-2
BMA plan to undertake construction work during dry periods when there is no flow in the un-named drainage paths. In the event that the planned schedule coincides with unseasonal rain BMA will follow the Fish Salvage Guidelines to catch and release potentially stranded fish.	Table 4-3
BMA will maintain a minimum buffer of 50 m of established vegetation between New Chum Creek and the anticipated mining operational areas.	Table 4-3
BMA will design the train load out facility to incorporate a polymer-based dust suppression unit. However a decision on construction and installation of the dust suppression unit at the train load out will be made once QR and industry confirm arrangements across the coal industry.	Table 4-6



Proponent commitment	SEIS section
BMA will provide buses and encourage car pooling for the transportation of the operational workforce.	Table 4-6
BMA is committed to identifying accommodation for all workers related to the Daunia Mine and to reducing impacts on the local communities. This includes the provision of new accommodation in Moranbah and securing accommodation rooms at Coppabella.	Table 4-8
BMAs Housing Strategy will continue to consider the needs of current and future workforces, and offer a range of accommodation options.	Table 4-8
BMA has targeted to provide an accommodation unit for every operational employee at the Daunia Mine.	Table 4-8
BMA will continue to forge positive relationships with all levels of government, enabling truly effective partnerships through shared responsibilities and benefits.	Table 4-8
BMA will upgrade the intersection of the site access road and the Peak Downs Highway in accordance with the designs presented in Appendix G of the supplementary EIS.	Table 4-8
Further assessment of the interaction between groundwater and surface water will be undertaken as part of the groundwater monitoring program outlined in Appendix B of the supplementary EIS, to determine the potential impacts to riparian vegetation. The groundwater level within the Alluvium unit close to the Isaac River will be monitored on a regular basis throughout the duration of the project's operation.	Table 4-9
The current groundwater model will be updated based on the data collected during the first 6 months of the Groundwater Sampling and Analysis Plan to provide a more accurate assessment of drawdown in the alluvial aquifer.	Table 4-9
The project will make no use of co-disposal cells. The following protocols will be put in place to manage tailings and rejects: ■ all coarse reject and dewatered tailings material will be trucked to either the out-pit or in-pit waste dumps ■ no reject material will be placed any closer than 10 m to the final landform slope. This will be managed by survey limit pegs.	Table 4-9
There will be no concentrated dumping of reject materials: ■ all reject material will be dumped and mixed, either over a tiphead or paddock dumped, alongside dry waste material in order to minimise areas of geotechnical instability ■ no reject material will be used to form any part of tiphead safety bunds, haul roads or ramps ■ no reject material will be dumped below the pre-mining groundwater table ■ all dumps will be design and constructed to be free-draining.	Table 4-9
BMA will manage this material through the following measures: ■ soil surveys will be conducted ahead of mining to confirm soil material suited for reuse in rehabilitation ■ dispersive spoil (> 15% ESP) will be covered by at least 1 m of benign spoil ■ topsoil will be used extensively to provide quick vegetative cover ■ a mixture of grass, shrub and tree species will be used in the species mix ■ topsoil material will be replaced strategically to maximise its benefits in rehabilitation, and where practical every attempt will also be made to re-spread topsoil immediately after it is stripped.	Table 4-9
The EIS has identified there is the potential for exceedence of the 24 hour PM ₁₀ goal in the EPP(Air) 2008 at Olive Downs. BMA has committed to implementing an appropriate monitoring program to determine if the mine is generating air quality impacts at this receiver.	Table 4-9
BMA will commit to appropriate mitigation measures at Olive Downs in years 15 to 20 to ensure that acceptable noise and vibration levels are not exceeded. These mitigation measures will include control strategies outlined in the EM plan. Additional control strategies are likely to be required to achieve compliance under worst case meteorological conditions. These control strategies will be specific to the detailed mine planning and operations in year 15–20 and detailed noise and vibration management plans will be developed in response.	Table 4-9
No dangerous goods and hazardous substances are to be transported unless approved by the site management. Prior to transporting dangerous goods to site, a risk assessment will be done and a specific traffic management plan will be developed.	Table 4-10



Proponent commitment	SEIS section
A risk assessment for oversize and wide loads to be transported to and from site will be completed prior to the load coming or leaving site. The risk assessment will include control measures to protect pedestrians and the public. These controls are to be implemented as per the risk management procedures. A specific traffic plan which covers route, escort, park up areas and loads will be provided to the project manager for approval prior to transportation of the load.	Table 4-10
BMA is committed to developing appropriate emergency response plans in consultation with the appropriate agencies and contacts.	Table 4-10
BMA acknowledges that it is the role of government and its agencies to manage police force resourcing requirements, but as the proponent, BMA will continue to contribute information and forecasts as appropriate, to assist government in appropriately allocating resources and funds.	Table 4-10
BMA is bound by the Coal Mining Safety and Health Act and Regulation. This requires BMA to have emergency capabilities based on site and a fire standard operating procedure. With relation to the Daunia Mine, BMA will have a fire tender that is fully equipped with fire fighting equipment, foam injection and on board rescue equipment. The site will also be equipped with a self contained breathing apparatus and other equipment required for vertical rescue, and general rescue and emergency management. A paramedic service will be on site during construction and operation.	Table 4-14
BMA is updating its community investment strategy to ensure that the organisation's community investment is well targeted to address the key short, medium and long-term needs of our host communities. This strategy is being updated by BMAs Community Investment Manager, in partnership with the community and government. The strategy will address cumulative impacts of growth and will provide a framework for identifying priority projects.	Table 4-14
The EIS commits BMA to further consultation with the DES, QFRS, QAS and EMQ on emergency response and planning requirements, including bushfire. This will include prior to and during both construction and operation.	Table 4-15
The storage of chemicals during construction is also implemented to avoid any storage compatibility issues and meet safety and environmental requirements with many of the substances being stored in flame containers with integrated bunding. Emergency equipment in accordance with the manufacturer's Material Safety Data Sheet is also held on site. Quantities are also kept to a minimum to minimise the risks. In addition all chemicals being brought to site must be approved for use on site and if the chemical poses an unacceptable risk during use or storage it is substituted for a safer or more environmentally friendly product.	Table 4-15
BMA is committed to workforce diversity. BMA has engaged a dedicated Senior Advisor Women's Employment, to develop strategies and workforce flexibility options to increase BMAs representation of women and other underrepresented groups such as Indigenous and disabled workers.	Table 4-17
BMA will look to form a closer working relationship with the Planning Information and Forecasting Unit of DIP, to provide confidential forecasting and workforce number projections to allow for more informed planning.	Table 4-18
BMA will look to form a closer working relationship with PIFU, to provide confidential forecasting and workforce number projections to allow for more informed planning. Effective workforce planning aligned to staged or tiered growth projects, enables non-resident workers to transition from one project to another. This ensures, as much as is practical, that workplace and community impacts from the non-resident workforce are minimised.	Table 4-18



Proponent commitment	SEIS section
During the operational phase BMA is committed to undertaking further investigation in support of firming up residual void stability, hydrological behaviour and void rehabilitation strategies. These studies/investigations include: ■ more detailed hydrological and geochemical research aimed at more accurately predicting long term void water levels and mechanisms that may be used to enable the void to self regulate its salinity and not adversely impact on useful groundwater reserves ■ groundwater investigation aimed primarily at understanding the behaviour of the regime in particular reference to the likely final position and configuration of the final void so that the void's potential to depress or recharge groundwater is more fully understood and that the refined hydrological model accounts for groundwater movements more comprehensively in determining long term storage and salinity levels ■ ongoing spoil characterisation to determine the characteristics of spoil emplacements surrounding residual voids as well as physical measurements of spoil run-off and leachate to refine the void salinity balance ■ durable rock identification to ensure that sufficient material is available for rock mulching steep long slopes into voids—in the event that improved outcomes for landform stability, void hydrology and salinity are indicated ■ further investigation into erosion mitigation on long slopes which will be formed when high walls and low walls are subjected to substantial regrade treatments ■ active liaison with the DERM so that the regulator can understand the complex nature of the final void issues and provide more strategic advice on its requirements for the rehabilitation outcome for large residual voids in Central Queensland. This will assist BMA as it develops strategies for mine closure which are consistent with the regulators long-term view and requirements. ■ the process of refining rehabilitation methods for spoil areas, including residual voids and developing appropriate land use goals for land disturbed by mining is an ongoing one as mining technology develops and mine plans change. Accordingly, in the future, the treatments proposed for residual voids may change. Nonetheless, BMA is committed to stable and sustainable outcomes for the Daunia residual void.	Appendix C
BMA is committing to undertake the following: ■ upgrade the Peak Downs Highway/Poitrel And Millennium Mine Access Road intersection to a channelised right turn (CHR)/auxiliary left turn (AUL) as per the DMR approved plans ■ install Category V5 lighting at the Peak Downs Highway/Poitrel and Millennium Access Road intersection to meet the AS/NZ1158 Standards (Lighting for Road and Public Spaces – Vehicular Traffic (Category V) Lighting—Performance and Design Requirements) requirements.	Appendix G
BMA will redesign the light vehicle road and haul road crossing culverts in accordance with the document titled 'Approach Methodology Proposal For Design Plan for New Chum Creek Crossing'. The redesign will focus on minimising the impact on fisheries resources resulting from the installation of culverts for the crossing.	Design Plan submitted to DEEDI (DPI&F)
The gravesite of Cristina Sutherland McKenzie is in an area that will be impacted by the mine and/or mine associated infrastructure. BMA will discuss with any relatives, how the remains and the headstone should be removed. BMA propose that the remains will be reinterred at a nearby cemetery and that either the existing headstone or a new headstone will be placed with the remains.	Daunia Grave Site Relocation submitted to DIP



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