SARAJI EAST MINING LEASE PROJECT

Environmental Impact Statement

Executive Summary



Saraji East Mining Lease Project

Executive Summary

Introduction

BM Alliance Coal Operations Pty Ltd (BMA) proposes to develop the Saraji East Mining Lease Project (the Project), a greenfield single-seam underground mine development located within the Bowen Basin, Queensland. The Project will be located within the Isaac Regional Council (IRC) Local Government Area (LGA) approximately 30 kilometres (km) north of Dysart and approximately 167 km south-west of Mackay (refer Figure ES-1). The Project will support the effective progression of Mining Lease Application (MLA) 70383 and MLA 70459 and will commence from within an existing BMA operated open cut coal mine located at Saraji on Mining Lease (ML) 1775.

The Project is proposed to include a new transport and infrastructure corridor, a new Coal Handling and Preparation Plant (CHPP) and associated Mine Infrastructure Area (MIA) and a new rail spur and balloon loop. Both the rail spur and balloon loop are proposed to be located on the site of the existing adjacent Saraji Mine. The Project is expected to produce up to eight million tonnes per year (Mtpa) of metallurgical (coking and pulverised coal injection) product coal for the export market over a production schedule of 20 years.

This Environmental Impact Statement (EIS) has been prepared following the process established under the *Environmental Protection Act 1994* (EP Act) for the Project. The EIS has been prepared specifically in response to the Terms of Reference (ToR) dated May 2017 issued by the Department of Environment and Heritage Protection (DEHP) (now known as the Department of Environment and Science) (DES). The EIS addresses matters relevant to the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) and Referral 2016/7791 made under the EPBC Act for the Project, pursuant to the Bilateral Agreement between the Commonwealth and the State of Queensland.

The Proponent

BMA acts on behalf of the Central Queensland Coal Associates (CQCA) Joint Venture, namely BHP Coal Pty Ltd, BHP Queensland Coal Investments Pty Ltd, Umal Consolidated Pty Ltd, QCT Resources Pty Limited, QCT Mining Pty Ltd, QCT Investment Pty Ltd, and Mitsubishi Development Pty Ltd under a management agreement. The CQCA is an unincorporated joint venture between BHP (50%) and Mitsubishi Corporation (50%). BMA is Australia's largest exporter of metallurgical coal. BMA has seven operational coal mines in central Queensland: Blackwater, Broadmeadow, Goonyella Riverside, Peak Downs, Saraji, Caval Ridge and Daunia (Figure ES-1). BMA also manages the Hay Point Coal Terminal near Mackay in Queensland. Norwich Park Mine is currently under BMA's care and maintenance. Norwich Park Mine has been renamed Saraji South Mine during 2020. The mine's historic name is used in this EIS.

Structure of the EIS

This EIS is made up of two volumes. Volume 1 of the EIS contains the main report and is structured as follows:

- Chapter 1 introduces the Project, provides a description of the EIS and consultation process, and summarises the regulatory approvals that apply to the Project.
- Chapter 2 discusses the Project justification and alternatives.
- Chapter 3 provides a description of all elements of the Project.
- Chapter 4 to Chapter 20 provide a description of the environmental values of the Project Site, the potential impacts on those values and provides appropriate mitigation strategies where relevant.
- Chapter 21 considers all matters to be addressed under the EPBC Act.
- Chapter 22 assesses cumulative impacts of the Project.

Volume 2 contains the relevant technical reports and other supporting material for the EIS.



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🕅 Other Mine

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The Project

The Project is a greenfield single-seam underground mine development located primarily on MLA 70383 commencing from within the existing Saraji Mine (ML 1775). Where practical the Project has been designed to utilise existing approved Saraji Mine infrastructure to improve efficiencies and minimise potential environmental impacts.

The Project Site consists of Exploration Permit for Coal (EPC) 837, EPC 2103, MLA 70383, MLA 70459, ML 1775, ML 70142 and ML 1782. The Project Site encompasses approximately 11,427 hectares (ha) of land. The Project's mining activities and associated infrastructure are not proposed to impact the full extent of the Project Site; direct impacts will be constrained to a smaller area of approximately 3,425 ha within MLA 70383, MLA 70459, ML 70383, MLA 70459, ML 1775. This area is referred to as the Project Footprint.

Pending regulatory and BHP's financial approval, the Project is assumed to begin construction in Financial Year (FY) 2021 for a duration of three years. The operational phase will begin in FY 2023 for a production schedule of 20 years, finishing in FY 2042.

Figure ES-2 shows the following:

- relevant mining tenements
- the Project Site delineated by the extent of surface infrastructure and relevant mining tenements and authorities
- the Project Footprint the maximum extent of proposed surface disturbance associated with surface infrastructure and underground mining activities
- the underground layout a mine layout related to the optimised production schedule for the proposed FY 2023 – FY 2042 period.



The key components of the Project are outlined below and shown in Figure ES-3:

- a greenfield underground coal mine to be developed on MLA 70383 commencing from within the Saraji Mine's ML 1775
- mining up to 11 million tonnes per annum (Mtpa) of run-of-mine (ROM) coal to produce up to a maximum of eight Mtpa of product coal (excluding ramp up and ramp down periods, the Project anticipates the production of an annual average of 6.2 Mtpa of product coal)
- production of approximately 110 million tonnes (Mt) of product coal over the 20 year production schedule of the Project
- · disposal of dewatered tailings and rejects within in-pit spoil dumps on the Saraji Mine
- pre- and post-drainage of incidental mine gas from the coal seams to enable underground coal mine development
- construction of a new MIA within previously disturbed areas of the Saraji Mine on ML 1775
- construction of a new CHPP, conveyor, ROM infrastructure, product coal stockpile areas and supporting infrastructure on ML 70142
- construction of a water management system including the development of a process water dam and raw water dam
- construction of a water pipeline connecting the Project's surface infrastructure located on ML 70142 to the process water dam located on MLA 70383
- construction of a new rail spur and balloon loop, and signalling system on the mainline
- relocation of the existing Eungella Water Pipeline Company (EWPC) Southern Extension Water Pipeline (owned and operated by SunWater) to the eastern boundary of MLA 70383 and northern boundary of MLA 70459
- relocation of the existing 132 kilovolt (kV) Powerlink powerline to the eastern boundary of MLA 70383 and northern boundary of MLA 70459
- relocation of existing 66 kV powerlines
- construction of a new co-aligned 66 kV powerline to connect to Dysart Substation
- a new accommodation village to support the construction stage located on MLA 70383.

The EIS has assessed environmental impacts relevant to the off-lease 66 kV powerline extension to Dysart Substation. However, the off-lease components of the Project do not form part of the MLA and subsequent mining tenement applications.



- Project Site Exploration Permit Coal (EPC)
- Mining Lease (ML)
- L Mining Lease Application (MLA)
 - Underground layout
- Flare
- Vent
- Public Road [__ Future Development Area + Existing Railway 66kV Powerline Surface Infrastructure - Pipeline 🕂 Rail Loop
 - Substation (H) Helipad
 - Telecommunications Tower

Transport and Infrastructure Corridor

- Surface Infrastructure
 1 Rail Loading Balloon Loop
 2 Process Water Dam
 3 Product Stockpiles
 4 CHPP
 5 Raw Water Dam
 6 ROM Pad
 7 Future MIA
 8 Convevor

- 8 9
 - Conveyor Construction Village Projection: Map Grid of Australia - Zone 55 (GDA94)
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Environmental Impact Statement Saraji East Mining Lease Project

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The existing Saraji Mine currently operates on ML 1775, ML 70142, ML 1784, ML 1782, ML 2360, ML 2410, ML 70294, ML 70298, ML 70328 and ML 700021 under Environmental Authority (EA) Permit No. EPML00862313.

The Project will share some facilities with the existing adjacent Saraji Mine. This proximity to the Saraji Mine will provide BMA with the following operational flexibility:

- use of the Saraji Mine CHPP for processing Project coal in years where ROM exceeds 7 Mtpa. In the years where mine production volumes exceed the processing capacity of the Project CHPP, excess coal will be trucked to the existing Saraji Mine CHPP for processing. Coal processed through the Saraji Mine CHPP will be handled in accordance with the existing EA (EPML00862313)
- use of existing open-cut spoil dumps associated with the Saraji Mine to distribute and dispose of dewatered tailing and rejects from the Project's CHPP and Saraji Mine CHPP
- · use of an integrated power supply network for Saraji Mine and the Project
- use of the existing open cut pits for mine access and highwall entry to limit the environmental impacts, costs, time and risks involved in construction of new mine portals
- locate and construct above-ground infrastructure, including the MIA within previously disturbed areas on the Saraji Mine
- transport water between the Project and the broader BMA network of mines via the existing water pipeline network (under normal operating conditions, the Project mine water system will operate independently)
- telecommunications will be provided by extending the services from the Saraji Mine via the existing service corridor
- transport product coal along the existing Goonyella rail system that currently runs along the western boundary of the existing Saraji Mine on ML 70142
- supply electrical power demand by extending existing powerlines from the Saraji Mine via the proposed infrastructure and transport corridor
- truck mineral wastes generated by the construction of the mine portal, ventilation shafts to Saraji Mine in-pit spoil dumps for disposal
- truck all rejects (dense medium coarse rejects, fine rejects and dewatered tailings) generated by the Saraji East CHPP to Saraji Mine open cut spoil dumps located on ML 1775 and ML 1782.

Project justification

The Project will allow BMA to expand its production capacity in the Bowen Basin to meet current and future market demands for its coal products. The Project will produce metallurgical coal for export, generate jobs and result in increased investment and royalties for Queensland. Increased demand for coal products in India, China and other international markets, particularly for steel manufacturing has created additional export opportunities for the development of this new mine.

Coal is Queensland's largest export commodity with the Queensland Government benefiting significantly from royalties paid by the mining industry each year. In the 2016 financial year, the total royalties and taxes paid to the Queensland Government by BMA and BHP Billiton Mitsui Coal (BMC) was \$381 million (BHP Billiton, 2016). The Project will add to royalties derived from mining activities during each year of operation.

In addition to these economic benefits, BMA through its existing operations, provides employment and training opportunities through direct and indirect employment and secondary support industries. BMA also provides extensive support to community development, education, health, social and recreational programs in the region.

The Project will benefit IRC, and the State of Queensland. Key benefits of the Project include:

- direct economic benefits, including employment, payment of taxes and royalties
- creation of up to 1,000 jobs during the peak construction phase, and up to 500 jobs during the peak operational phase
- indirect economic benefits to industries in the Mackay region
- · indirect employment benefits in Project-related services both locally in IRC and state-wide
- expansion of the BMA Community Partnership Program for increased community initiatives
- support for appropriate skills and training programs to further develop industry skills.

The EIS process

The regulatory requirements for an EIS are provided in chapter 3 of the EP Act, and include the following key steps:

- The proponent lodges a draft terms of reference (ToR) for the EIS
- The draft ToR is publicly notified, and the public can make submissions of the draft ToR
- Following responses to submissions on the draft ToR, a final ToR is issued
- The proponent prepares and lodges an EIS, addressing the requirements of the ToR
- DES determine whether the EIS can proceed
- The EIS is publicly notified, and the public can make submissions on the EIS
- The proponent responds to submissions on the EIS
- DES assess the adequacy of responses to submissions
- DES issue the EIS Assessment Report, which concludes the EIS process.

The proponent lodged a draft ToR on 9 December 2016 with the final ToR issued in May 2017.

EIS preparation methodology

Environmental impact assessment (and subsequent documentation in the EIS) has been undertaken in accordance with the final ToR for the Project. The general method for undertaking and preparing an EIS is to:

- conduct individual assessments of each relevant aspect of the environment, measuring and predicting the likely scale of impacts of the Project on each aspect including the intensity, duration, cumulative effects, irreversibility and risk of environmental harm
- determine and propose appropriate mitigation measures to minimise likely adverse impacts on the environment for each aspect
- determine the significance of environmental effects and prioritise mitigation and rehabilitation (where applicable)
- produce a summary of commitments that incorporates the proposed mitigation measures.

Where required, additional work has been undertaken to supplement the assessments required by the ToR and to ensure that the impact assessment is complete from the perspective of the Project team.

Accredited process for controlled actions under Commonwealth legislation

The Project has been declared a controlled action under the EPBC Act. The controlling provisions for the Project are:

- listed threatened species and communities (sections 18 and 18A)
- a water resource, in relation to coal seam gas development and large coal mining development (sections 24D and 24E).

The State's EIS process has been accredited under a Bilateral Agreement for the purposes of the Commonwealth's assessment of the Project under Part 8 of the EPBC Act.

The EIS assesses the relevant impacts on matters covered by the controlling provisions and ensures that sufficient information about the Project and its relevant impacts are provided. This subsequently allows the Commonwealth Minister for the Environment to make an informed decision whether to approve the Project under the EPBC Act. The matters to be addressed in this EIS are set out in Schedule 4 of the Commonwealth's Environment Protection and Biodiversity Conservation Regulations 2000 which mirrors requirements established under Part 2 of the Environmental Protection Regulation 2019.

Community consultation

A community consultation program has been carried out by the EIS project team.

Community consultation has broadly been carried out according to the three tiers below:

- communication with affected and interested parties about the Project and the EIS process
- public consultation on the draft ToR, advising of its purpose, location and requirements. This part of the consultation is specifically aimed at identifying stakeholder concerns related to the Project and ensuring, where relevant, these were addressed in the EIS process.
- social baseline study aimed at capturing the most important community values, which included community engagement workshops and interviews with key stakeholders.

Community consultation is an ongoing process that aims to provide opportunities to educate and involve the community throughout the life of the Project.

EIS submissions

The public are welcome and encouraged to make submissions on the EIS during the public notification period. Submissions will be invited through advertisements in a national and a regional newspaper.

In accordance with Section 55 of the EP Act, submissions should be addressed to:

The Chief Executive Department of Environment and Science Attention: The EIS Coordinator (Saraji East Mining Lease Project) GPO Box 2454, Brisbane QLD 4000 Or by email to <u>eis@des.qld.gov.au</u>.

The EIS can be viewed online at:

https://www.bhp.com/sustainability/environment/regulatory-information/

Electronic copies can be obtained by downloading documents from the Project website. Any enquiries about the EIS documents can be made by emailing <u>metcoalinfo@bhpbilliton.com</u> or by phoning BMA on 1800 078 797.

A submission is properly made if it:

- Is written (hard or electronic form)
- Is signed by or for each person (signatory) who made the submission
- States the name and address of each signatory
- Is made to the chief executive of DES
- Is received on or before the last day of the submission period.

Following the close of the public notification period, DES will provide copies of the submissions to BMA, who must consider the submissions, provide DES with a response to the submissions and any amendments to the submitted EIS made as a result of the submissions. Both the submissions and BMA's response will be taken into account as part of DES's assessment of the Project.

Summary of EIS findings

Land use and tenure

The Project Site comprises 14 registered land parcels, with the tenure a mix of freehold and leasehold land. Approximately 36 easements intersect the Project Site, generally protecting and accommodating infrastructure such as water pipelines, electricity infrastructure and railways.

There are two homesteads located within the Project Site (Lake Vermont Homestead and Meadowbrook Homestead), both of which are owned by BMA. An additional five homesteads are located within the vicinity of the Project Site and have also been identified as sensitive receptors. The location of each homestead is illustrated in Figure ES-2.

The Project is located within a rural area containing land mainly used for livestock grazing. The Project directly abuts the existing BMA Saraji Mine, and there are a number of other coal mines in the vicinity of the Project.

A search of the National Native Title Tribunal (NNTT) online Native Title Vision mapping did not identify any claims or determinations over the Project Site. BMA considers that the mining lease application area is over land tenure that is not subject to native title as indicated in the ML 70383 application.

A native title determination area (non-exclusive) is located adjacent to the Project Site. The determination was made by the Barada Barna People under Tribunal Number QCD2016/007. On 29 June 2016 it was determined that native title exists in parts of the determination area.

A number of planning instruments applicable to the Project include the Queensland State Planning Policy (SPP), the Mackay, Isaac and Whitsunday Regional Plan, and the Broadsound and Belyando Planning Schemes. It was identified that the Project is complementary of the desired outcomes of these planning instruments.

Land resources and soils

The assessment of potential impacts to land resources and soils included a consideration of subsidence, geology, mineral resources, ore reserves, contamination and rehabilitation.

Soils and land suitability

The Project Site and surrounds continue to be used for cattle grazing where mining activity is not currently occurring. Reviews of previous reports and a field assessment identified that there are 26 soil mapping units (SMUs) within the Project Site. Two SMUs were assessed as suitable to marginally suitable for cropping. All other SMUs identified were considered suitable for beef cattle grazing activities.

Strategic cropping land

The southern extent of the Project Site (the location of a proposed overhead powerline) is mapped as Strategic Cropping Land (SCL) as regulated under the *Regional Planning Interests Act 2014* (RPI Act). A field assessment of these mapped areas identified that of the SMUs mapped within the SCL map area, the majority of mapped area contains likely elements of verified SCL. Within the verified SCL, impacts under the ownership of a single landholder are less than 2% of the property area. A pre-approval application lodgement meeting was held with the Department of State Development, Infrastructure and Planning (DSDMIP) and the Department of Natural Resources, Mines and Energy (DNRME). BMA will comply with the requirements of the RPI Act and the Regional Interests Development Approval (RIDA) application is currently in progress.

Subsidence

Subsidence was modelled for the Project Site based on conservative assumptions. Over the northern underground panels, a summary of the predicted impacts are:

- subsidence is predicted to reach up to 3.2 metres (m)
- the deepest panel is 440 m below ground level
- Hughes Creek (maximum predicted subsidence of 2.5 3 m), Plumtree Creek (maximum predicted subsidence of 1.5 2 m) and Boomerang Creek (maximum predicted subsidence of 1 m) run through the northern panels.

Over the southern panels of the mine plan:

- the maximum predicted subsidence is 3.5 m
- the deepest panel is 350 m below ground level.

Some residual ponding will occur over the subsided landscape providing a potentially positive effect of increased aquatic habitat in a region where such habitat has been lost to grazing activities and the erosion and deposition they have instigated.

Prior to mining, the land has been utilised for cattle grazing. Due to the gradual nature of the subsidence, it is expected that grazing activities will continue during mining operations but out of direct operational areas while any related subsidence occurs.

A Subsidence Management Plan (SMP) has been prepared for the Project. The proposed approach to managing subsidence is to use pro-active measures to predict and potentially improve the overall condition of the potentially affected areas, so that any adverse effects of subsidence are minimised.

The order of controls for subsidence management is:

- mitigation (pre and post subsidence)
- monitoring and rehabilitation.

Ongoing reporting will be conducted during the operation of the mine, in accordance with the EA and the SMP. The management of the environmental impacts from subsidence will ensure that any impacts from underground mining are minimised where practical.

Rehabilitation

BMA has prepared a Rehabilitation Management Plan in line with the *Mined Land Rehabilitation Policy* (DES, 2018a). In accordance with the policy, land will be progressively rehabilitated. The Project will comply with the *Mineral and Energy Resources (Financial Provisioning) Act 2018.* A Progressive Rehabilitation and Closure Plan (PRCP) will be developed prior to construction commencing and will demonstrate that the proposed Project will:

- be rehabilitated to a safe and stable landform
- not cause environmental harm
- sustain post mining land uses

BHP's *Queensland Coal Rehabilitation Completion Criteria* (BHP, 2018c) outlines the completion criteria for meeting satisfactory rehabilitation for a number of post mining land uses. Post mining land uses may include:

- grazing land
- dryland cropping
- woodland habitat
- watercourses
- water storage.

The completion criteria set out objectives, indicators and criteria for achieving acceptable rehabilitation in the post mining land uses. The completion criteria consider goals of safety, stability, minimal pollution and the ability to sustain an agreed post mining land use. The Rehabilitation Management Plan describes these completion criteria and rehabilitation goals in further detail.

The proposed post mining land use will be an undulating landscape that could be used as grazing land, consistent with the surrounding pastoral land use that dominates the region. The exception to this is where remnant native bushland is disturbed. Where practicable, the post mining land use for these areas is woodlands habitat as this is compatible with the pre-existing land use for biodiversity values. There may be instances in which a mix of native and non-native species will be implemented. Post mining land uses for the Project will be confirmed prior to construction. Land disturbed by the Project's mining activities will be developed to a condition that is self-sustaining or to a condition where maintenance requirements are consistent with an agreed post mining land use.

Rehabilitation monitoring will be undertaken in accordance with the BHP monitoring program current at the time of rehabilitation. Monitoring will focus on the following rehabilitation factors:

- erosion
- vegetation
- soil
- Iandform.

The data from the monitoring program will be used to determine whether the final rehabilitation outcomes have been met. BMA rehabilitation activities will be designed to ensure the final agreed post mining land use and surrender of the Project EA and surrender of mining leases are achieved.

Surface water resources

A number of watercourses flow through the Project Site, including Boomerang Creek, One Mile Creek, Hughes Creek, Plumtree Creek, Spring Creek and Phillips Creek. Of these streams, Boomerang Creek, Plumtree Creek and Hughes Creek intersect the underground mining panels and the predicted area of subsidence.

Boomerang Creek, Hughes Creek and Plumtree Creek are ephemeral streams whose catchments have been modified by open cut mining operations west of the Project Site. Both Boomerang Creek and Hughes Creek flow through open cut MLs and contain diversion reaches. Plumtree Creek commences within the adjacent Saraji Mine ML, joining Boomerang Creek within the Project Site. Boomerang Creek and Hughes Creek converge approximately 1 km downstream (east) of the Project Site.

Typical of the watercourses in the region, the watercourses in the Project Site flow intermittently through the year in response to rainfall and runoff, with extended periods of no flow.

Surface water quality

The existing water quality of the watercourses flowing through the Project Site and the downstream receiving environment of the Project Site was assessed to characterise existing water quality conditions. The assessment was based on a review of water quality data collected at various monitoring locations. Data from the monitoring points showed that water quality was above the water quality guideline for a number of parameters. The results indicate that these values occur both upstream and downstream and are likely a function of background levels and associated land use such as agriculture and mining.

Potential impacts may arise from erosion and sedimentation, chemicals and contaminants, subsidence and flooding. However, the Project is not expected to substantially alter existing surface water quality parameters.

A surface water quality monitoring program is proposed, designed to measure the effectiveness of the impact mitigation measures implemented during the Project. Based on the implementation of management and mitigation measures, and validation through the monitoring program, the residual risk of the Project having adverse impacts on receiving surface waters is expected to be minor.

Hydrology, hydraulics and geomorphology

The Project may directly cause subsidence of Boomerang, Hughes and Plumtree Creeks, leading to a number of impacts across the Project Site and potentially, impacts off-site downstream, including:

- changes to surface water quantities as some water is ponded in panel catchments
- potential changes in overland flow paths
- development of instabilities in bed and banks of the three subject watercourses and minor tributaries
- creation of voids in watercourses beds, which may take years or decades to fill with sediment from upstream
- potentially beneficial habitat creation through development of pools in subsidence areas within watercourses
- surface tension cracking at panel edges which may instigate terrestrial erosion and affect vegetation.

These potential impacts associated with underground mining on surface water hydrology, hydraulics and geomorphology are well understood and may be minimised through mitigation. Potential impacts to surface water will be mitigated through the implementation of an Erosion and Sediment Control Plan (ESCP) during construction and operation of the Project.

Mine water management

A conceptual mine water management system (WMS) was developed for the Project to examine and address all issues relevant to the importation (of raw water), generation, use and management of water on the Project Site. Preliminary capacity estimates for all WMS dams and the water transfer network were determined through a water balance using historical climate conditions and conceptual operational rules. For the purpose of this assessment, a conservative approach was adopted to sizing of each conceptual mine WMS storage such that:

- infrastructure capacity and operations capability are sufficient to mitigate the uncontrolled (spillway) discharge of Mine Affected Water (MAW) to the receiving environment
- the project has sufficient storage capacity to cater for maximum mine water volumes that could occur (based on climate extremes evident in available historical data)
- water allocations of external water sources are sufficient to meet shortfalls in site demands
- based on the water balance model outcomes, controlled releases of MAW to the receiving environment are not required.

Any open system has the potential for uncontrolled discharge of MAW as a result of extreme rainfall events. Therefore, BMA will be seeking authority and licence conditions to conduct the controlled release of MAW from the Project site. The indicative location for controlled release of MAW is located on Boomerang Creek adjacent to the proposed process water dam. Spillway discharges from the process water dam (which would only occur during an uncontrolled release event) are also proposed to be directed to Boomerang Creek.

A water quality monitoring program and receiving environment monitoring program (REMP) will be developed prior to construction.

Groundwater

To evaluate potential impacts associated with the underground mining activities of the Project a groundwater impact assessment was completed. The groundwater impact assessment comprised two components - a description of the existing hydrogeological environment, and an assessment of the impacts of mining on that environment using predictive modelling.

The assessment focused on a Groundwater Assessment Area, defined as the groundwater model domain area, which extends approximately 15 km around the Project Site. The model was developed on a conceptualisation of the geology and groundwater resources, and assessed mine dewatering impacts (groundwater ingress and groundwater level drawdown) considering the existing Saraji Mine open-cut workings with and without the Project. The predictive model simulations included predictions of groundwater levels at the end of underground mining, predictions of groundwater ingress and predictions of groundwater level recovery with and without the Project.

Geology and groundwater resources

The Project is located on the western limb of the geological Bowen Basin. The mapped geology indicates that the stratigraphy typically comprises Permian coal measures overlain by a variable thickness of unconsolidated to poorly consolidated Tertiary and Quaternary sediments.

Longwall panels across the underground mine footprint will extract coal from the Dysart Lower (D24 and D14) seams.

Three aquifer systems and one aquitard were identified within the Project Site. The three aquifers are associated with the following geological strata:

- Quaternary alluvium
- Tertiary sediments
- Coal seams contained within the Permian coal measures.

The aquitards are formed by the Permian overburden and interburden (i.e. shale, mudstone, siltstone and sandstone). These aquifers and aquitards are likely to be in hydraulic connection to the Project and may therefore be influenced by associated underground mining activities.

The Quaternary alluvium associated with Phillips Creek was considered to have limited potential as a groundwater resource. Groundwater associated with the alluvium is generally brackish and bicarbonate dominant (but can be used for livestock watering).

Permian coal seam groundwater ranges from slightly acidic to alkaline and is dominated by sodium and chloride with total dissolved solids (TDS) levels ranging from 3,300 milligrams per litre (mg/L) to 20,000 mg/L. The coal seam water is brackish to saline and typically not suitable for stock watering.

The Tertiary sediments maintain permanent groundwater resources particularly within the deeper sequences and the basal unit. This aquifer is understood to be confined to semi-confined because of the clayey sediments in the upper Tertiary sequence. Tertiary groundwater ranges from slightly acidic to slightly alkaline and is dominated by sodium and chloride with TDS in excess of 6,000 mg/L. This means the water is brackish to saline and exceeds the livestock guideline levels for cattle.

Groundwater values

Given that TDS for the Tertiary and Permian sediments are generally above 5,000 mg/L (based on results from groundwater monitoring program) the regional groundwater will generally not be considered suitable for livestock. Based on the low groundwater yield potential and typically poor quality groundwater resources in the Project Site, groundwater environmental values are restricted to include limited stock watering and industrial purposes (coal mine operations).

There are no known aquatic or terrestrial groundwater dependent ecosystems (GDEs). No known springs are present within the Project Site.

Potential impacts to groundwater

The proposed underground mining of the Tertiary and Quaternary cover as well as the target Lower Dysart coal seam will result in groundwater drawdown as groundwater infiltrates the underground workings.

It is estimated that the total amount of groundwater ingress as a result of underground mining for the life of currently approved Saraji open-cut operations (a 15 year period) is predicted to be 1,527,725 cubic metres (m³), which is 152.77 mega litres per annum (ML/a) on average. Total groundwater ingress resulting from both open-cut and underground mining over 25 years is estimated to be 3.57 gigalitres (GL).

Additional impacts of mine dewatering associated with the proposed underground workings when considered in connection with the currently approved Saraji open-cut operations, are considered low for the following reasons:

- Creeks in the area are ephemeral and groundwater levels (more than 17 m below surface) are below the level that will provide baseflow to existing alluvium or to the root zone of plants.
- Groundwater level drawdown will occur predominantly within the Permian coal seams, which are separated from surficial groundwater regimes by aquitards and are therefore not expected to impact surface ecosystems.

The potential environmental impacts of the Project are considered low because:

- the surface water system in the Groundwater Assessment Area is ephemeral
- the Quaternary sediments (recent deposits from Phillips Creek) were reported to be of limited extent and were dry in several bores
- the Tertiary sediments often have insufficient yield/low recharge potential indicating low permeability and low potential for usage
- the largest predicted drawdown extends within the target coal seam, which is understood not to discharge into the down gradient Isaac River; in addition, the drawdown cones do not extent to the Isaac River to the east
- groundwater quality is not suitable for drinking, too deep for surface ecosystems and is often too saline for livestock watering

Saraji East Mining Lease Project

the surface water systems are separated from the predicted impacted groundwater resources by low
permeable sediments, which reduce the potential for the Project to impact on the alluvium and surface
water flows.

The assessment indicates significant, long term impacts will not result from the Project.

Groundwater management measures

BMA will develop and implement a Groundwater Monitoring Program prior to the operational phase. An objective of the program will be to detect a significant change to water quality values (whilst considering the limited environmental values of the groundwater in many areas) due to activities that are part of the Project. It is intended that the Groundwater Monitoring Program will allow for the validation of predictions and allow for the instigation of investigations into potential environmental impacts should groundwater monitoring results differ from predictions.

Terrestrial ecology

Flora

The terrestrial flora and vegetation values within the area of the Project Site were identified through a combination of desktop analysis and field survey. The ecological values of the Project Site are considered typical for the northern Bowen Basin with large areas of land historically cleared for grazing.

The presence of two threatened ecological communities (TECs) was confirmed on site:

- Natural grasslands of the Queensland Central Highlands and the northern Fitzroy Basin
- Brigalow (Acacia harpophylla dominant and co-dominant).

One flora species of conservation significance was recorded on the Project Site: *Dichanthium setosum* (bluegrass) which is listed as vulnerable under the EPBC Act.

The flora survey observed a total of ten regional ecosystems (REs) in the Project Site, including three listed as 'endangered', six listed as 'of concern' and one listed as 'no concern at present' as per the Biodiversity Status. Six of these REs will be impacted by proposed activities.

Approximately 1,291 ha of remnant vegetation communities may be impacted by the proposed underground mining, surface facilities and infrastructure associated with the Project. This includes indirect disturbance of remnant vegetation associated with subsidence from underground mining operations. This estimate is considered a worst case scenario and it is likely that clearing impacts associated with specific project elements (e.g. the overhead powerline connection and the transport infrastructure corridor) may be reduced during detailed design.

As it will not be possible to avoid all impacts on vegetation communities of conservation significance, offsets are expected to be required to mitigate residual impacts. Impacts to vegetation resulting from subsidence will be monitored and managed in accordance with the SMP.

Fauna

The majority of the fauna habitat within the site is generally of low conservation value. However some habitats, such as the riparian zones and alluvial woodland (which act as a wildlife corridor), an oxbow wetland and the *Acacia harpophylla* (brigalow) woodland with gilgai, possess greater potential for supporting conservation significant fauna. The functional habitat connectivity in an east to west direction in a regional context is interrupted by the existing Saraji Mine adjacent to the Project Site. However, to the east and west of the existing Saraji Mine, there are opportunities for fauna movement despite the historical clearing of woodland for grazing.

Eleven conservation significant species were confirmed to occur within and adjacent to the Project Site. The majority of conservation significant fauna will not experience significant impacts. This is due to the availability of suitable habitat elsewhere in the Project Site or surrounding region and the highly mobile nature of many of these species (particularly migratory bird species and Grey Falcon (*Falco hypoleucos*)).

However, it is possible the Project will have a significant impact on four conservation significant species, due to loss and degradation of habitat. These are:

- Ornamental Snake (Denisonia maculata)
- Greater Glider (Petauroides volans)
- Koala (Phascolarctos cinereus)
- Squatter Pigeon (Geophaps scripta scripta).

Species specific mitigation measures and offsets will be required to reduce impacts on these species.

Potential impacts of the Project on fauna, during construction and operation, were considered to be:

- habitat loss
- habitat fragmentation and loss of connectivity
- habitat degradation
- fauna mortality and morbidity.

Proposed measures set out to minimise impacts on flora and vegetation communities will also assist to some extent in minimising impacts on fauna.

Offsets

An offset strategy has been developed for the Project to mitigate a net loss in biodiversity. The proposed strategy takes into consideration both the offset requirements under the Queensland Government's Biodiversity Offsets Policy and under the draft EPBC Act Offset Policy Statement.

An offsets package will be proposed based on the final vegetation mapping agreed with DES and in accordance with the Queensland Government's Biodiversity Offsets Policy and the Commonwealth's Offset Policy Statement.

Aquatic ecology

The in-stream aquatic environmental value of watercourses within the Project Site was assessed as moderate. While this moderate rating is summarised as being substantial the Project impacts are likely to result in short term harm to sensitive components of the environment or minor environmental harm to protected components of the environment. The watercourses provide favourable habitat for common species of fish, invertebrates and aquatic plants, noting that in-stream aquatic habitat is typically temporary and restricted to isolated pools.

Aquatic MNES, threatened aquatic species and high ecological value waters are not reported to occur in or surrounding the Project Site, although regulated vegetation types occur in the riparian zone and watercourses of the Project Site are important corridors for fish passage.

All aquatic species recorded from watercourses in and surrounding the Project Site are tolerant of ephemeral flow and variable water quality, and all are common and widespread in the region. No sensitive aquatic environmental receptors are likely to occur in watercourses in or surrounding the Project Site.

The risk of adverse impacts to the aquatic environmental values of watercourses in and surrounding the Project Site is considered low.

Matters of National Environmental Significance

The Project is a 'controlled action' requiring assessment under the EPBC Act due to the following controlling provisions:

listed threatened species and communities

water resources.

The impact assessment determined that the Project could potentially impact on MNES primarily through the loss and alteration of habitat. This assessment process determined that impacts from the Project may have a significant impact on four species and one TEC. These are:

- Brigalow (Acacia harpophylla dominant and co-dominant)
- Ornamental Snake (Denisonia maculata)
- Squatter Pigeon (southern subspecies) (Geophaps scripta scripta)
- Koala (Phascolarctos cinereus), and
- Greater Glider (*Petauroides volans*).

A range of mitigation and offset strategies are proposed to minimise and mitigate potential impacts to MNES, including:

- avoidance of high value areas where practical
- management of threatening processes within retained habitats
- control of pest vertebrate species and weeds
- assisted natural regeneration and progressive rehabilitation
- ongoing flora and fauna monitoring.

Some potential habitat for one TEC and four other conservation significant species is also expected to be impacted however significant impacts to the species are not anticipated. These are:

- Natural grasslands of the Queensland Central Highlands and the northern Fitzroy Basin
- Bluegrass (Dichanthium setosum)
- King Bluegrass (Dichanthium queenslandicum)
- Australian painted snipe (Rostratula australis).

Threatened Significant Species Management plans will be developed for the following species:

- Ornamental Snake (Denisonia maculata)
- Koala (Phascolarctos cinereus)
- Squatter Pigeon (Geophaps scripta scripta)
- Australian Painted Snipe (Rostratula australis)
- Greater Glider (*Petauroides volans*).

MNES potentially requiring offsets are Brigalow (*Acacia harpophylla* dominant and co-dominant), Ornamental Snake (*Denisonia maculata*), Squatter Pigeon (southern subspecies) (*Geophaps scripta scripta*) and Koala (*Phascolarctos cinereus*) (combined populations of QLD, NSW and the ACT).

The MNES assessment concluded that with the appropriate mitigation and monitoring in place, there are not predicted to be any significant impacts upon surface water or groundwater resources.

Geochemistry and mineral waste

The Project will generate an estimated 0.005 Mt of rock spoil and 40 Mt of coal and coarse rejects mineral waste that will be managed within the existing Saraji Mine mineral waste management facilities. All reject

and de-watered tailings will be disposed of via a dry disposal system through trucking to the existing Saraji Mine's in-pit spoil dumps. Mineral waste management will be conducted in accordance with the existing Saraji Mine EA EMPL00862313.

Selenium was identified as a potential leachable metal from coal rejects, being bioaccumulative through the food chain if released to surface waters. Proposed management as per the existing Saraji Mine EA will allow potential impacts associated with leachate generated from in pit spoil dumps to be assessed and mitigated.

Due to mineral wastes being managed within existing Saraji Mine waste management facilities, overall residual impact associated with the Project is considered to be low.

Air quality

An air quality assessment was undertaken for the Project, and focused on impacts associated with the emission of dust from the Project on the receiving environment. In order to highlight the nature and extent of potential impacts, results from the dispersion modelling considered those for the Project in isolation of other dust generating sources within the local airshed (i.e. Saraji, Peak Downs and Lake Vermont open cut mining operations). A conservative dust emission scenario was modelled which considered a production rate of 11 Mtpa ROM coal. This scenario was intended to be representative of a worst case contribution from the Project as opposed to typical mining operations.

Results of the dispersion modelling identified that ambient air quality goals adopted for the Project for PM₁₀ (particulate matter 10 micrometres or less in diameter) may be exceeded at Saraji 2 Homestead and Saraji 3 Homestead during peak operations during a 24 hour period. These two homesteads are situated in proximity to the Project CHPP, the haulage route from the Project CHPP and the existing Saraji Mine CHPP. There are currently co-existence agreements in place between BMA and the landholders of Saraji Homestead 2 and 3. Results of the dust assessment did not highlight any significant air quality issues attributable to the Project at any of the other assessment locations.

Publically available information was used to estimate the mass of TSP, PM₁₀ and PM_{2.5} annually released into the local airshed from Saraji Mine, Peak Downs Mine and Lake Vermont Mine. Emissions of PM₁₀ associated with the Project were estimated be less than 0.4 per cent of the total airshed loading from all four mining operations combined (i.e. Saraji East Mine, Saraji Mine, Peak Downs Mine and Lake Vermont Mine). This comparison assumed that the current levels of production at the neighbouring open cut mines are maintained into the future. Future increases or decreases in open cut mining production rates may have a significant influence on airshed loading of PM₁₀ whilst the Project contribution is anticipated to be relatively consistent throughout the 20 year production schedule of the Project.

Therefore, overall impacts on local air quality that are attributable to the Project are considered to be immaterial when compared to the air quality environment resulting from neighbouring open cut mining operations and will have minimal impact on the future air quality environment.

Dust mitigation measures would be implemented for the Project during construction and operation in accordance with an Air Management Plan. Mitigation measures may include active management such as the use of water sprays on haul routes, exposed areas and stockpiles or engineered solutions such as partial or full enclosure of conveyors.

Greenhouse gases

The assessment of greenhouse gas (GHG) emissions from the Project was undertaken in accordance with the *National Greenhouse and Energy Reporting Act 2007* (NGER Act). This included an assessment of Scope 1, Scope 2 and Scope 3 emissions associated with the Project.

Carbon dioxide equivalent (CO_{2-e}) has been used to assess GHG emissions from the Project. For a given mixture and amount of GHG, CO_{2-e} describes the amount of CO₂ that will have the same global warming potential (GWP) when measured over a specified time scale (100 years).

The operation phase of the Project is estimated to result in approximately 16.3 Mt CO₂-e of GHG (Scope 1 and Scope 2) over the 20 year production schedule. This equates to 0.81 Mt CO₂-e on an annual basis. The annual GHG emissions for the Project represent 0.15 per cent of Australia's 2016 GHG emissions.

The Project generally has a limited vulnerability to climate change impacts, with the greatest potential impacts being an increased risk of flooding, and potential for increased soil erosion due to increase in rainfall intensity.

Noise and vibration

Noise emissions during neutral and worst-case meteorological conditions were modelled for a range of construction and operational scenarios. Based on the results of the noise modelling, noise emissions from the Project during construction and operation phases are predicted to exceed the nominated noise criteria at five receptors: Lake Vermont Homestead, Saraji Homestead 1, Saraji Homestead 2, Saraji Homestead 3 and Meadowbrook Homestead.

The overall increase in mine noise levels as a result of the Project (when considering noise from the existing Saraji Mine) is predicted to be 'clearly perceptible' to 'twice as loud' at Saraji Homesteads 2 and 3, 'just perceptible' at the Meadowbrook Homestead and 'not perceptible' to most people at other receptors.

The increase in noise levels associated with increased road traffic on public roads and rail movement on the local rail network is not predicted to be perceptible to most people, with the exception of Dysart-Moranbah Road during FY 2023 when the increase is 'just perceptible'.

Blasting is not proposed as part of the Project, and therefore construction and operation of the Project is not envisaged to create perceptible levels of vibration at nearby sensitive receptors.

BMA will consider the current or pending agreements with potentially affected landholders when finalising mitigation measures. BMA will finalise the noise mitigation measures prior to the construction phase.

Scenic amenity and lighting

The Project occurs in an area with few sensitive visual receptors and generally low landscape sensitivity due to the presence of extensive mine activities in the wider landscape. Much of the Project is underground but associated above-ground mine infrastructure will result in localised changes to views during both operation and construction and during both day and night. Affected views will primarily be experienced by travellers on the Dysart-Moranbah Road and a small number of rural homesteads. The assessment described impacts of up to moderate significance. No significant impacts on landscape character, scenic amenity or lighting were identified.

Transport

The transport impact assessment considered traffic that is likely to be generated during the various phases of the Project. The transport infrastructure utilised by the existing Saraji Mine will also be utilised for the Project's activities, including sea ports, rail, roads and airports.

Road

The assessment identified that the Project would generate between 162 to 222 additional vehicles per day during the construction phase (FY 2021-2023), and between 123 to 222 additional vehicles per day during the operational phase (FY 2023-2042).

For all intersections, the incremental level of service impact is considered insignificant. The results show the impact of the development traffic is anticipated to be insignificant with minimal changes in queuing and delay when comparing the background traffic analysis to the total traffic analysis. The assessment of volume/capacity ratios concluded that the highway links are anticipated to operate within capacity during construction and operation of the Project.

Regional road network

An assessment of the regional road network of Peak Downs Highway and Dysart-Middlemount Road shows that the development traffic is anticipated to exceed five per cent of the background traffic. However, the volume/capacity ratios show the road network will operate within capacities and travel time and vehicle travelling speed will not be affected. Therefore it is concluded that the impact of the Project on the operation of the regional road network is minimal.

Rail, air, ports

Based on the assessment undertaken it is expected that the Project will have minimal impacts on shipping and airport movements, and that increases can be accommodated within the existing capacity.

For rail, at peak coal production, the Project is anticipated to generate up to three additional trains per day on the existing Norwich Park Branch rail line. The annual average of coal production equates to up to two additional trains per day. Prior to the commencement of Project activities, agreements will be reached with Aurizon which will formalise agreed mitigation measures, if required.

Safety

The following measures are proposed to improve road safety:

- upgrade Lake Vermont Road for approximately 11 km from Dysart-Moranbah Road
- provide intersection lighting at Intersection 1 (Lake Vermont Road / Dysart-Moranbah Road)
- construct proposed Intersection A on Dysart-Moranbah Road
- provide intersection lighting at Intersection 3 (Peak Downs Mine Access / Dysart-Moranbah Road / Peak Downs Mine Road).

Waste management

It is expected that waste generated by the Project will primarily be managed through reuse and recycling onsite where possible. This will also be supported by disposal at suitably located offsite licenced waste facilities, or via an appropriately licensed waste contractor depending on the waste type.

BMA will prepare and implement detailed Waste Management Plans for the construction and operational phases. These plans will adopt strategies consistent with the intent of the waste management hierarchy. The decommissioning of the Project Site will occur on a staged basis over several years prior to closure. The most appropriate measures to manage the remaining waste on the Project Site will be identified during this process.

Cultural heritage

Non-indigenous cultural heritage

Historical accounts of the Project Site commence with the Leichhardt expedition in 1845. Almost a decade after Leichhardt's expedition, a pastoral district was created in his name covering the area from Nebo in the north, to Wandoan in the south, west to Clermont, and east to Duaringa.

There is only one known historical heritage place in the Project Site: a camp established by Leichhardt on 11 February 1845. However, this place has already been significantly disturbed. There is also some limited potential that the Project Site retains evidence of early pastoral activities. Any potential impacts to such places will be managed under a chance finds procedure.

Indigenous cultural heritage

Ethnohistorical accounts of Aboriginal life in and around the Project Site are few. For the most part, they are limited to the 1845 observations of the explorer Leichhardt (1847). Leichhardt's route took him directly through the Project Site, following Hughes Creek and sections of what is now Boomerang Creek from the

base of Harrow Range through to the Isaac River. In the decade following Leichhardt's journey, settlers began to arrive in the area, taking up land to establish pastoral runs in what became known as the Leichhardt Pastoral District. By the late 1860s, Aboriginal groups had been greatly reduced by the predations of the Native Police and introduced diseases, and the remaining population moved to settle in 'fringe camps' around large stations and townships. Such fringe camps offered protection from the police and other colonists, and saw Aboriginal labour increasingly appropriated for stock and domestic work. By the turn of the 20th century, these camps began to empty as Aboriginal people across the state were again moved on, this time taken to missions and reserves.

A review of historical, archaeological and register information indicates that there are least 43 Aboriginal heritage sites within the Project Site and the potential for additional sites within areas of cultural heritage sensitivity, principally around the margins of watercourses. The impacts on these known sites, as well as the identification of any additional sites, will be managed under BMA's existing Cultural Heritage Management Plan (CHMP) with the Aboriginal Party (CLH012020).

Social

Regional communities in the vicinity of the Project, including Moranbah, Dysart and Middlemount have strong identities as towns developed to support the mining industry in the region. These communities have experienced the historical cyclical impacts of the coal industry, with corresponding fluctuations in economic prosperity and population numbers.

In recent years, the IRC LGA has experienced a decrease in population and a significant impact on the housing market associated with the downturn in the mining industry. Reversal of the residential population decline is a key priority for the communities.

Community sentiment in the Isaac region is that new mining operations are supported, with the availability of local employment, business supply opportunities and potential population growth driving this support. The Project's location mitigates direct negative impacts on nearby communities, and a range of positive impacts relating to employment opportunities, population growth and reinforcement of Isaac LGA communities' identity and sustainability are likely.

BMA has established relationships with local stakeholders and communities which will support a cooperative and adaptive approach to mitigation and management of social impacts. BMA also utilises a range of established strategies including BHP's Reconciliation Action Plan (RAP), Community Development Management Plans (CDMPs) and Local Buying program which will ensure that local communities benefit from the Project's construction and operations.

A Social Impact Management Plan (SIMP) has been prepared for the Project to detail how BMA will work with local and regional stakeholders to mitigate social impacts and maximise opportunities identified. The SIMP includes five management plans for:

- Community and Stakeholder Engagement
- Workforce Management
- Housing and Accommodation
- Health and Community Wellbeing
- Local Business and Industry Content.

Each management plan articulates:

- the overall purpose of the management plan, including social impacts and opportunities to be addressed
- the desired outcomes of the management plan, to help monitor effectiveness
- the measures designed to mitigate social impacts and enhance opportunities identified during SIA

• an action plan, providing a practical basis for implementing each measure.

A monitoring program is also provided, including outcomes sought, how management of the impacts will be monitored and reported, and the timing and frequency of monitoring.

Economics

Employment expected to be generated by the Project include:

- a Project construction workforce of up to 1,000 people
- an operational workforce of up to 500 people.

A cost benefit analysis and regional economic impact assessment were undertaken for the Project.

The Project will lead to significant positive direct and indirect economic impacts as a result of the investment in the construction and operation of the Project. The Project is anticipated to invest \$1.3 billion into the capital expenditure and \$5.9 billion over the 20 year production schedule. The positive impacts will be experienced at the regional, state and national level. Potential negative impacts include: increased labour costs and skill shortages, localised inflation in the housing market, and increased burden on local and regional infrastructure. Strategies have been provided by BMA to mitigate potential negative economic impacts and maximise the potential economic benefits that will potentially occur.

Hazards, health and safety

A preliminary risk assessment was carried out in accordance with relevant standards to identify the potential hazards to people and property associated with the construction, operation and decommissioning of the Project.

The Project will operate under the BHP *Safety Our Requirements* under the framework of Safety and Health Management System. The BHP *Safety Our Requirements* adopts an integrated approach to risk management, recognising and controlling hazards associated with the work, health, safety and environment assurance aspects to the Project.

In addressing natural and man-made hazards associated with the Project, consideration was given to risks involving people and property. A preliminary hazard analysis found that high risk activities were likely to occur throughout all stages of the Project. However, following the implementation of mitigation and response measures, the residual impact rating was mostly reduced to acceptable levels. The residual risk that remains medium to high includes:

- traffic incidents
- high risk working including working at heights and confined spaces
- fall of ground
- dangerous goods loss of containment
- underground mine collapse
- underground mine fire
- high voltage electricity and natural hazards.

The Project is not considered to present a significant hazard or risk, to people or property following the application of practical mitigation, control and management measures as outlined in existing plans and procedures.

Mitigation measures and management

BMA has identified a number of commitments to mitigate and manage potential construction and operational impacts from the Project. These commitments have been designed to address impacts, where required, throughout all stages of the Project, on and off site. While a full statement of commitments is provided within the EIS, the following key plans and procedures will be prepared and implemented:

- a Threatened Species Management Plan will be developed prior to construction to minimise long term impacts on the Ornamental Snake (*Denisonia maculata*), Koala (*Phascolarctos cinerus*), Australian Painted Snipe (*Rostratula australis*), Squatter Pigeon (*Geophaps scripta scripta*) and the Greater Glider (*Petauroides volans*)
- a Weed and Pest Management Plan be developed prior to construction to detail weed and pest management strategies to be implemented on the Project Site
- an Offset Management Plan will be developed prior to clearing of each stage of the Project
- a Receiving Environment Monitoring Program will be developed and implemented prior to construction
- a Groundwater Monitoring Program will be developed prior to the operational phase and implemented during operation of the Project
- an Air Quality Management Plan will be prepared and implemented prior to the construction phase
- a Waste Management Plan will be prepared and implemented prior to construction
- a Traffic Management Plan will be prepared and implemented prior to construction considering the requirement for escorts and/or public notices during the transportation of oversize vehicles on public roads
- an Emergency Management Plan will be developed in consultation with Queensland Health, Police, Ambulance and Fire, and Emergency Services and implemented prior to construction
- a Social Impact Management Plan will be prepared and implemented for the Project prior to construction and will include management plans for community and stakeholder engagement, workforce management, housing and accommodation, health and community wellbeing, and local business and industry content
- an incidental mine gas hazard management strategy will be prepared and implemented prior to construction to reduce the associated risks during construction
- a Subsidence Management Plan will be prepared and implemented.
- The Project will comply with the Mineral and Energy Resources (Financial Provisioning) Act 2018. A
 Progressive Rehabilitation and Closure Plan (PRCP) will be developed prior to construction
 commencing.

Conclusion

Overall the EIS found that the benefits afforded by the Saraji East Mining Lease Project provide a strong justification for the Project to proceed and that while potential impacts have been identified, the proposed mitigation measures will minimise these impacts.

The Project will allow BMA to expand its production capacity in the Bowen Basin to meet current and future market demands for its coal products. The Project will produce metallurgical coal for export, generate jobs and result in increased investments and royalties for Queensland.

The Project will benefit IRC, and the State of Queensland. Key benefits of the Project include:

• direct economic benefits, including employment, payment of taxes and royalties

- creation of up to 1,000 jobs during the peak construction phase, and up to 500 jobs during the peak operational phase
- indirect benefits to industries in the Mackay region
- indirect employment effects, in Project-related services both locally in IRC and state-wide
- increased profits to shareholders of BMA
- expansion of BMA Community Partnership Program providing increased community initiatives
- support for appropriate skills and training programs to further develop industry skills.