ENVIRONMENTAL IMPACT STATEMENT

RED HILL
MINING LEASE

Section 02
Project Rationale and Alternatives

Section 02 Project Rationale and Alternatives

2.1 Project Rationale

2.1.1 Project Need

The Red Hill Mining Lease is located adjacent to the existing Goonyella Riverside and Broadmeadow (GRB) mine complex in the Bowen Basin, approximately 20 kilometres north of Moranbah and 135 kilometres south-west of Mackay, Queensland.

BHP Billiton Mitsubishi Alliance (BMA), through its joint venture manager, BM Alliance Coal Operations Pty Ltd, proposes to convert the existing Red Hill Mining Lease Application (MLA) 70421 to enable the continuation of existing mining operations associated with the GRB complex. Specifically, the mining lease conversion will allow for:

- An extension of three longwall panels (14, 15 and 16) of the existing Broadmeadow underground mine (BRM).
- A future incremental expansion option of the existing Goonyella Riverside Mine (GRM).
- A future Red Hill Mine (RHM) underground expansion option located to the east of the GRB mine complex.

The three project elements described above are collectively referred to as 'the project'.

The project's high quality hard coking coal is attractive to overseas steel mills. While BMA has access to a number of existing and prospective coal resources in the Bowen Basin, the project resource has been identified for future development on the basis that:

- Broadmeadow panels are to extend into MLA70421. High quality product coking coal exists within the proposed panel extensions. Without the statutory approvals and conversion of tenure, mining cannot commence or extend across into MLA70421.
- The resource is a high quality resource that will meet future market demand.
- The extent and nature of the resource is quite well understood due to extensive exploration and hence BMA can bring this project into production reasonably quickly compared to less well known resources.
- Concurrent mining of different quality coals from the adjacent mines provides a high level of flexibility in terms of product mixes which is not readily achievable where mines are located further away.
- The resource is adjacent to an existing operation, being the GRB mine complex. This provides a number of synergies in terms of water management, water and power supply, ability to share rejects and mine waste disposal facilities and ability to share rail infrastructure, particularly rail loops.

The majority of Australia's metallurgical coal exports are destined for Asia and Europe, where they are used for steel manufacture. The largest importers of Australian metallurgical coal are Japan, India, China, the Republic of Korea and the European Union. The fastest growing export destinations for

metallurgical coal are India and China. China imported 18 times more metallurgical coal from Australia in 2009–10 than in 2007–08 (ABARES 2011).

In 2010 Australia was the world's largest exporter of coal (IEA 2010) and fourth largest coal producer, some 407 million tonnes of coal in 2010. Queensland was responsible for approximately 55 per cent of this total (ABARES 2011).

Coal is the State's most valuable export commodity in terms of revenue, with total general government sector revenue estimated to be worth $40 billion in 2010-11 (State Budget 2010/11).

Based on information in the Queensland State Budget (2013/14), coal royalties make up the bulk of royalty and land rent revenue, accounting for more than 76 per cent in 2013-14. In 2013-14, the coal royalty estimate is around $2.1 billion. The industry is also a major customer of rail and port services in Queensland.

In February 2011 the coal industry in Queensland directly employed about 20,000 people (State Budget 2010/11). A further 70,000 indirect jobs were created through the industry's activities.

The Broadmeadow extension will sustain existing operations at BRM. The extension will not require additional mining infrastructure and operations will be undertaken by the existing workforce. The GRM incremental expansion and RHM underground expansion option have the potential to employ approximately 2,000 workers during peak construction and approximately 1,500 workers during peak operations. However, this is subject to further assessment as part of on-going project planning. There will also be indirect jobs created as a result of the GRM incremental expansion and RHM underground expansion option.

The capital investment required to bring the project to its full potential production, the annual operational expenditure and the direct and indirect employment opportunities and associated spending, highlights the value of the project to Queensland.

Further details of the project's economic benefits are given in **Section 19**.

2.1.2 Technical Feasibility and Commercial Viability

2.1.2.1 BHP Billiton Project Development and Assessment Process

BMA operates within a strict risk management and project decision framework. The project seeks to extract a well-defined and high quality coking coal resource. Final project feasibility and sanction will be determined during BMA's project assessment process which will be conducted post environmental impact statement (EIS) approval, in line with best practices for mining projects.

The BHP Billiton project development process is designed to ensure that BMA makes, and then delivers on, good investment decisions. It is important that these investments:

- are aligned with BHP Billiton values, ethics, priorities, strategies and policies;
- achieve optimal shareholder value with an acceptable degree of risk;
- have an acceptable probability of success; and
- are based on a consistent decision framework.

The BHP Billiton development process describes a phased process for conducting studies, undertaking independent reviews and executing projects. An overview of the development process is described in **Figure 2-1**. The phases are set out below, and the relationship to project approvals explained.

Figure 2-1 Overview of the BHP Billiton Project Development Process

The four project development phases are as follows:

- Identification phase: Identifies a value-creating development, assesses the material risk issues, and identifies the potential strategic alternatives to be assessed further during the selection phase and ensures alignment of the investment with the business strategy. BMA completed an identification study for the project in early 2011. This study provided an assessment of the material risks and potential investment alternatives to be assessed in the selection phase. The project scope was developed during this phase of BMA's development process.
- Selection phase: Requires assessment of all reasonable alternatives and selection of the optimal alternative taking into account the net present value (NPV), risk, uncertainty and embedded option value. The selection phase study was deferred in August 2012 and further consideration of timing will be considered following the mining lease grant. During the previous uncompleted selection phase study, the project underwent preliminary assessment against a variety of parameters which determined the most appropriate option to proceed to the definition phase.
- Definition phase: Defines the development by optimising the selected configuration for life cycle costs and NPV and finalising the scope, cost, schedule, commercial terms and statutory and regulatory approvals/agreements prior to project execution. A project cannot complete the definition phase unless all environmental approvals and related permits are in place.
- Execution and operation phase: Delivers the project through construction and then operation phases.

All BHP Billiton projects are developed by ensuring each phase builds on the sound decision making and delivery processes from the preceding phase and, as such:

- are built to a clearly defined and fixed scope and completed safely, on time and within budget;
- work as expected, particularly in terms of capacity, operating cost and product quality;
- are operable, reliable and maintainable;
- are delivered against the corporate principles in respect of health, safety, community relations and environmental performance; and
- aim to maintain or improve the value of the business case throughout each project phase.

Each phase has a distinct review and sign off process that must be completed before the next phase can commence. The review and sign off process includes consideration of environmental, social and health and safety aspects of the project, as well as the business case for a project.

2.1.3 Compatibility with Policy and Regulatory Frameworks

Section 1.13 summarises the key policy and regulatory documentation that applies to the project and outlines the actions to be taken by BMA to address these requirements. The project as proposed is able to be constructed, operated and decommissioned in a manner that is compatible and compliant with all current, relevant legislation and policies. The project is also consistent with the regional planning framework and a planning assessment has been undertaken and is included in **Section 5.4**.

2.1.4 Economic, Social and Environmental Costs and Benefits

This EIS details the existing economic, social and natural environments and assesses the changes that would likely or potentially occur as a result of the construction and operation of the project. These changes may include both positive and negative impacts to the existing biophysical and social environments. The EIS also presents strategies to minimise or mitigate potential negative impacts and maximise positive impacts or opportunities.

2.1.5 Regional Socio-Economic Issues

The project's social and economic impacts are detailed in **Section 18** and **Section 19** respectively.

The GRM incremental expansion and the RHM underground expansion option are planned to operate with an up to 100 per cent remote workforce. This means that RHM, at any one time, may employ up to 100 per cent of its construction and/or operations workers from outside the Mackay, Isaac and Whitsunday Region. However, there may be some circumstances where people living locally may be involved through contractors or local businesses.

RHM's potential impact to the existing social and cultural values of Moranbah and the wider Mackay Isaac Whitsunday region were assessed. Various impacts and benefits were identified, including community and indigenous characteristics; education, training and childcare services; housing and accommodation; business, industry and employment; income and cost of living; social infrastructure, community safety, health and wellbeing; transport networks, community identity and cohesion; regional amenity, land use and private tenure ownership.

There is potential for the GRM incremental expansion and the RHM underground expansion option to contribute to the cumulative impacts of mining on the community at a local and regional level.

With respect to economic impacts, the project is estimated to have the following benefits:

- Construction is expected to increase the value added to all other industries in the Mackay Region.
- Operation is expected to increase the value added to all other industries in the Mackay Region and raise output in Australia on an annual basis.
- Annual expenditure by employees in the local region will also increase during construction and during operation.

BMA proposes to utilise a suite of strategies to mitigate impacts and maximise benefits. To ensure success, the proposed mitigation measures require the support, participation and commitment of the local communities, service providers and, in particular, state and local governments. To this end, BMA has undertaken a social impact assessment (**Appendix P**).

2.1.6 Demands on Natural Resources

The main natural resource required by the project is the land within the project footprint. This includes:

- More than half of the calculated disturbance area consists of non-remnant modified grassland and non-remnant regrowth (does not include high value regrowth), with 1,665.2 hectares and 461.9 hectares to be impacted respectively. An estimated 1,669 hectares of remnant vegetation will be impacted either by direct clearing or by subsidence.
- Approximately 3,163 hectares of land that is currently used for grazing. This land has been planted with introduced pasture grasses, and also retains remnant native vegetation. Soil resources on this land have been assessed as suitable for grazing but not for more intensive agricultural activity. As discussed in **Section 5.1**, conversion of this to a mining use will not significantly impact on the region's cattle production capacity.

The EIS study area also contains approximately 500 hectares of land that has been mapped as strategic cropping land (SCL) on the basis of initial screening. However, these lands will not be directly or indirectly disturbed by the proposed project.

The other natural resource required by or affected by the project is water. Water demand will largely be met by recycling of water from the project and adjacent GRB mine complex in the existing GRM integrated water management system. The mine water balance indicates that the project will require a raw water demand of approximately 800 megalitres per year. Raw water supplies are from the existing BMA owned Eungella pipeline and / or the Burdekin pipeline (see **Section 3**).

Groundwater present in the coal seams and surrounding units will be removed as part of mining and incidental mine gas (IMG) drainage. However, this groundwater resource has been assessed (limited sustainable yield and poor quality) as not being of any particular significance in terms of water supply or ecological services.

Finally, a marked quantity of coal seam gas (methane) is identified as IMG, in the targeted Goonyella Middle Seam (GMS). Studies are underway to determine the optimal means to capture and utilise this gas. This is discussed further in **Section 3.8**.

2.1.7 Demands on Community Services and Facilities

The social impact assessment (SIA) (**Appendix P**) has assessed the potential impacts and benefits from the project on the existing social and cultural environment. This included examining whether the project would create an increased demand on community services and facilities.

The SIA also describes the strategies and actions to be undertaken by BMA to mitigate potential negative social impacts and maximise positive social benefits.

2.2 Project Alternatives

2.2.1 No Project

In the event that the project was not to proceed:

- approximately 2,000 potential construction jobs and approximately 1,500 potential operational job opportunities may not be created;
- the significant flow-on (indirect) employment opportunities would not be created;
- significant export income would not be realised;
- injection of revenue into the state and regional economy would not occur;
- significant Queensland and Commonwealth Government taxes and royalties would not be generated;
- the economic investment opportunity of developing a coal resource which is viable and in demand would not be realised; and
- emerging overseas markets would be serviced by other mines (either in Australia or elsewhere).

2.2.2 Alternative Locations

While BMA has access to a number of existing and prospective coal resources in the Bowen Basin, the project has been identified as a potential site for incremental and strategic expansion and development on the basis that:

- The extent and nature of the resource is well understood due to extensive exploration and historic mining in the area. Hence, BMA can bring this project into production reasonably quickly compared to less well known resources.
- The resource is a high quality resource that will meet current and expected future market requirements and demands.
- Concurrent mining of different quality coals from adjacent mines provides a high level of flexibility in terms of product mixes, which is not readily achievable where mines are located further away.
- The resource is adjacent to an existing operation, the GRB mine complex. This provides a number of synergies in terms of water and wastewater management, power supply, ability to share rejects and mine waste disposal facilities, and ability to share rail infrastructure, particularly rail loops. The shared infrastructure reduces the amount of disturbed footprint required for the new project compared to a standalone project located away from the GRB mine complex.

2.2.3 Mining Methods

The techniques employed to recover the targeted coal seams depend on the geology and location of the seam. This includes aspects such as surrounding (non-coal) strata and the depth, thickness and dip angle of the coal seam. It is also possible to commence mining using one technique and then change the approach as the conditions associated with the coal seam change. The mining methods are therefore generally dictated by the natural conditions. The target GMS coal seam dips to the east

and is too deep to mine using open-cut methods in a cost effective manner within the mining lease application area. Consequently, it is necessary to use underground mining methods.

Due to the thickness of the coal seam, it is intended to use a TSM technique (refer to **Section 2.1.2**). For thicker seams, this mining method results in the lowest extraction cost per tonne, maximises resource recovery, and substantially reduces the risk of a spontaneous combustion event. TSM methods are currently being used at the BRM and it is expected that the same process will be able to be adopted at RHM. If trials indicate that TSM is not suitable to natural conditions within RHM, then a conventional high reach longwall system will be employed.

TSM enables maximum resource recovery, estimated in excess of 80 per cent for the future RHM. Any other underground mining method would result in lower recovery rates. A conventional longwall would typically recover approximately 50 per cent of the available resource in the GMS.

Other mining methodology options that have been considered include conventional longwall and bord and pillar operations; however, neither of these provides the resource recovery or other benefits of TSM.

The overall mining strategy proposed maintains the options for future multi-seam underground mining in more northern domains. This would occur after additional exploration is undertaken and understanding is gained of how TSM in GMS affects multi-seam underground mining. Resource utilisation and sterilisation is discussed further in **Section 5.3.2**.

2.2.4 Coal Clearance and Handling System

In determining the appropriate methods and locations for coal clearance and handling, consideration was given to safety, efficiency of handling and the need to avoid conflict with existing GRB open-cut operations. The coal clearance and handling system must be capable of transporting the coal from the mine entrance to the proposed Red Hill coal handling and preparation plant (CHPP) located west of the existing open-cut operations. Stockpiles cannot be placed over underground mining areas due to the effects of subsidence. The location selected for the raw coal stockpile was the closest unimpeded location to the mine access.

Existing operations placed limitations on the route for east-west transfer of the coal and only one alignment was deemed practical. Use of trucks was not considered at the conceptual design stage.

2.2.5 Coal Handling and Preparation Plant

Two main options were available for location of the CHPP, at the proposed RHM mine industrial area (MIA) or to the west of the existing mining operations, closer to the load out facility. Location on the western side of the GRB mine complex was selected due to space constraints around the MIA. This location also maximises integration with existing rejects/mine waste management systems, water supply and other services associated with the existing CHPPs. Coal sterilisation was also considered when locating the project infrastructure.

The CHPP was placed adjacent to the Riverside CHPP rather than the Goonyella CHPP due to space availability and because the Riverside location provides easier access to the existing rail loop. This location also allows for placement of rejects and waste from the CHPP into nearby waste disposal locations within the existing GRB mine complex.

Another alternative considered was to expand the capacity of the existing CHPPs (Goonyella CHPP and Riverside CHPP). This was not preferred because of the interruption to existing operations and also because of the opportunity to install more modern processing techniques in a new plant, compared to expanding an existing plant. Building a third CHPP also provides some operational advantages in terms of minimising lost production if one of the plants is off line for maintenance.

The design of Red Hill CHPP will be based on the now standardised BMA design, which includes large diameter cyclones, reflux classifiers, and flotation columns. This design has been used at other recent projects.

2.2.6 Rejects and Tailings

The CHPP will produce wastes from coal processing, including course and fine material that cannot be exported as product. A process of further treating the coal fine rejects to remove water and produce a thickened paste using belt press filters will be adopted. The thickening process has several advantages including allowing for increased recovery of water and producing dewatered rejects. This is discussed in more detail in **Section 3.7.5**.

The alternative to producing dewatered tailings is to discharge wet tailings to a tailings storage facility. This is not preferred as a new tailings storage facility would be required and space for such a facility proximity to Red Hill CHPP was limited. Dewatering tailings is also more efficient in terms of water use.

In the longer term, rehabilitation issues associated with waste disposal areas for dewatered tailings are simpler than for a tailings storage facility containing wet tailings.

2.2.7 Site Water Management

The project will integrate the water management system for RHM with the existing GRB mine water management system. This has a number of advantages for the project. In particular, it assists in maximising reuse of water, and thus reducing external demand. It also provides the best option for managing the saline groundwater extracted during drainage of IMG and intercepted during operations at the Broadmeadow extension and future RHM. This is achieved by allowing this groundwater to mix with less saline mine water in the existing mine water management system, thus making it suitable for reuse.

The existing GRB mine complex water management system has been assessed to have sufficient capacity to accommodate additional water from the project. Details are provided in **Section 7**.

If a stand-alone water management system was utilised, groundwater from the RHM would need to be discharged directly to surface waters and it is likely that energy intensive water treatment systems would be required to achieve salinity objectives in the Environmental Protection (Water) Policy 2009 (EPP (Water)). The opportunity to use this water in the CHPP would be lost.

2.2.8 Water Supply

Water supply for the project will be sourced initially from the site water recycling system, with external raw water supply only sought for high quality or potable water requirements and possibly during prolonged dry periods. Existing pipelines, including the BMA owned Eungella pipeline and the

Burdekin pipeline, service the site and BMA does not require any additional water supply infrastructure or allocations for the project.

2.2.9 Accommodation and Workforce Arrangements

The GRM incremental expansion and RHM underground expansion option are planned to operate with an up to 100 per cent remote workforce. This means that the project, at any one time, may employ up to 100 per cent of its construction and operations workforce on a remote basis. However, there may be some circumstances where people living locally may be involved in the project through contractors or local businesses.

BMA's workforce at existing operations is largely residential. BMA has no plans to change the largely residential nature of its existing workforce, which will help ensure a long-term stable population in Moranbah and continue to contribute to community cohesion. Further information on workforce arrangements is available in **Section 18**.

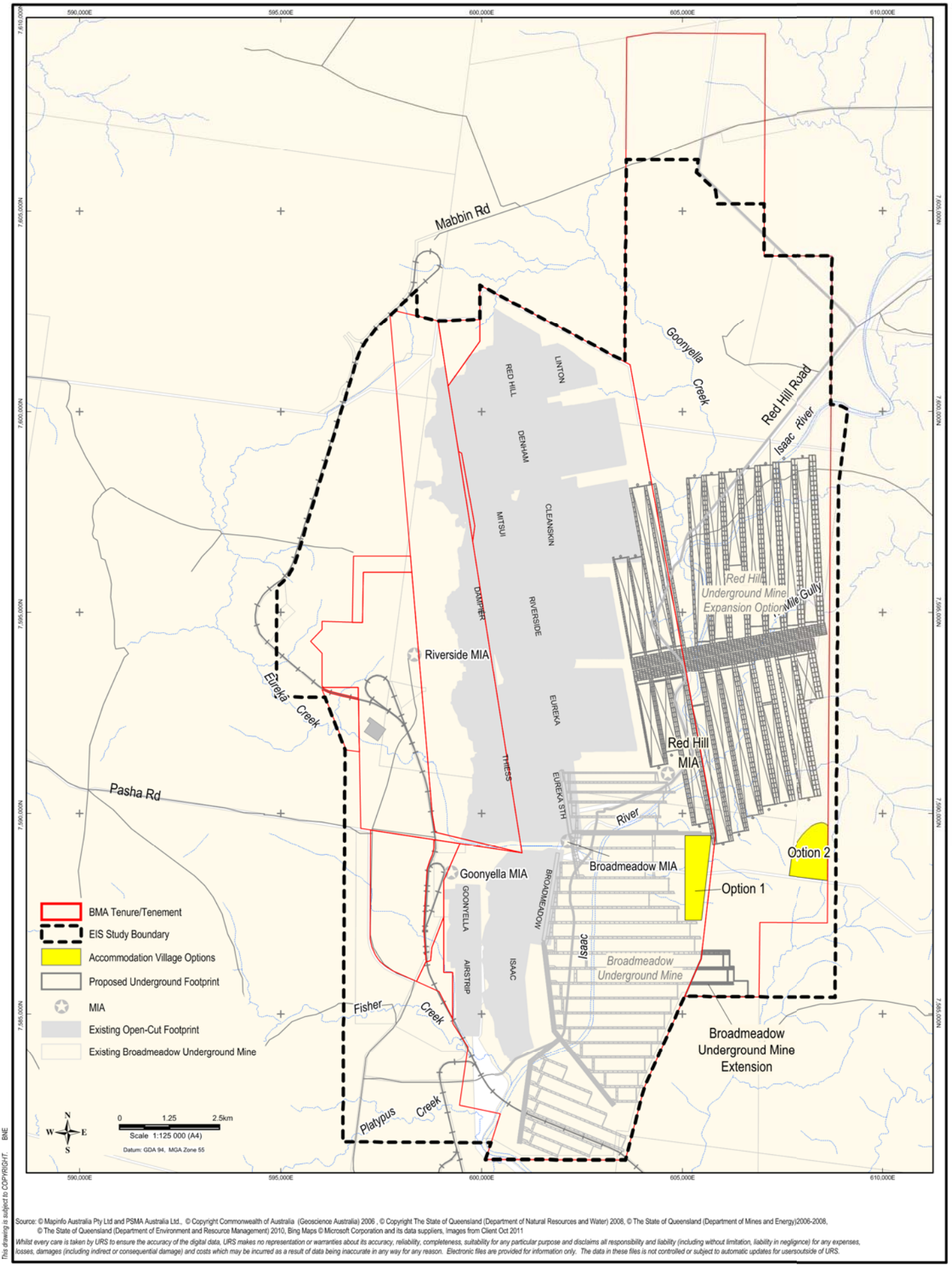
The workforce associated with the GRM incremental expansion and RHM underground expansion option will be housed in an accommodation village. A number of possible locations for an accommodation village were examined. Key factors included tenure, proximity to the proposed mine by road, as well as avoiding areas of known environmental sensitivity. Two options were looked at in more detail in EIS studies, as shown on **Figure 2-2**. Option 1 was located on mining lease (ML) 1763, adjacent to the north-east extent of the BRM. Option 2 was located on the eastern boundary of MLA70421, south of the underground footprint of the proposed RHM. Option 2 was chosen as the preferred location. For more information on the Red Hill accommodation village see **Section 18**.

2.2.10 Power Supply

The key factor determining power supply options was to maximise integration with the existing system, and minimise the need for new works. The Broadmeadow extension will not materially alter the existing power requirements for BRM. There is an existing power supply network in the EIS study area, including recent installation and upgrading works to provide power for the Caval Ridge Project. Accordingly, the CHPP infrastructure will draw supply from an existing substation serving the GRM, GRM incremental expansion and RHM underground expansion option will be supplied from a connection to 66 kilovolt power lines installed to the east of the existing mining activities. Only short sections of overhead power lines are required to make these connections, and the shortest route possible will be taken once assessed against relevant environmental matters.

2.2.11 Rail and Port

Coal transport and export for the GRB mine complex is serviced by the Aurizon rail network, the Goonyella System. This system transports coal from two existing rail loops on the west of the GRB mine complex to the existing Hay Point, Dalrymple Bay and Abbot Point coal terminals. A conveyor is proposed from the Red Hill CHPP to the Riverside rail loop and a new dedicated train load-out facility provided for RHM coal. Coal from RHM could be exported through these existing terminals, via existing port capacity.



BMA
BHP Billiton Mitsubishi Alliance

RED HILL MINING LEASE
ENVIRONMENTAL IMPACT STATEMENT

ACCOMMODATION VILLAGE

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PROJECT RATIONALE AND ALTERNATIVES

Figure: **2-2**

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2.3 Ecologically Sustainable Development

2.3.1 Definition of Sustainability

BMA understands the need to ensure the project develops in a sustainable manner. While there is no universally accepted definition of sustainability, the World Commission on Environment and Development (WCED) defined sustainable development as (WCED 1987):

> 'development that meets the needs of the present without compromising the ability of future generations to meet their own needs.'

In 1990, the Commonwealth Government suggested the following definition of Ecologically Sustainable Development (ESD):

> 'using, conserving and enhancing the community's resources so that ecological processes, on which life depends, are maintained, and the total quality of life, now and in the future, can be increased.'

The *Environmental Protection Act 1994* defines ESD as:

> 'The object of this Act is to protect Queensland's environment while allowing for development that improves the total quality of life, both now and in the future, in a way that maintains the ecological processes on which life depends'

These definitions of sustainability address total quality of life and thus encompass the environmental, social and economic dimensions of development now and in the future.

This section describes the process undertaken by BMA to embed sustainability thinking and opportunities in the project planning and design. In addition, this section outlines the project's compatibility with the objectives and principles defined in Australia's National Strategy for Ecologically Sustainable Development (1992) (NSESD).

2.3.2 Project Sustainability Principles

As part of the project design, BMA undertook an exercise to define sustainability for the project and embed sustainability thinking and enhancement of sustainability opportunities in the early planning and concept development stages. Project team members involved in the exercise included BMA employees (engineering, environment and community relations), mine planning engineering consultants, infrastructure and CHPP design engineers, environmental consultants, and community and social consultants.

The outcome of this process was the identification of thirteen design challenges and opportunities. These design challenges are outlined below and fall into three broad categories:

- Environment opportunities:
  - including greenhouse gas (GHG) reduction measures;
  - managing water to minimise releases and raw water use through maximising capture and reuse;

  - planning for closure and considering final landforms and sustainable end land uses at the outset and incorporating dynamic and adaptive management techniques into ongoing operational management plans; and
  - identifying opportunities to enhance the overall biodiversity values of the region through appropriate mitigation and offsets.
- Social and community:
  - engaging effectively with the community;
  - investing in the community to build business capacity;
  - engaging the Indigenous community through procurement, training and employment;
  - stimulating local economic activity;
  - attracting and retaining workforce for construction and operation; and
  - integrating project planning at regional and local levels.
- Resource use efficiency:
  - influencing the supply chain towards sustainability;
  - reducing impacts on the road transport corridors (rail and road);
  - understanding the sustainable use of the coal resource (all seams); maximising synergies between the existing GRB mine complex and the proposed project, through mine planning, design, and shared resources / services / disturbed areas; and
  - maximising the volume of coal extracted using TSM technology.

It is important to note that these design challenges and opportunities do not represent commitments for the purpose of the EIS. They represent the outcomes of a process designed to identify guiding principles for design and management of the project. However, as part of EIS studies, the potential to achieve these opportunities has been examined and, where appropriate, these principles are reflected in the project design as well as the mitigation measures proposed in the EIS. BMA is also undertaking a range of regional and state based programs in relation to employment, training, local industry participation and management of social issues.

2.3.3 Ecologically Sustainable Development Principles

The project's compatibility was reviewed against the objectives and principles defined in the NSESD. It demonstrates that the project's planning has been undertaken with consideration of these objectives and principles. Results from this are detailed in **Table 2-1**.

Table 2-1 Key ESD Objectives Related to the Project

Objective / Principal	Project Response
Key Objectives	
Enhance individual and community well-being and welfare by following a path of economic development that safeguards the welfare of future generations.	The project will provide economic benefits to the wider community in terms of increasing and sustaining income generation and spend, employment opportunities, and increased government revenues and reinvestment, as detailed in **Section 19** of the EIS. Measures to improve social wellbeing and welfare are outlined in **Section 18** of the EIS. BMA is committed to the communities in which it operates. In 2013, BMA invested around $27.5 million across the Bowen Basin townships to support local services and community development programs. BMA is a significant contributor to the State and National economy, contributing an estimated $9.3 billion in direct spending during FY13. In addition, BMA contributed approximately $560 million in royalties, taxes and levies to the Government and invested over $100 million in the Bowen Basin over the last two years in regional infrastructure and community partnerships. BMA's five-year community development strategy focuses on strengthening the social resources of the Bowen Basin and its communities. It focuses on local and regional priorities for community development, and seeks to contribute towards building strong communities in the context of rapid growth and transformation as a result of resource development. It considers BMA's current operations, BMA's overall growth plans, and community needs and growth. In this way, the strategy takes a company-wide approach to community development, rather than a specific operation or project approach, and details how BMA will work with communities and other partners over the next five years. The project will be considered in the development and continued implementation of this strategy. The existing strategy is focused on: • quality education and training, employment choice, and adequate incomes; • community, recreational and health facilities which support personal and family health; • community cohesion, including shared values and positive community relations; and • a healthy environment and good public amenity.
Provide for equity within and between generations (the Intergenerational Equity Principle).	The project and its proposed mitigation measures have been designed so that the project will not significantly reduce, or fail to maintain, the health, diversity and productivity of the Queensland environment or affect future generations. Disturbed land will be rehabilitated and closure will ensure a stable, non-polluting land condition, as detailed in **Section 5.5** of the EIS. The proposed post-mine land use for disturbed areas within the project is a mosaic of self-sustaining vegetation communities using appropriate native tree, shrub and grass species, and improved pasture species, as appropriate. The use of an offset strategy will reduce any biodiversity values lost as a result of the project.

Objective / Principal	Project Response
Protect biological diversity and maintain essential ecological processes and life-support systems.	The terrestrial and aquatic ecology values in the vicinity of the site are described in **Section 9** and **Section 10**, respectively. A key mine plan decision based on the protection of terrestrial and aquatic ecology values is the use of underground mining techniques, rather than open-cut. This mining technique minimises the amount of vegetation clearance required. The riparian zone will be avoided where possible to protect key Regional Ecosystems (REs) along watercourses. IMG management infrastructure will be implemented to minimise vegetation clearance in sensitive areas where possible and maintain connectivity of habitats.
Guiding ESD principles	
Decision-making processes should effectively integrate both long and short term economic, environmental, social, and equity considerations.	The project forms part of a growth strategy designed to advantageously service the expanding demands of India, China and other international metallurgical coal markets, which have arisen because of economic development in those countries. The project will provide immediate and long-term economic benefits to Queensland, contributing to commonwealth, state and local government revenues and the national, state and local economies. Avoidance and mitigation strategies proposed by BMA will be effective in managing short term operational impacts and instigates mitigation measures aimed at minimising any potential long term negative impacts.
Where there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation (the Precautionary Principle).	An assessment of the risk of unacceptable environmental harm consistent with the Precautionary Principle has been carried out as part of this EIS (**Section 20**). The findings have been used to assess suggested mitigation measures in order to determine optimum environmental and social control strategies. These control strategies are detailed in the EIS. The project has the technical and financial support and resources required to establish and maintain these environmental protection controls.
The global dimension of environmental impacts of actions and policies should be recognised and considered.	As outlined in **Section 12**, the project's average scope 1 and 2 site operations represent 0.1% of Australia's 2009 GHG emissions. A range of mitigation measures are proposed for site level emissions and is taking action at a corporate level to address the wider implications of GHG and climate change. As detailed in **Section 9** and **Section 10**, the project will not result in significant impacts to threatened species, migratory species, RAMSAR wetlands, threatened ecological communities, matters of national environmental significance, or other matters protected by international treaties and agreements.
The need to develop a strong, growing and diversified economy which can enhance the capacity for environmental protection should be recognised.	The project will add value to the Australian, Queensland, and international economies. This value will be from both direct and flow-on economic benefits and environmental management from the project. The Minerals Council of Australia estimates that for every job created in the mining industry, at least three additional jobs are created elsewhere in Australia. BMA utilises strategies to encourage the use of local product, suppliers, and contractors during construction and operations.

Objective / Principal	Project Response
The need to maintain and enhance international competitiveness in an environmentally sound manner should be recognised.	The project will enhance Australia's international competitiveness by adopting the latest proven technology and mining methods, while not causing significant environmental impacts.
Cost-effective and flexible policy instruments should be adopted, such as improved valuation, pricing and incentives mechanisms.	The project is consistent with local, Queensland and Commonwealth government policy and does not undermine policy instruments.
Decisions and actions should provide for broad community involvement on issues that affect them.	An ongoing stakeholder and community consultation program commenced at the project's inception to assist with the preparation of the EIS. Details of the project's stakeholder and community consultation program and relevant stakeholders are provided in **Section 17**. BMA has a complaints management processes which applies across its operations. The project will continue to utilise this process. BMA has provided and will continue to provide the community with opportunities to comment on and learn about the project, tailored to suit stakeholders and maximise participation in the consultation program. The primary forum for this consultation will be through the BMA Community Network.
Specific ESD objectives for the mining sector	
To ensure mine sites are rehabilitated to sound environmental and safety standards, and to a level at least consistent with the condition of surrounding land.	Disturbed land will be rehabilitated and left in a stable, non-polluting condition, as detailed in **Section 5.5** of the EIS. The proposed post-mine land use for disturbed areas within the EIS study area is a mosaic of self-sustaining vegetation communities using appropriate native tree, shrub, grass species, wetland areas, and improved pasture species as appropriate. This post-mine land use will be consistent with the current surrounding land use.
To provide appropriate community returns for using mineral resources and achieve better environmental protection and management in the mining sector.	The project will produce a product that is subject to a high international demand for the foreseeable future and will provide significant revenues to Commonwealth, State and local government. The coal resource has been subject to detailed investigations to define the extent of the resource and the feasibility of its extraction and processing. These significant revenues to Commonwealth, State and local government will allow government spend within the local area and region. BMA has undertaken a comprehensive environmental impact assessment process to identify the opportunities to protect environmental values in line with its commitment to sustainability (see **Appendix R**). This EIS documents the detailed assessments that have been undertaken and the proposed environmental management strategies to be implemented. The project has the technical and financial resources required to establish and maintain these environmental management controls.

Objective / Principal	Project Response
To improve community consultation and information, improve performance in occupational health and safety and achieve social equity objectives.	BMA has undertaken stakeholder and community consultation and feedback collected has been incorporated in the EIS. This is detailed in **Section 17**. The results have been incorporated into the assessment of social impacts as detailed in **Section 18**. Health and safety is considered one of the top priorities for BMA and as such a review of the risks to occupational health and safety posed by the project has been undertaken. Proposed appropriate management measures as detailed in **Section 20**.