

BLACKWATER SOUTH COKING COAL PROJECT

INITIAL ADVICE STATEMENT

19 November 2021

Final



BHP Mitsubishi Alliance

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NOVEMBER 2021
Project No. BHP-21-33
Document No. 01110809

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EXECUTIVE SUMMARY

BM Alliance Coal Operations Pty Ltd (BMA), owned 50:50 by BHP Group Limited and Mitsubishi Development Pty Ltd, is Australia's largest supplier of seaborne metallurgical coal and operates seven mines in the Bowen Basin.

With approximately 12,000 full-time equivalent employees and contractors, BMA is the largest employer in Queensland's Central Highlands Region and plays a key role in the economic development of Central Queensland. For over fifty years BMA's operations have provided significant benefits to the local communities, the broader Central Queensland region and to the State economy as a whole.

BMA proposes to develop a new metallurgical coal mine and associated infrastructure – the Blackwater South Coking Coal Project (the Project). The Project is located within the Central Highland Regional Local Government Area, approximately 50 kilometres south-west of Blackwater and 80 kilometres south-east of Emerald, Queensland within the existing Bowen Basin mining region.

Whilst located adjacent to the existing BMA operations at the Blackwater Mine, the Project is considered a separate development, from both an approvals and operational perspective. Development of the Project will provide significant direct employment opportunities for approximately 500 to 750 construction personnel and approximately 1,200 operational personnel, and long-term flow-on social and economic benefits to regional communities.

The Project would include, although not be limited to, the following primary components and activities:

- an open cut coal mine which would produce metallurgical quality coals for steel making (otherwise known as coking coal), extracting up to approximately 10 million tonnes per annum of run-of-mine coal for up to approximately 90 years;
- mine infrastructure areas, including an on-site coal handling and preparation plant, workshops and offices;
- a rail loop and train load-out facility;
- a temporary construction workforce accommodation village and permanent workforce accommodation village (if required);
- surface water management structures such as watercourse diversions and levees;
- an initial reject and tailings co-disposal facility;
- road diversions;
- development of the Project water management system (including its potential integration with the Blackwater Mine water management system);
- electricity transmission lines;
- access roads;
- an on-site landfill to dispose of certain waste streams generated on-site; and
- other associated infrastructure, plant, equipment and activities to support mining operations.

A new rail spur and loop would be constructed to connect to the existing Rolleston Mine Railway and would be used to transport product coal from the Project to the Gladstone Port for export to international customers (subject to availability of rail and port allocation).

The Project's final landform would be designed in consideration of the proposed mine sequence, extraction rate and mine layout; minimising potential environmental, social and economic impacts; and BMA's corporate objectives. The final landform for the Project would be safe, stable, non-polluting and able to sustain post-mining land uses.

The final landform may include residual voids, which would be designed and developed in consideration of relevant guidelines and legislative requirements. The opportunity for beneficial use of residual voids will be considered as part of the Environmental Impact Statement.

Rehabilitation would be undertaken progressively during the life of the Project in accordance with an approved Progressive Rehabilitation and Closure Plan.

BMA considers the Project should be declared as a 'coordinated project' for which an Environmental Impact Statement is required under section 26(1)(a) of the *State Development and Public Works Organisation Act 1971* (SDPWO Act).

This document is an Initial Advice Statement which supports an application to the Coordinator-General for declaration of the Project as a Coordinated Project under Part 4 of the SDPWO Act.

This Initial Advice Statement provides an overview of the Project to inform the preparation of the Terms of Reference for an Environmental Impact Statement for the Project.

1 INTRODUCTION

1.1 BACKGROUND

BM Alliance Coal Operations Pty Ltd (BMA) proposes to develop the Blackwater South Coking Coal Project (the Project), a metallurgical coal mine and associated infrastructure within the Bowen Basin. The Project is located within the Central Highland Regional Local Government Area (LGA), approximately 50 kilometres (km) south-west of Blackwater and 80 km south-east of Emerald, Queensland (Figure 1).

The Project provides an opportunity to develop an open cut coal mine (metallurgical coal) within the existing Bowen Basin mining precinct that can deliver up to 8 million tonnes per annum (Mtpa) of product coal over a mine life of up to 90 years. The Project would also involve the development of additional on-site and off-site infrastructure including a rail spur and loop, a coal handling and preparation plant (CHPP), temporary and permanent workforce accommodation villages (WAVs), and other associated infrastructure.

While adjacent to the existing BMA operations at the Blackwater Mine (Figure 2), the Project is considered a separate development, from both an approvals and operations perspective. It is expected to provide significant employment and economic benefits to the local area, region and State.

Section 3 provides a more detailed description of the Project and its components.

Given the above, BMA considers the Project should be declared as a 'coordinated project' for which an Environmental Impact Statement (EIS) is required under section 26(1)(a) of the *Queensland State Development and Public Works Organisation Act 1971* (SDPWO Act), as it:

- would involve complex approval requirements, involving Local, State and Commonwealth governments;
- would require assessment of significant environmental effects;
- would have strategic significance to the local area, region and State, including infrastructure requirements, economic and social benefits, capital investment and employment opportunities; and
- would have significant infrastructure requirements associated with the rail spur and loop, CHPP, a temporary construction WAV and permanent WAV (if required), access road and electricity transmission lines.

1.2 PURPOSE AND SCOPE OF THE IAS

This Initial Advice Statement (IAS) has been prepared by BMA in accordance with section 27AB(a) of the SDPWO Act to support an application to the Coordinator-General to declare the Project a Coordinated Project for which an EIS is required.

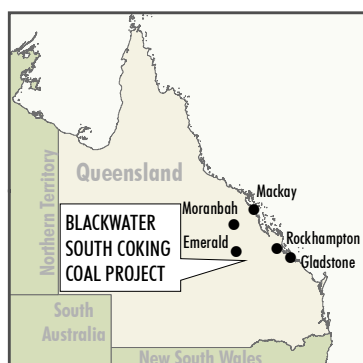
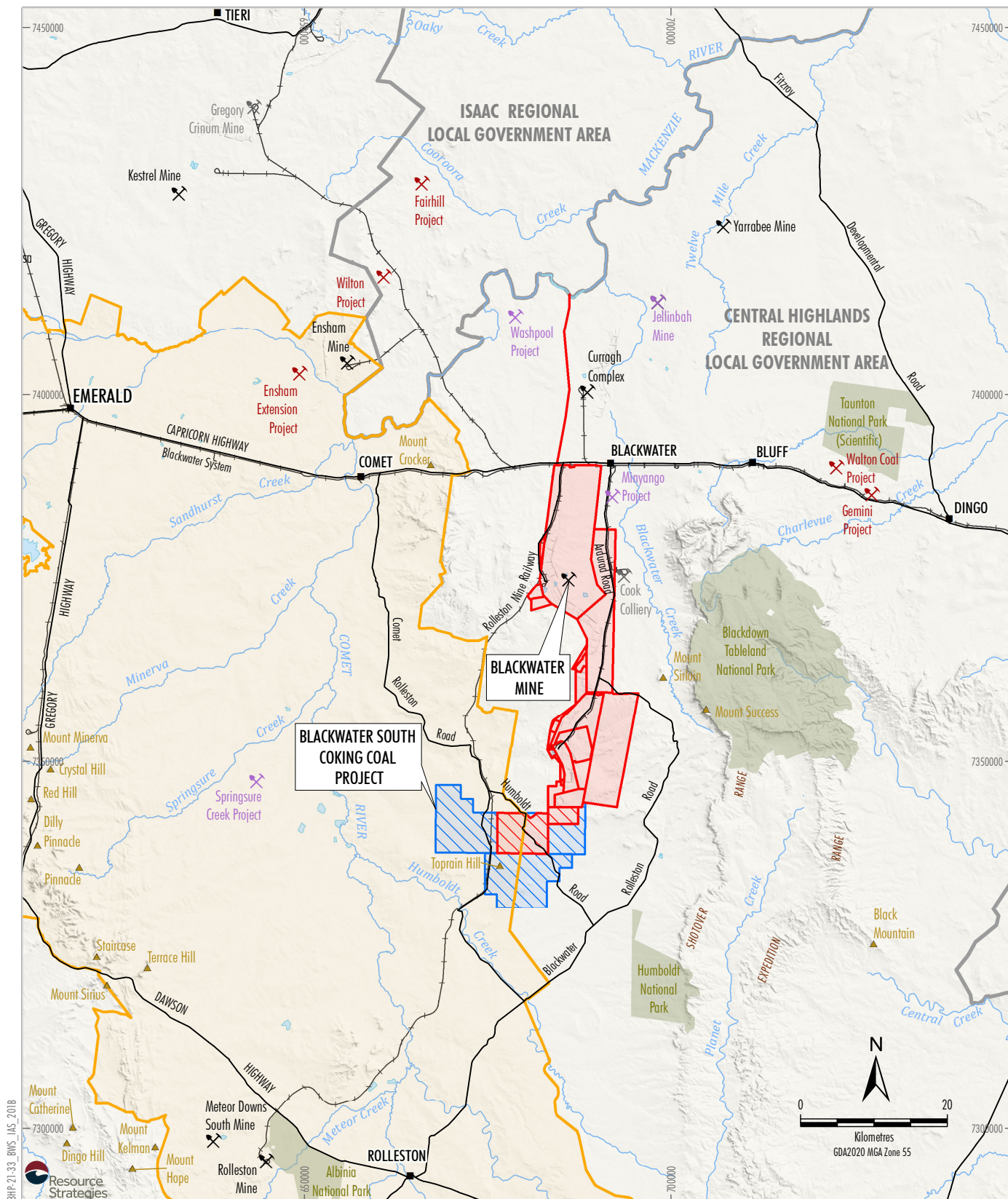
In preparing this IAS, BMA has had regard to the *Application Requirements for a 'Coordinated Project' Declaration* (Department of State Development, 2015) and has prepared this IAS to:

- assist the Coordinator-General in deciding whether to declare the Project a Coordinated Project;
- enable stakeholders to determine the nature and relevance of the proposal to them; and
- subsequently assist the Coordinator-General to prepare draft Terms of Reference for the EIS for the Project.

This IAS includes the Project mining area located within Mineral Development Licence (MDL) 155, MDL 189, Mining Lease (ML) 70167 and ML 70139.

Additional infrastructure (on-site and off-site) would be required for the Project including a rail spur and loop, CHPP, a temporary construction WAV and permanent WAV (if required), access road and electricity transmission lines, and is described further in this IAS.

The Project is located adjacent to the currently approved and operational Blackwater Mine, with which there may be some integration from an operational perspective (e.g. water and electricity) to ensure operational efficiencies. The Blackwater Mine is expected to continue to operate for several decades, and as such, the Project would operate in parallel with Blackwater Mine.



- LEGEND**
- Project Mining Lease
 - BWM Mining Lease
 - Project Mineral Development Licence
 - Priority Agricultural Area
 - National Park
 - Local Government Area Boundary
 - Railway
 - Road
- Other Coal Projects**
- Operating
 - Approved
 - Care and Maintenance
 - Proposed

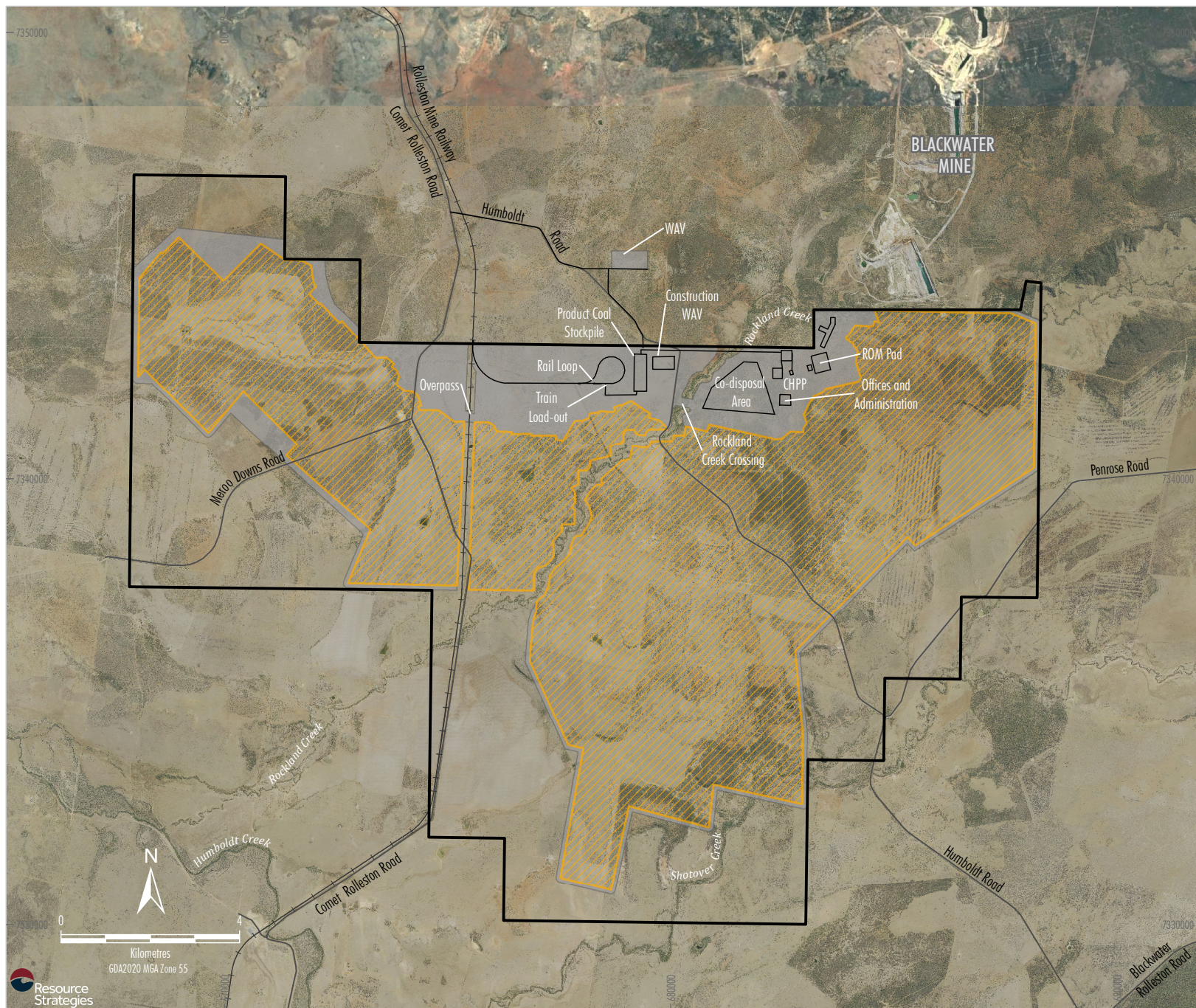
Source: State of Queensland (2021);
BMA (2021)



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BLACKWATER SOUTH COKING COAL PROJECT
Regional Location

Figure 1



Source: State of Queensland (2021); BMA (2021)
Ortho: BMA (2015); Google Earth (2021)



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BLACKWATER SOUTH COKING COAL PROJECT
Indicative Project General Arrangement

Figure 2

2 THE PROPONENT

The proponent for the Project is BMA, as manager and agent on behalf of the Central Queensland Coal Associates Joint Venture (CQCA). CQCA is an unincorporated joint venture between BHP Group Limited (BHP) (50 per cent) and Mitsubishi Development Pty Ltd (Mitsubishi Development) (50 per cent).

The contact details for the proponent are:

BM Alliance Coal Operations Pty Ltd
Level 14, 480 Queen Street
BRISBANE QLD 4000
Phone: 03 9609 3333

BMA is owned 50:50 by BHP and Mitsubishi Development (operated by BHP) and is Australia's largest supplier of seaborne metallurgical coal. BMA operates seven Bowen Basin mines: Blackwater, Broadmeadow, Goonyella Riverside, Peak Downs, Saraji, Caval Ridge and Daunia as well as owning and operating the Hay Point Coal Terminal near Mackay.

With approximately 12,000 full-time equivalent employees and contractors, BMA is the largest employer in the region and plays a key role in the economic development of Central Queensland. BMA's operations provide significant benefits to the local communities, the broader Central Queensland region and to the Queensland State economy as a whole.

Environment

BMA is committed to the communities and the environments in which it operates. BMA (as either BHP or Mitsubishi Development) regularly reviews environmental performance and publicly reports on progress.

BMA has a record of responsible environmental management and a strong commitment to continual improvement of environmental performance. As the operating partner of BMA, BHP's approach to environmental management is incorporated in the Health, Safety and Environment Charter, which outlines 'an overriding commitment to health, safety, environmental responsibility and sustainable development'.

BHP strives to achieve the efficient use of resources, including reducing and preventing pollution, and enhancing biodiversity protection by assessing ecological values and land use in our activities. Our stewardship approach is designed to ensure that the lifecycle health, safety, environment and community impacts associated with resources, materials, processes and products related to our businesses are minimised and managed.

Environmental management is based on the robust identification, assessment and management of threats and opportunities across all phases of BMA's operational activities, including exploration, development, operation and closure. BHP applies a company-wide Risk Framework to identify and manage risks, including environmental risks, and engages with stakeholders and takes their perspectives and knowledge into account during decision making.

BHP seeks to avoid, minimise and mitigate adverse environmental impacts at every stage in the lifecycle of operational activities in line with our Risk Appetite Statement and have comprehensive frameworks, policies and processes (including on governance and risk management) that apply to environmental risks and set the basis for how those risks are managed and environmental objectives are achieved.

The environmental policy describes these values and is available on BHP's website:
<https://www.bhp.com/our-approach/our-purpose/>.

Sustainability

Sustainability is integral to how BMA contributes to social value creation. It is core to our strategy and sits at the heart of everything we do.

BMA puts health and safety first and aims to be environmentally responsible, respect human rights and support the communities in which it operates.

At a local level, sustainability is about managing our risks, reducing our adverse environmental, social, economic and cultural impacts, and supporting and sustaining the communities and environments in which we operate.

Our Charter outlines BHP's values which include sustainability, integrity, respect, performance, simplicity and accountability. Sustainability being putting health and safety first, being environmentally responsible and supporting our communities.

The *Climate Change Report 2020* (BHP, 2020a) details BHP's approach to climate change and the role we will play in addressing it. BHP is committed to reducing operational greenhouse gas emissions (Scope 1 and Scope 2) by at least 30 per cent from FY2020 levels¹ by FY2030 and has set 2030 goals for Scope 3 emissions.

BHP will support industry to develop technologies and pathways capable of 30 per cent emissions intensity reduction in integrated steel-making, with widespread adoption expected post 2030, and 40 per cent emissions intensity reduction of BHP-chartered shipping of our products (BHP, 2020a).

BHP's *Annual Report 2020* provides details of BHP's sustainability performance; health and safety; environment; climate change; water; society; people and ethics and business conduct (BHP, 2020b). BHP has set five-year targets and longer-term goals which include:

- People:
 - Zero work-related fatalities.
 - Year-on-year improvement of total recordable injury frequency per million hours worked.
 - 50 per cent reduction in the number of workers potentially exposed to our most material exposures of diesel particulate matter, respirable silica and coal mine dust compared to our FY2017 baseline by FY2022.
- Society:
 - Zero significant community events.
 - Not less than 1 per cent of pre-tax profits invested in community programs that contribute to the quality of life in communities where we operate and support the achievement of the United Nations Sustainable Development Goals.
 - By FY2022 implement our *Indigenous Peoples Strategy* across all our operated assets through the development of Regional Indigenous Peoples Plans.
- Climate Change:
 - By FY2022, maintain operational (Scope 1 and Scope 2) greenhouse gas emissions at or below FY2017 levels while we continue to grow our business.
- Environment:
 - Zero significant environmental events.
 - Reduce FY2022 withdrawal of fresh water by 15 per cent from FY2017 levels.
 - By FY2022, improve marine and terrestrial biodiversity outcomes by developing a framework to evaluate and verify the benefits of our actions, in collaboration with others.

BHP's FY2020 sustainability performance reports a 19 per cent decrease in freshwater withdrawal reduction from FY2017 baseline, zero significant environmental events and work-related fatalities and implementation of Regional Indigenous Peoples Plans across Australia (BHP, 2020b).

Further information can be found in the annual BHP sustainability report available on the company's website (<https://www.bhp.com/investor-centre/sustainability-reporting-2020/>).

Mitsubishi Development (a wholly owned subsidiary of Mitsubishi Corporation) operates under three corporate principles: corporate responsibility to society; integrity and fairness; and global understanding through business.

These principles are the heart of Mitsubishi Development's sustainability approach, which strives to address the following key sustainability issues:

- transitioning to a low-carbon society;
- procuring, operating and supplying in a sustainable manner;
- tackling evolving regional issues in Australia;
- addressing the needs of society through business innovation and new technology;
- conserving the natural environment;
- growing together with local communities; and
- fostering our employees' maximum potential including health and safety.

¹ FY2020 baseline will be adjusted for any material acquisitions and divestments based on greenhouse gas emissions at the time of transaction. Carbon offsets will be used as required.

Mitsubishi Development is committed to reducing greenhouse gases by implementing new operational efficiencies and sustainable technologies, as well as actively pursuing business partnerships that facilitate the transition to a low-carbon society. Mitsubishi Corporation, Mitsubishi Development's parent company, aims to reduce greenhouse gas emissions by 25 per cent by 2030 per total assets, compared to 2017 levels.

Further information on Mitsubishi Development's sustainability approach is available at:
<https://www.mdp.com.au/sustainability>.

Capability

BMA has undertaken numerous technical and complex environmental impact assessments and prepared EIS documentation for its existing operations and has the necessary experience and financial capacity to deliver a comprehensive EIS.

The EIS for the Project would be delivered with the assistance of a highly capable project team which also has extensive experience in Queensland based mining approvals. This will ensure the required reporting is delivered in a timely and professional manner, inclusive of all of the necessary details and supporting information.

3 NATURE OF THE PROPOSAL

3.1 SCOPE OF THE PROJECT

The Project is an open cut coal mine which would support the extraction of up to approximately 800 million tonnes (Mt) of run-of-mine (ROM) coal over a mine life of up to 90 years (including a ramp up and ramp down period). The Project would include, although not be limited to, the following primary components and activities:

- an open cut coal mine which would produce metallurgical quality coals for steel making (otherwise known as coking coal);
- mine infrastructure areas, including an on-site CHPP, workshops and offices;
- a rail loop and train load-out facility;
- a temporary construction WAV and permanent WAV (if required);
- placement of waste rock (i.e. overburden and interburden) in out-of-pit waste rock emplacements and within the footprint of the open cut voids;
- surface water management structures such as watercourse diversions and levees;
- an initial reject and tailings co-disposal facility;
- road diversions;
- development of the Project water management system (including its potential integration with the Blackwater Mine water management system);
- electricity transmission lines;
- access roads;
- an on-site landfill to dispose of certain waste streams generated on-site; and
- other associated infrastructure, plant, equipment and activities to support mining operations.

The indicative general arrangement of the Project is shown on Figure 2. The indicative general arrangement has been prepared to support the application for declaration as a Coordinated-Project and is conceptual and subject to revision as part of further design and assessment.

Construction of the Project is likely to be carried out in stages and require a construction workforce of up to approximately 500 to 750 people. Once operating at peak production, the Project is anticipated to require an operational workforce of up to approximately 1,200 people.

A peak of approximately 8 Mtpa of product coal would be transported from the Project to the Port of Gladstone for export (subject to availability of rail and port allocation).

3.2 LAND USE

As the Project is located within the Bowen Basin mining precinct, coal and petroleum (i.e. coal seam gas [CSG]) mining exploration activities have been conducted within the Project area and surrounds for decades. Within the immediate vicinity of the Project is the existing Blackwater Mine to the north, and the Cook Colliery underground mine to the north-east (under care and maintenance).

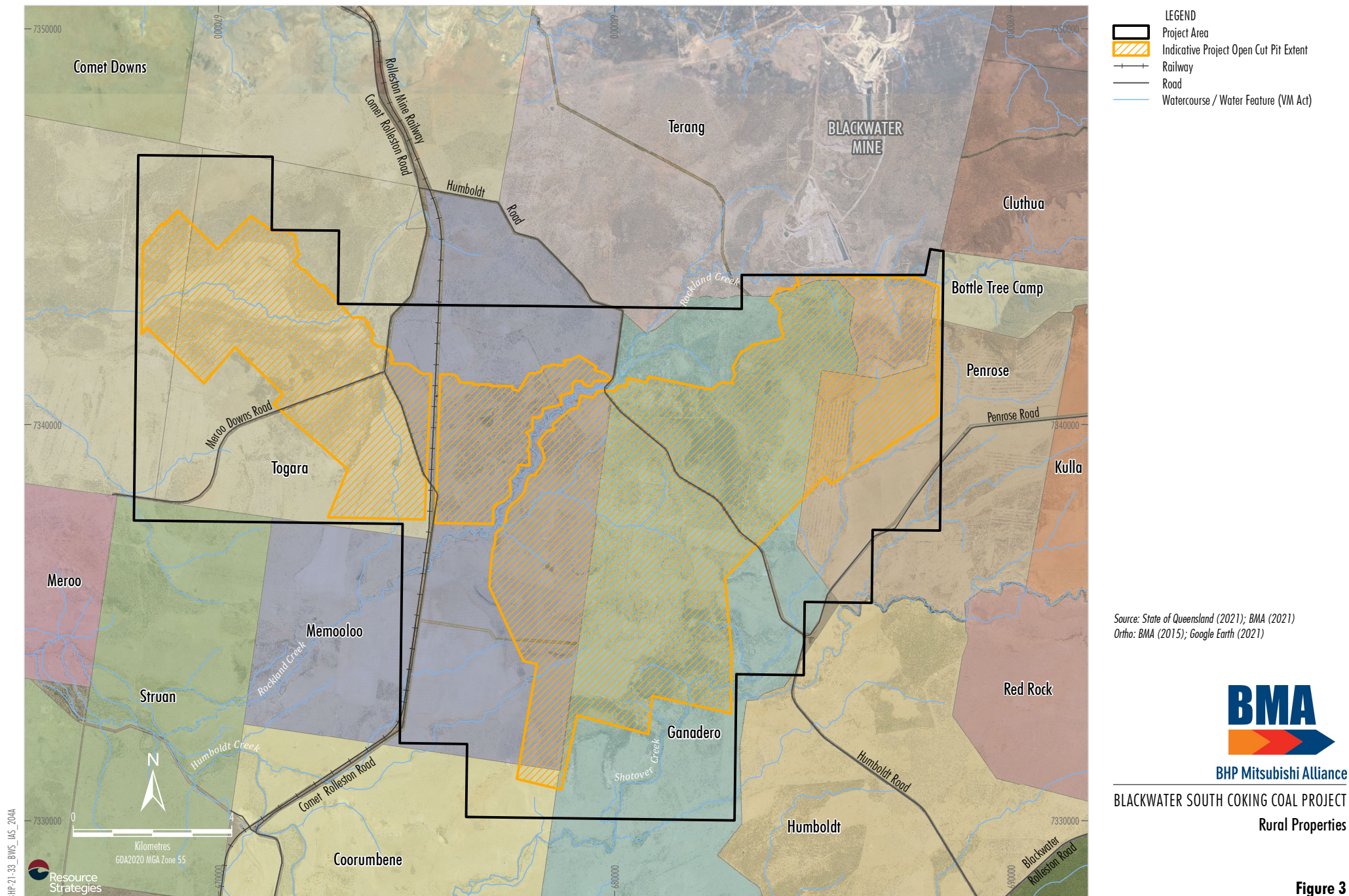
The Project falls within the Surat Cumulative Management Area (CMA) for petroleum exploration and leasing. Petroleum exploration activities throughout the region are extensive and a number of existing petroleum tenements overlap with the Project area (see Section 4.2.1).

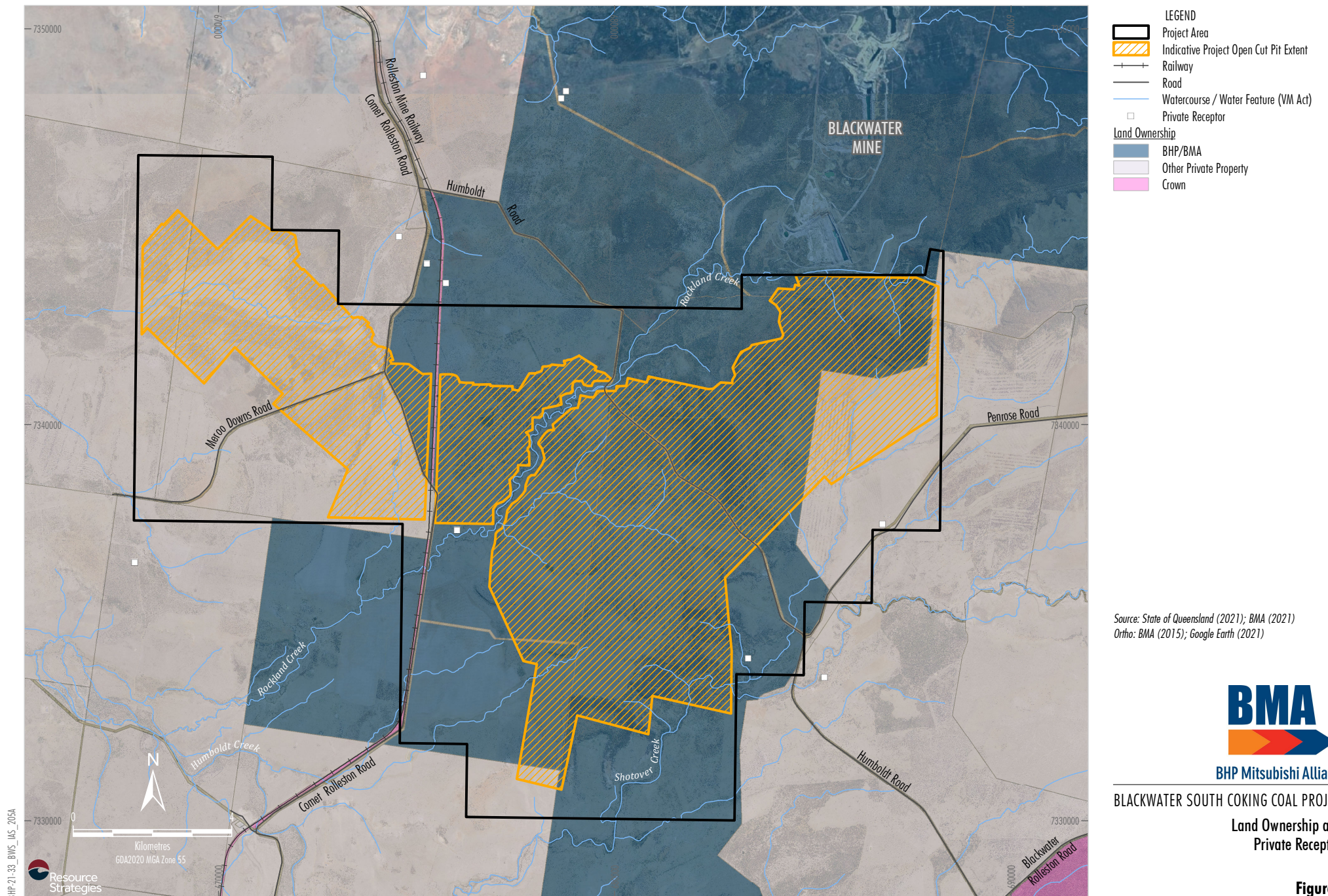
The majority of the properties within the Project area are owned by BMA. Other properties on which the Project is proposed are owned by private landholders (Penrose, Bottle Tree Camp, Togara and Coorumbene) (Figures 3 and 4).

Land within the Project area is used predominantly for cattle grazing, with some areas to the east and south-west used for cropping (dryland agriculture).

The western part of the Project area is located within the Central Queensland Priority Agricultural Area (PAA) (Figure 5) (approximately 5,343 hectares [ha]). In accordance with the *Central Queensland Regional Plan* (Queensland Government, 2013), BMA will seek to design the Project to ensure co-existence with the agricultural land uses within the PAA.

Strategic Cropping Land (SCL), an area of regional interest under the *Regional Planning Interests Act 2014* (RPI Act), is mapped within the Project area (Figure 5). BMA will comply with the relevant provisions of the RPI Act associated with carrying out a resource activity within an area of regional interest.





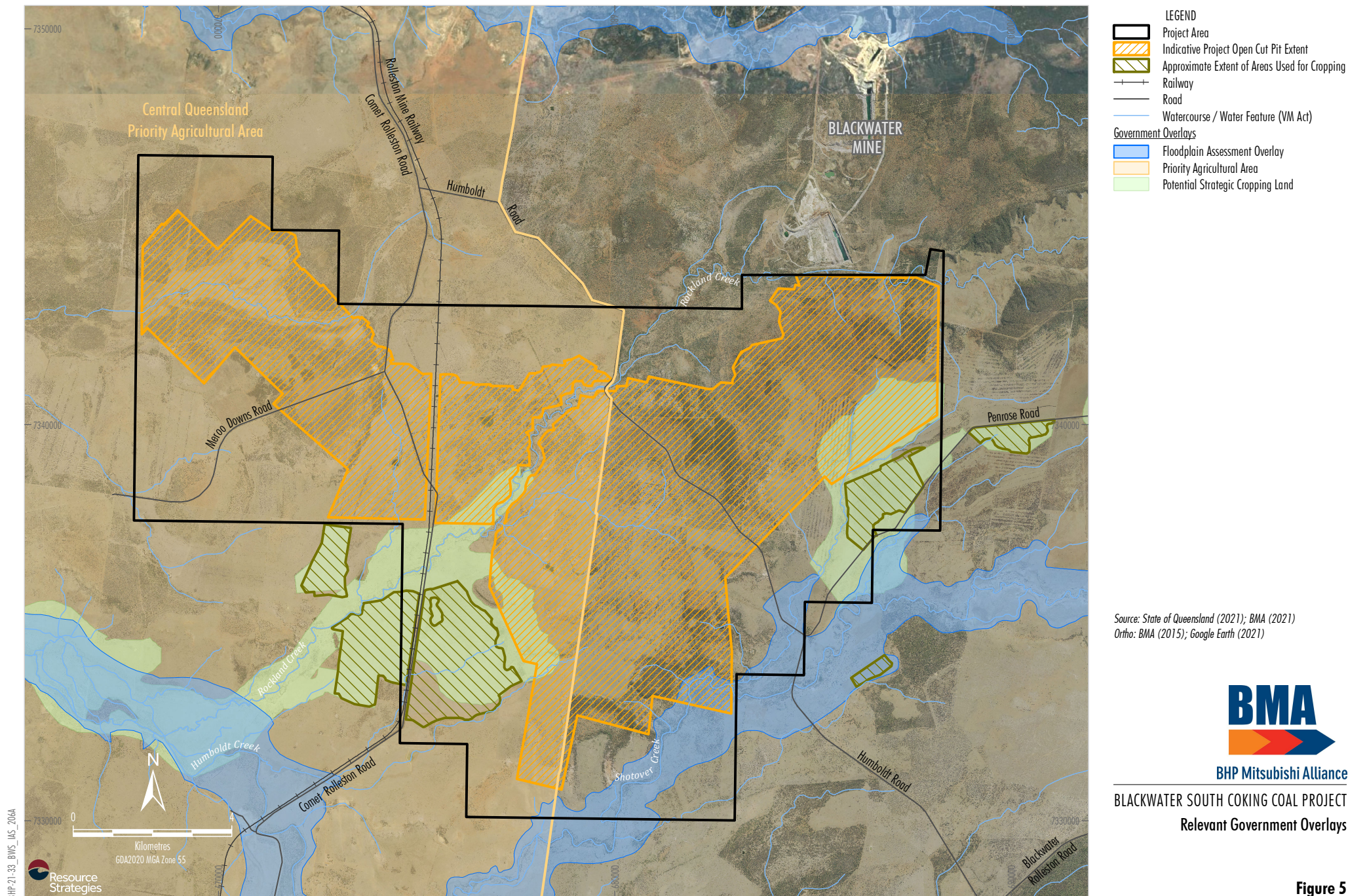


Figure 5

3.3 PROJECT NEED, JUSTIFICATION AND ALTERNATIVES CONSIDERED

BMA operates seven mines in the Bowen Basin, with each asset being at a different stage in its mine and development life. Assets in the Bowen Basin have been progressively developed by BMA to meet long term global demand for high quality metallurgical coals since the 1960s. BMA's strategy is to continue to develop its assets over the coming decades to allow market demand to be met through the most efficient development of resources.

Some of the best premium coking coal assets in the world are part of BMA's portfolio. It is expected that, even with substitution and declining demand, BMA's coals will continue to be highly sought after.

The Blackwater South asset has been held in BMA's portfolio since 2000 and has been subject to regular review of its feasibility in consideration of market demand and BMA's development priorities. Given the resource definition activities that have been completed, it is now considered the appropriate time to commence the State and Commonwealth regulatory approval processes to provide the opportunity for resource development to proceed when required to meet market demand and the requirements of BMA's customers.

BMA considers that the development of the Project adjacent to the existing Blackwater Mine and in proximity to existing infrastructure already developed to service the Blackwater Mine complex (e.g. rail, road, power, water infrastructure) would result in less demand and impact on existing services and providers, when compared to a greenfield development that is not located adjacent to an existing mining complex.

The local and regional community has established itself to service the existing mining complex, and is therefore accustomed to the benefits, costs and demands associated with mining operations. Development of the Project will provide significant direct employment opportunities to the regional communities, and long-term flow on social and economic benefits.

Alternatives to the Project that have been considered include alternative mining methods and layouts, and alternative infrastructure and processing options.

Refinement of the mine plan during the EIS process will consider the principles of the Queensland Government's mining rehabilitation reforms, in particular, progressive rehabilitation opportunities and post-mining land use outcomes.

The Project layout has been designed to maximise recovery of the resource while avoiding impacts to environmental values of significance, such as Rockland Creek and the heritage and ecological values along its riparian corridor (Sections 5.1.2 and 5.1.5).

Alternative coal reject management options considered included conventional tailings storage facilities (i.e. tailings dams), however it was considered the best practice approach of dewatering fine rejects and co-disposal of the reject material with waste rock allowed for better water reuse opportunities, improved geotechnical and rehabilitation outcomes and reduced land disturbance.

Consideration of alternative water supply options is ongoing and includes re-use and efficiency opportunities along with options for further connections to the regional Sunwater network. Integration with the existing Blackwater Mine network is expected to minimise the requirement for off-lease infrastructure.

Should the Project not be developed, it would not contribute to the significant economic growth provided by Queensland's growing export industry, the value that the coal resource would provide through State royalties and Commonwealth tax revenue would be foregone and the employment opportunities and social and community benefits for the region would not be realised.

The preferred mine plan, infrastructure design, production and workforce profiles are being developed by BMA in consideration of environmental and planning constraints, logistics, community and external relationship expectations for marketing and financial matters. The final Project design will be assessed as part of the EIS, to demonstrate that potential environmental effects can be adequately avoided, minimised, mitigated or offset.

3.4 COMPONENTS, DEVELOPMENTS, ACTIVITIES AND INFRASTRUCTURE THAT CONSTITUTE THE PROJECT TO BE DECLARED COORDINATED

The main Project components, developments and activities would include, although not be limited to, the following:

- staged development of an open cut coal mine which would produce metallurgical coal for steel making (otherwise known as coking coal) (a secondary export quality thermal coal product stream may also be produced during the life of the Project);
- on-site excavation and production of gravel and other construction fill materials for use in the construction of the rail spur and loop, mine infrastructure areas and access roads;
- construction and operation of mine infrastructure areas, including an on-site CHPP, workshops and offices;
- construction and operation of a rail loop and train load-out facility connecting to the existing Rolleston Mine Railway (part of the Blackwater System);
- construction and operation of a haul road crossing or bridge over the Rolleston Mine Railway and over Rocklands Creek;
- staged development and operation of a temporary construction WAV and permanent WAV (if required);
- use of conventional open cut mining methods (including draglines and truck and shovel methods) to extract up to approximately 10 Mtpa of ROM coal for up to approximately 90 years;
- placement of waste rock (i.e. overburden and interburden) in out-of-pit waste rock emplacements and within the footprint of the open cut voids;
- drilling and blasting of competent overburden;
- transport of up to approximately 8 Mtpa of product coal to the Gladstone Port for export (subject to availability of rail and port allocation);
- progressive development of the Project water management system (including its potential integration with the Blackwater Mine storages and water management system) including the construction of water supply pipelines, raw water dams, sediment dams, mine water dams, pumps, groundwater bores and associated pit dewatering infrastructure;
- construction and use of CHPP reject dewatering facilities to allow for co-disposal of fine rejects with waste rock;
- construction and use of an initial out-of-pit reject and tailings co-disposal facility, until such time as sufficient in-pit capacity for co-disposal is available;
- construction and use of electricity transmission lines to connect to the existing transmission network at the Blackwater Mine;
- construction and use of primary access roads from Humboldt Road and Penrose Road;
- construction of temporary and permanent road diversions (including Humboldt Road, Comet Road, Meroo Downs Road and other local access roads);
- progressive development of surface water management structures such as watercourse diversions and levees;
- construction and operation of ancillary infrastructure in support of mining including mine infrastructure areas, ROM and product coal pads and stockpiles, haul roads, access roads, storage and lay downs areas;
- progressive construction and use of soil stockpiles;
- ongoing exploration activities;
- use of an on-site landfill to dispose of certain waste streams generated on-site; and
- other associated infrastructure, plant, equipment and activities to support mining operations.

The indicative general arrangement of the Project is shown on Figure 2. The indicative general arrangement has been prepared to support the application for declaration as a Coordinated-Project and the mine layout and sequence for the Project would vary to take account of localised geological features, coal market volume and quality requirements, and Project detailed engineering design.

The Project will be developed as a stand-alone operation, however there may be times that components of the Blackwater Mine will be used to support operations at the Project. For example, in early stages of the development, ROM coal from the Project may be transported by internal access roads for processing at the Blackwater Mine CHPP before being loaded to trains and transported to port via the Blackwater Mine train load-out and rail loop.

3.5 EXTERNAL INFRASTRUCTURE REQUIREMENTS

3.5.1 Fuel Supply

All required fuels would be transported via road to the Project by contractors.

The transport, storage and handling of fuels at the Project would be undertaken in accordance with relevant legislation and guidelines.

3.5.2 Workforce Accommodation

A temporary construction WAV would be developed in the Project infrastructure area (Figure 2) to accommodate the temporary construction workforce.

A permanent WAV with a capacity of up to approximately 1,000 people may be required depending on various factors including further assessment of existing capacity. If required, the permanent WAV would either be constructed at the site of the temporary construction WAV, at another location within the Project mining tenements, or to the north of Humboldt Road (Figure 2). The development of the permanent WAV, if required, may be staged to reflect the forecast operational workforce requirements for the Project.

The need for, and locations of, the temporary construction WAV and permanent WAV will be further investigated and determined during preparation of the EIS. Assessment of the WAV will be included as part of the EIS.

It is also expected that a proportion of the workforce would be accommodated within existing accommodation villages in the region, or would reside in the townships and surrounds of the Blackwater region.

3.5.3 Water Supply

Water supply for the Project is expected to be via the following sources:

- open cut dewatering (including advance dewatering with groundwater bores);
- process water re-use and recycling;
- water recovered from tailings and reject dewatering;
- incident rainfall and runoff collection and potential flood harvesting;
- supplementary raw water supplied from a pipeline network integrated with the Blackwater Mine, sourcing water from Blackwater Mine storages and off-site via water allocations (e.g. the Bedford Weir); and
- potable water may also be generated on-site with a new water treatment plant.

Assessment of any external water supply infrastructure (e.g. pipelines) required for the Project will be included in the EIS.

3.5.4 Rail Transport and Port Operations

The existing Rolleston Mine Railway is part of the Blackwater System, one of four systems in Aurizon's Central Queensland Coal Network. A new rail spur and loop would be constructed to connect to the Rolleston Mine Railway (Figure 2) and would be used to transport product coal from the Project to the Gladstone Port for export to international customers (subject to availability of rail and port allocation).

The existing rail loadout facility at the Blackwater Mine, including rail loop and rail spur line to the Blackwater Rail Line, may initially be used for the Project until such time as the Project's CHPP and rail spur and loop is commissioned.

There is also potential to transport product coal via the Goonyella System to the Dalrymple Bay and Abbott Point ports, although these ports are located further from the Project.

BMA considers that sufficient rail and port capacity will be available for concurrent operations at the existing Blackwater Mine and the Project.

The design and location of the rail infrastructure will be finalised as part of the feasibility studies and will be included as part of the EIS.

3.5.5 Electricity Supply

Permanent electricity supply for the Project would be provided by extending the existing 66 kilovolt electricity transmission network that services the Blackwater Mine. Temporary power for construction activities may be supplied by connection to local power sources or through diesel generator units until the permanent supply is commissioned.

The final alignment of the electricity transmission line, including consideration of integration with the existing Blackwater Mine, will be finalised as part of the feasibility studies and will be included as part of the EIS.

3.5.6 Road Transport

Vehicle access for the Project workforce and deliveries will be via one of two access roads, from the east off Penrose Road, or from the west off Humboldt Road (Figure 2).

Access to the site will be controlled by security entrances on the new mine access roads.

The final alignment of the access roads, including consideration of integration with the existing Blackwater Mine, will be finalised as part of the feasibility studies and will be included as part of the EIS.

3.5.7 Telecommunications

The Project would include connection to regional communication networks and would be facilitated through construction and use of communication infrastructure around the site.

The design of the telecommunication infrastructure, including consideration of integration with the existing Blackwater Mine, will be finalised as part of the feasibility studies and will be included as part of the EIS.

3.6 TIMEFRAMES FOR THE PROJECT

Table 1 presents the indicative timeframes for the Project, allowing a nominal five year duration for external approval processes (approximated based on a review of recent experiences for other projects).

These timeframes will be reviewed and revised as necessary as part of the EIS and are subject to future market conditions, detailed mine planning and investment decisions.

Table 1
Indicative Project Timeframes

| Indicative Timeframe ¹ | Project Phase |
|-----------------------------------|---|
| Year 1 ² – Year 3 | Project infrastructure construction commences, including construction of temporary construction WAV, rail, water and electricity supply infrastructure. |
| Year 2 – Year 3 | Construction of permanent WAV, mine infrastructure areas, workshops, offices, CHPP and other areas to enable commencement of mining operations. |
| Year 3 | First coal. |
| Year 4 | ROM coal extraction reaches 10 Mtpa. |

¹ Dependent on grant of all required approvals and investment decisions.

² It is currently anticipated that Year 1 would equate to 2029.

Early works may include construction of access roads, laydown areas, temporary site facilities, geotechnical investigations and surveys.

Rehabilitation would be undertaken progressively during the life of the Project in accordance with an approved Progressive Rehabilitation and Closure Plan (PRC Plan). Final rehabilitation works and mine closure activities would be undertaken upon completion of ROM coal extraction (anticipated mine life of up to 90 years).

3.7 CONSTRUCTION AND OPERATIONAL PROCESSES

Construction activities would include, but not be limited to, the following key requirements:

- on-site excavation and production of gravel and other construction fill materials for use in the construction of the rail spur and loop, mine infrastructure areas, haul roads and access roads;
- construction of mine infrastructure areas, including an on-site CHPP, workshops and offices;
- construction of a temporary construction WAV;
- construction of a rail loop and train load-out facility connecting to the existing Rolleston Mine Railway (part of the Blackwater System);
- staged development of a permanent WAV;

- progressive development of the Project water management system (including its potential integration with the Blackwater Mine water management system) including the construction of water supply pipelines, raw water dams, sediment dams, mine water dams, pumps, groundwater bores and associated pit dewatering infrastructure;
- construction and use of an initial out-of-pit reject and tailings co-disposal facility, until such time as sufficient capacity for in-pit co-disposal is available;
- construction of electricity transmission lines to connect to the existing transmission network at the Blackwater Mine;
- construction of primary access roads from Humboldt Road and Penrose Road;
- construction of temporary and permanent road diversions (including Humboldt Road, Comet Road, Meroo Downs Road and other local access roads);
- progressive development of surface water management structures such as watercourse diversions and levees; and
- construction of ancillary infrastructure in support of mining including mine infrastructure areas, ROM and product coal pads and stockpiles, internal haul roads and access roads (including crossings of Rockland Creek), storage and lay downs areas.

3.8 WORKFORCE REQUIREMENTS DURING CONSTRUCTION AND OPERATION

A construction workforce of approximately 500 to 750 people and a full-time operational workforce of up to approximately 1,200 people would be required for the Project. The Project would not utilise a 100% fly-in fly-out (FIFO) workforce.

As described in Section 1.2, the Project would be separate to, but operated in parallel with, the existing Blackwater Mine. Although some of the workforce from the Blackwater Mine may relocate to work at the Project, the Project operational workforce is expected to be additional to that currently in place at the Blackwater Mine.

Operation of the Project is expected to commence with a conventional workforce operating the mining fleet, with some operations controlled by site-based centres or remotely from other centres.

Consistent with efforts to improve safety and operational efficiency at other mine sites in the Bowen Basin (and at other BHP operations across Australia), BMA may introduce autonomous operation of particular mining functions in a staged manner during the life of the mine.

The introduction of autonomous operations is expected to create new permanent jobs and indirect employment opportunities with the introduction of the technology and requirement for ongoing control, engineering and maintenance roles.

The introduction of autonomous operations to the Project will be considered further in feasibility studies and described in the EIS.

Construction and operation of the Project would be conducted up to 24 hours a day, seven days a week.

3.9 ECONOMIC INDICATORS

The estimated total capital cost for the development of the Project is under consideration, but is expected to exceed \$1 billion (Australian Dollars [AUD]).

Upon commencement of the operations, the Project will contribute to State royalty payments and Commonwealth tax revenues.

The Project would result in economic benefits through ongoing annual direct and indirect output, direct employment and household income contributions. Sectors that typically experience direct or indirect benefits from the construction and operation of mines include property services, equipment manufacturing, domestic services (e.g. cooking and cleaning), trade services (e.g. construction, labour, mechanics etc.) and freight.

3.10 FINANCING REQUIREMENTS AND IMPLICATIONS

As described in Section 3.9, the capital cost to develop the Project is expected to exceed AUD\$1 billion.

As detailed in Section 2, BMA is owned 50:50 by BHP and Mitsubishi Development, and is Australia's largest supplier of seaborne metallurgical coal, operating seven mines in the Bowen Basin. BMA has a proven record of funding the development of projects of similar scale in the region. Funding for the Project will be sourced from a combination of cash flows generated from existing BMA operations and/or available facilities.

4 LOCATION OF KEY PROJECT ELEMENTS

4.1 LOCATION

4.1.1 Local Context

The Project is bordered by the Blackwater Mine to the north-east, Humboldt Creek 5 km to the south-west, Comet River 10 km to the west and the Shotover Range approximately 20 km to the east (Figure 1).

The Project area elevation ranges from approximately 210 metres (m) Australian Height Datum (AHD) in the south-west to approximately 310 m AHD in the higher areas to the north-east. The landscape is generally flat to slightly undulating.

4.1.2 Regional Context

The Project is located approximately 50 km south-west of Blackwater and approximately 80 km south-east of Emerald in the Bowen Basin region of Central Queensland, within the Central Highlands Regional LGA (Figure 1). The closest city is Rockhampton which is located approximately 190 km east-northeast of the Project.

The Project is located in the south of the Bowen Basin mining precinct with multiple projects/active coal mines within approximately 50 km, including (Figure 1):

- Blackwater Mine (adjacent to the north-east of the Project);
- Cook Colliery – under care and maintenance (approximately 35 km north-northeast);
- Meteor Downs South Mine (approximately 60 km south-west);
- Rolleston Mine (approximately 55 km south-west);
- Springsure Creek Project (approximately 35 km west); and
- Minyango Project (approximately 50 km north).

The Project is located within the Gaangalu Nation People (QC2012/009) Native Title Determination Application Area registered with the National Native Title Tribunal (2012).

The Project is also located in the Highlands Groundwater Management Area (GMA) declared under the Queensland *Water Plan (Fitzroy Basin) 2011* and the Central Queensland PAA identified in the *Central Queensland Regional Plan* (Queensland Government, 2013).

4.2 TENURE

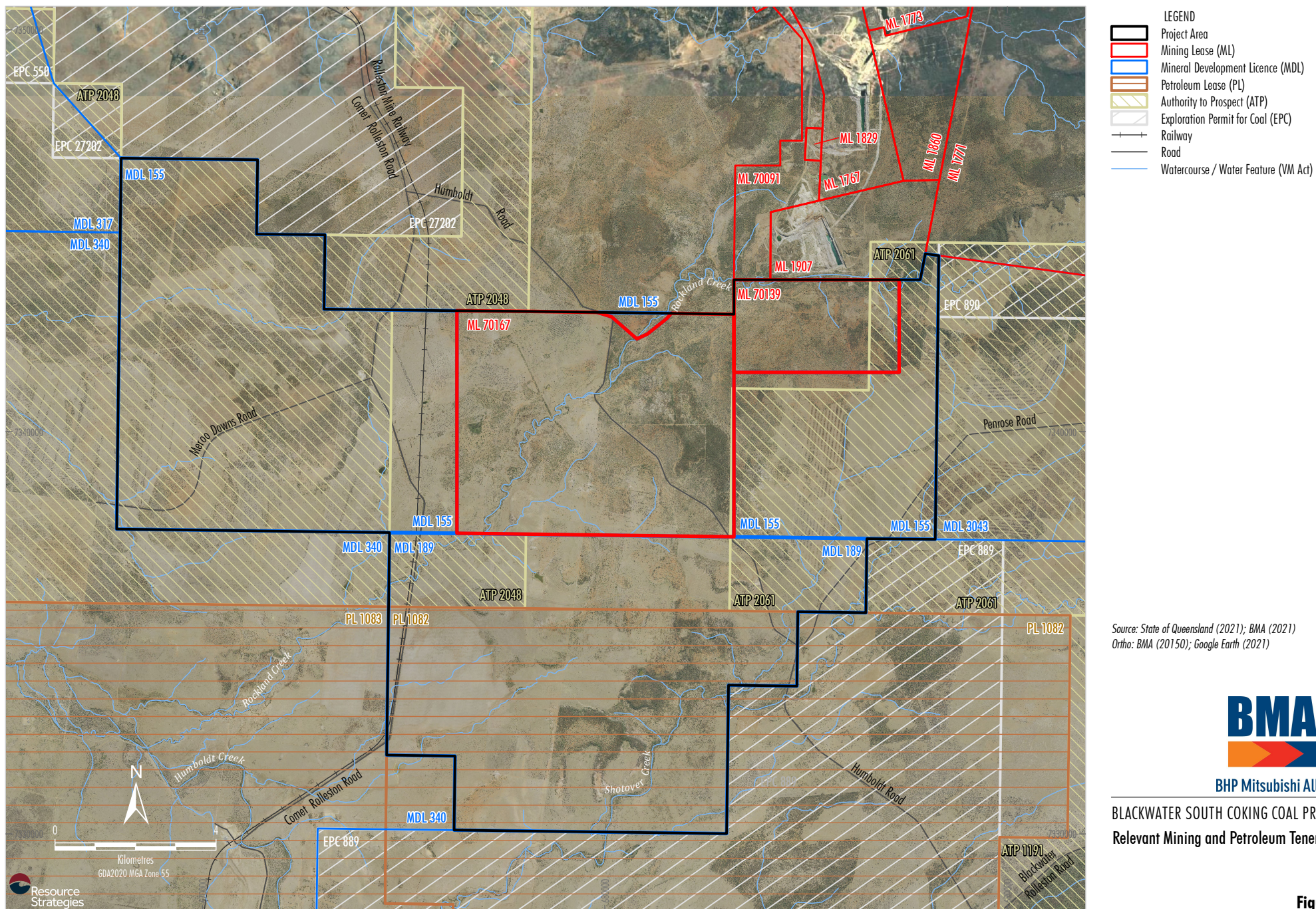
4.2.1 Tenements

The Project is located within BMA tenements MDL 155, MDL 189, ML 70167 and ML 70139 (Figure 6). BMA will be required to lodge a Mining Lease Application (MLA) with the Department of Resources to undertake mining.

The granting of MLs for the Project would be conditional upon BMA entering into a coordination arrangement with the holder of the overlapping petroleum lease. Overlapping petroleum tenements are detailed in Table 2.

Table 2
Petroleum Tenements Overlapping with the Project

| Tenement | Grant Date | Ownership | BMA Tenure |
|----------------------------------|-------------------|-----------------------------------|---------------------------------|
| Petroleum Lease (PL) 1082 | 30 June 2020 | Australia Pacific LNG Pty Limited | MDL 189 |
| Authority to Prospect (ATP) 2048 | 29 April 2020 | Comet Ridge Mahalo North Pty Ltd | MDL 189 MDL 155 |
| ATP 2061 | 25 September 2020 | Comet Ridge Mahalo East Pty Ltd | MDL 189 ML 70167 ML 70139 |



Source: State of Queensland (2021); BMA (2021)
 Ortho: BMA (20150); Google Earth (2021)



BHP Mitsubishi Alliance

BLACKWATER SOUTH COKING COAL PROJECT
 Relevant Mining and Petroleum Tenements

Figure 6

4.2.2 Land Ownership

Table 3 lists the properties that intersect with the Project mining tenements (Figure 4).

Table 3
Land Ownership Intersecting with the Project

| Property | Lots | Ownership |
|------------------|--|----------------|
| Bottle Tree Camp | 11HT526 | Privately held |
| Penrose | 12WNA120 | Privately held |
| Togara | 9SP187935, 8WNA107 and 3SP162568 | Privately held |
| Struan | 5WNA106 | Privately held |
| Coorumbene | 1SP203781 | Privately held |
| Humboldt | 1SP168790 | Privately held |
| Terang | 12SP185512 | BMA-owned |
| Memooloo | 7SP187934 | BMA-owned |
| Ganadero | 13WNA75 | BMA-owned |

The external infrastructure associated with the Project (i.e. access roads, permanent WAV, electricity transmission lines, water supply pipeline) are currently conceptual only and therefore the specific lots impacted (and their ownership) are currently unknown.

4.2.3 Local Government Planning Scheme

The Project is within the Central Highlands Regional LGA and the Central Highlands Regional Council is the relevant local government authority for the Project.

The *Central Highlands Regional Council Planning Scheme 2016* will be applicable for the Project.

4.2.4 Regional Plan Designation

The *Central Queensland Regional Plan* (Queensland Government, 2013) establishes a vision and direction for the region to 2031. The *Central Queensland Regional Plan* recognises that coal mining and agriculture (in particular within the Central Queensland PAA) are prominent industries in the region.

5 DESCRIPTION OF THE EXISTING ENVIRONMENT

5.1 NATURAL ENVIRONMENT

5.1.1 Land

Land Resources

As described in Section 4.1, the Project is located within the Bowen Basin mining precinct, coal and petroleum (i.e. coal seam gas) mining exploration activities have been conducted within the Project area and surrounds for decades.

A number of currently operating and proposed coal mining operations are located within the vicinity of the Project, including the existing Blackwater Mine located to the immediate north of the Project (Figures 1 and 2).

The majority of the Project area has been subject to historic broad-scale clearing to establish agricultural grazing land. Remaining vegetation is largely fragmented and typically constrained to riparian zones or ridge country.

The majority of the Project mining tenements lie on Class C1 (sown pastures and native pasture on high fertility soil) and C2 (native pasture) agricultural lands (Queensland Government, 2021a). Class C1 and C2 land is suitable for pasture but not suitable for widescale cropping (Department of Science, Information, Technology and Innovation and Department of Natural Resources and Mines, 2015). Smaller areas of Class A1 (crop land) are located within parts of the Project mining tenements, generally aligning with the SCL mapping (discussed further below).

The RPI Act identifies 'areas of regional interest', including PAAs and Strategic Cropping Areas (SCAs). PAAs are defined in the RPI Act as an area which includes:

- one or more areas used for a priority agricultural land use (PALU) (a highly productive agriculture type identified in a regional plan or the *Regional Planning Interests Regulation 2014* [RPI Regulation]); and
- inclusion on a map in a regional plan or the RPI Regulation.

Part of the Project is located within the Central Queensland PAA (Figure 5), which is identified in the *Central Queensland Regional Plan* (Queensland Government, 2013).

The Central Queensland PAA covers an area of approximately 868,894 ha, spanning from north of Emerald, to south of Rolleston.

Within PAAs, PALUs are the land use priority. PALUs include (Queensland Government, 2013; Department of Agriculture, Water and the Environment [DAWE], 2016):

- cropping;
- perennial and seasonal horticulture (e.g. fruit trees, citrus, flowers and vegetables);
- production from irrigated agriculture and plantations; and
- intensive horticulture (e.g. nurseries).

SCAs within Queensland are made up of areas shown on the SCL trigger map as 'potential SCL' (Figure 5). The SCL trigger map shows areas of 'potential SCL' within parts of MDL 155, MDL 189, ML 70167 and ML 70139. Field verification of whether the land shown as 'potential SCL' will be conducted during preparation of the EIS to determine whether the land meets the criteria for SCL.

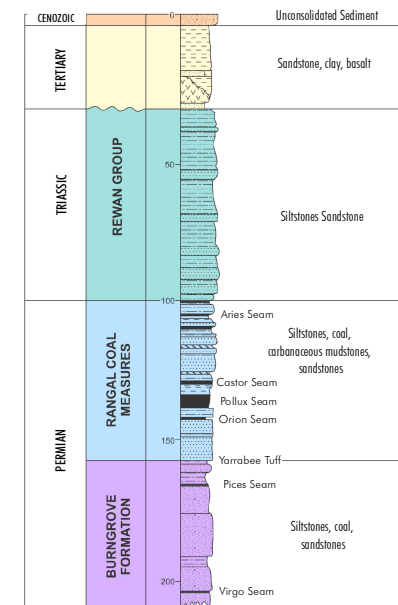
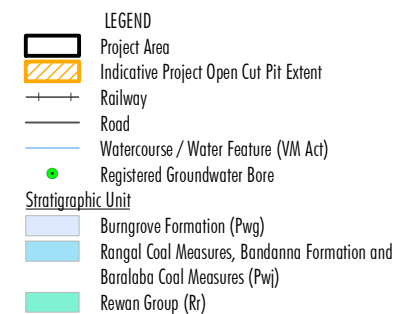
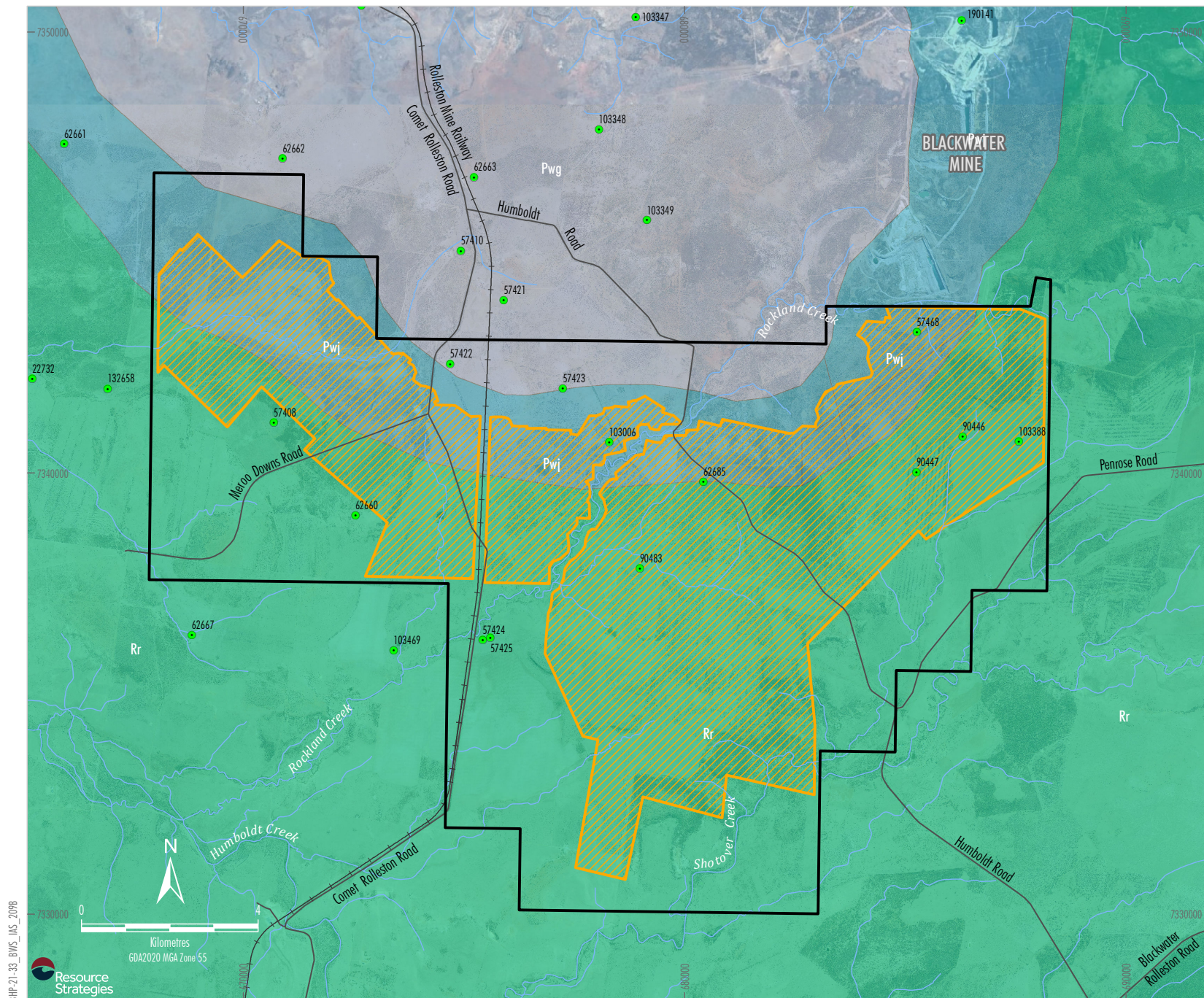
Two areas of land which are used for cropping are located within the Project mining tenements, including an area located within the PAA (Figure 5). The area of cropping land in the PAA is located on a property owned by BMA (Figures 4 and 5). Another area of land used for cropping within the Project mining tenements is located on land which is outside the PAA (Figure 5). The areas of cropping land are generally located within the 'potential SCL' areas shown on the SCL trigger map (Figure 5).

The remainder of the Project area is generally non-remnant vegetation used for cattle grazing land uses, or remnant vegetation.

Geology and Soils

The Project is located in the central, southern part of the Bowen Basin, in an area known as Comet Ridge. The Bowen Basin is the northern extension of the Permian age Sydney-Gunnedah-Bowen Basin which contains fluvial and shallow marine sediments with extensive coal measures.

The Rewan formation is prevalent throughout the southern region of the Project while the Rangal and Burngrove formations occur in the northern regions (Figure 7). The Upper Permian Rangal Coal Measures and coal seams in the Rewan Group are the key seams to be targeted by the Project.



Source: State of Queensland (2021); BMA (2021)
 Ortho: BMA (2015); Google Earth (2021)



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BLACKWATER SOUTH COKING COAL PROJECT

**Regional Geology and
Registered Groundwater Bores**

Figure 7

The Burngrove Formation contains coal seams which have high inherent ash with numerous stone bands and are therefore not targeted by the Project.

Soil types in the Project area have been generally described as grey and black self-mulching cracking clays and red massive earth soils located on gentle or moderately undulating lands and level plains (Queensland Government, 2021a). Parts of the Project area also include some steeper escarpments and low mesa-like hills (e.g. Toprain Hill, which rises approximately 50 m above the surrounding land).

Nature Conservation Areas

There are no nature conservation areas located within or immediately adjacent to the Project (Queensland Government, 2021a).

The Humboldt State Forest and adjoining Humboldt National Park are located approximately 5 km to the south-east of the Project (Figure 1). Shotover State Forest and the Blackdown Tableland National Park are approximately 15 to 20 km to the east and north-east of the Project, respectively.

There are two wetlands that are Matters of State Environmental Significance (MSES) within the Project area (Figure 8). The first MSES wetland is in the western section of ML 70167, with the second in the western section of MDL 155 and continues out to the west of the Project area. A third and fourth MSES wetland are approximately 1 km and 3 km to the west of the Project area.

There are no Ramsar protected wetland sites, nationally important wetland sites or World Heritage Areas within the Project area or its vicinity (Appendix A; DAWE, 2021).

State Land

State land exists in the vicinity of the Project and may be traversed by external infrastructure depending on final alignments. State land within MDL 155 and MDL 189 includes rail and road corridors.

5.1.2 Water

Surface Water

The Project lies within the Comet River sub-basin within the Fitzroy River basin as defined by the *Environmental Protection (Water and Wetland Biodiversity) Policy 2019* (EPP [Water and Wetland Biodiversity]). No diversions of the Comet River are required for the Project.

Tributaries of the Comet River in the vicinity of the Project include (Figure 2):

- Rockland Creek;
- Shotover Creek; and
- Three Mile Creek.

Rockland Creek drains to Humboldt Creek, which then drains to the Comet River. The unnamed drainage line in the western portion of MDL155 is an upper headwater gully of Three Mile Creek. Three Mile Creek drains to the Comet River via Sirius Creek. Shotover Creek drains the southern areas of the Project area to Humboldt Creek.

The Comet River and associated tributaries are ephemeral in nature, and generally do not flow for the majority of the year. Flow duration data from the Queensland Government operated monitoring stations is available for the Comet River catchment at three sites:

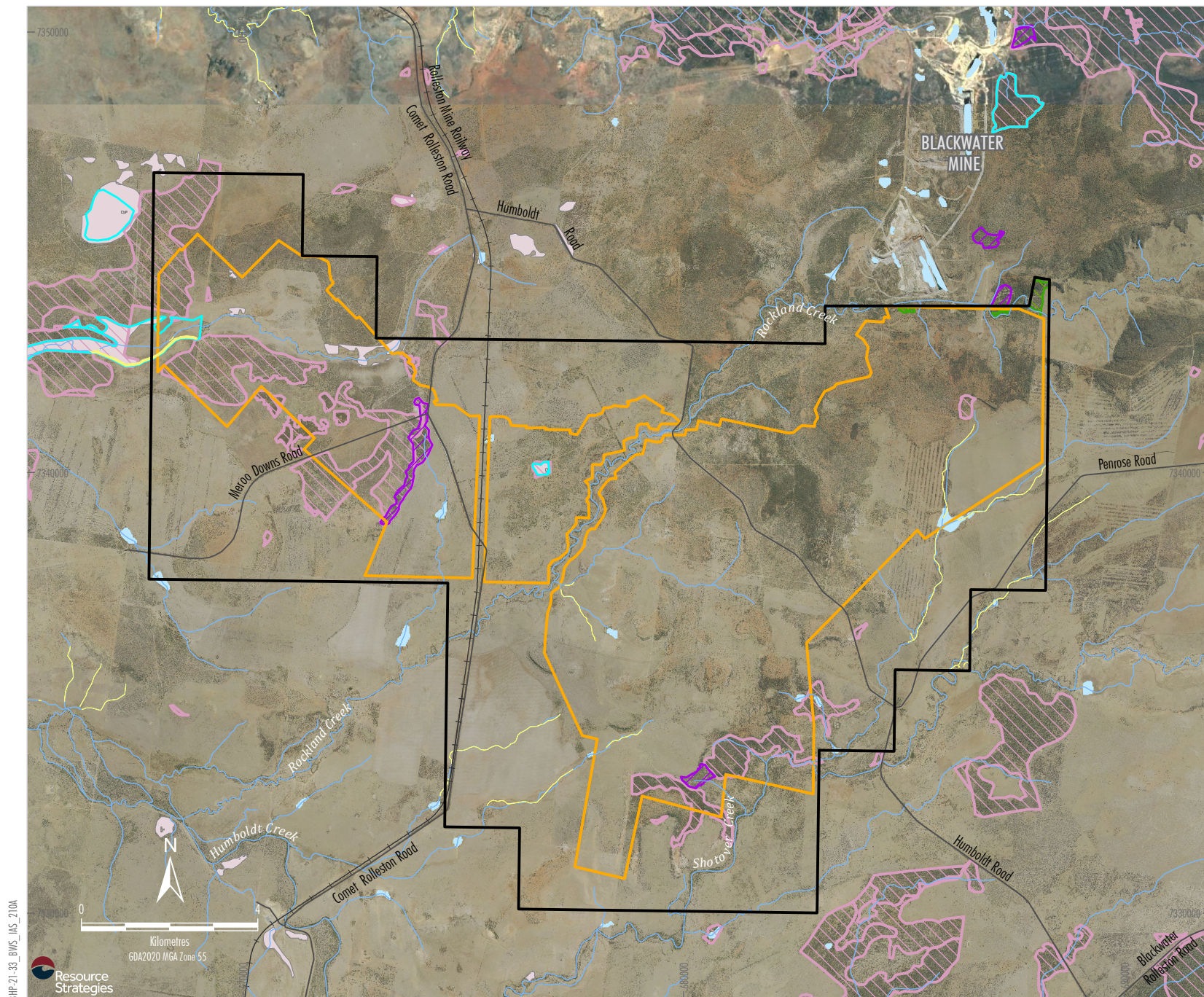
- Comet River at Comet Weir (130504B).
- Comet River at Springsure Creek Junction (130510A).
- Comet River at The Lake (130506A).

Monitoring data indicates that the Comet River is typically dry between April and November, and subject to short periods of high flows in summer.

BMA currently undertakes monitoring of surface water in accordance with their Receiving Environment Monitoring Program (REMP). Surface water monitoring sites of relevance to the Project include REMP 6, REMP 11 and REMP 16 (located on Rockland Creek) and REMP 5, REMP 10 and REMP 17 (located on Sirius Creek).

Streamflow monitoring on Rockland Creek and Sirius Creek between July 2019 and July 2020 identified highly ephemeral flows, with significant flows recorded from January to March 2020 (BMA, 2020). The flow monitoring sites were generally dry outside of these periods.

Monitoring undertaken by BMA for the Blackwater Mine (BMA, 2020) indicates that, with a few exceptions, downstream median water quality results are within the acceptable ranges for slightly-to-moderately disturbed ecosystems. The exceptions were confined to some individual streams, however there was a low level of confidence in these results due to the paucity of data (as a result of their ephemeral nature).



- LEGEND**
- Project Area
 - Indicative Project Open Cut Pit Extent
 - Railway
 - Road
 - Watercourse / Water Feature (VM Act)
 - Endangered Regional Ecosystem
 - Potential Aquatic Groundwater Dependent Ecosystem
 - Lacustrine Wetland*
 - Palustrine Wetland
 - High Ecological Significance Wetland
 - Brigalow (*Acacia harpophylla* dominant and co-dominant)
 - Poplar Box Grassy Woodland on Alluvial Plains

Note: * State mapping has identified some wetlands in mine water storages/pits

Source: State of Queensland (2021); BMA (2021)
Ortho: BMA (2015); Google Earth (2021)



BHP Mitsubishi Alliance

BLACKWATER SOUTH COKING COAL PROJECT
Ecological Values

Figure 8

Flooding

The Queensland Floodplain Assessment Overlay was developed for use by local governments as a potential flood hazard area and it represents an estimate of areas potentially at threat of inundation by flooding (DRDMW, 2021).

The mapping shows a portion of the Project area falls within the floodplain mapped for Shotover Creek (Figure 5).

Groundwater

It is expected that the Project coal resource is within a confined and semi-confined porous rock groundwater system within the Highlands GMA as defined by the Fitzroy Basin Water Resource Plan. The Highlands GMA consists of the following groundwater units:

- Highlands Groundwater Unit 1, containing the aquifers of the quaternary alluvium; and
- Highlands Groundwater Unit 2, containing all subartesian aquifers within the Highlands groundwater management area other than the aquifers included in Highlands Groundwater Unit 1.

The Project is also located less than 7 km west of the Carnarvon GMA.

It is expected that the Quaternary alluvial and unconsolidated Tertiary sediments associated with the Comet River and its tributaries contain unconfined groundwater.

A preliminary analysis of the Department of Regional Development, Manufacturing and Water (DRDMW) registered groundwater bore database identified the following bores located within 10 km of the Project in 2018:

- 68 total registered bores;
- 7 bores installed into the Tertiary basalt;
- 4 bores installed into the Tertiary sediments;
- 1 bore installed into the Triassic strata;
- 6 bores installed into the Permian strata; and
- 50 bores with unknown aquifer details.

Registered groundwater bores (categorised as existing or abandoned but useable) within the Project area and immediate vicinity are shown on Figure 7.

The potential exists for third-party use of groundwater within the Tertiary aquifers, as well as potentially the Permian units, in the vicinity of the Project.

The analysis also identified that the DRDMW groundwater bore database contains insufficient information to fully characterise third-party use of groundwater in the vicinity of the Project.

Potential impacts to bores would be considered in the Project EIS.

Raymond and McNeil (2011) indicate that the mapped groundwater zone in this region contains moderate to high salinities, dominated by Sodium and Chloride ions.

The southern Bowen Basin, along with the Surat Basin further to the south, is an area of concentrated CSG development, where the impacts on water pressures caused by individual CSG projects overlap. The Queensland government has declared this area to be a CMA, known as the Surat CMA. The Project sits wholly within the Surat CMA.

The Office of Groundwater Impact Assessment (OGIA) have developed a regional scale numerical groundwater model and undertaken assessment of the cumulative impacts of CSG water extraction within the Surat CMA. The first Underground Water Impact Report (UWIR) for the Surat CMA was prepared in 2012. The most recent version is the 2019 Surat UWIR (OGIA, 2019) which is widely considered to represent current best practice with regards to hydrogeological studies within the Surat CMA (which includes the Project).

5.1.3 Air

Regional Air Quality

Regional air quality is expected to be influenced by emissions of dust from existing coal mining operations and agricultural activities.

Preliminary review and analysis of long-term continuous PM₁₀² and PM_{2.5}³ monitoring data available from the Department of Environment and Science (DES) monitoring station located in Blackwater (for the period 10 April 2019 to 29 June 2021), indicates that there is a:

- average PM₁₀ concentration of 18.9 micrograms per cubic metre (µg/m³); and
- average PM_{2.5} concentration of 5.7 µg/m³.

² PM₁₀ refers to particulate matter 10 micrometres or less in diameter.

³ PM_{2.5} refers to particulate matter 2.5 micrometres or less in diameter.

Prevailing Meteorology

Meteorological data is available at the existing Blackwater Mine weather station.

The meteorological data indicates that winds are generally from the north-east through to the south-east. Winds from the north-east are most frequent during spring, while winds from the south-east are more frequent during autumn and winter. The strongest winds occur from the east and south-east in summer and from the north-east in spring.

5.1.4 Ecosystems

The majority of the Project area contains non-remnant vegetation, previously cleared as part of historic and current agricultural land uses. Patches of remnant vegetation occur in parts, particularly along the ridges, watercourses and drainage line corridors.

State mapping identifies patches of remnant vegetation with areas mapped as endangered Regional Ecosystems (REs) (considered to be Category B Environmentally Sensitive Areas [ESAs]). The endangered REs are also listed REs for the *Brigalow (Acacia harpophylla dominated or co-dominated) Threatened Ecological Community (TEC)* and the *Poplar Box Grassy Woodland on Alluvial Plains TEC* (DAWE, 2021) (Figure 8).

Initial ecological surveys undertaken in 2018, 2019 and 2020 ground-truthed a total of 10 endangered REs (VM Act). Further investigation will be undertaken to inform the EIS.

5.1.5 Flora and Fauna

The following database searches were undertaken to identify any Matters of National and/or State Environmental Significance with the potential to occur in the Project area or surrounds:

- Wildlife Online Database Search (DES, 2018);
- EPBC Protected Matters Search (DAWE, 2021); and
- Atlas of Living Australia Database Search (ALA) (ALA, 2018).

Initial ecological surveys were undertaken in 2018, 2019 and 2020. Further investigation will be undertaken to inform the EIS.

Fauna

The desktop searches identified 35 fauna species listed as conservation significant or migratory under either the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) or *Nature Conservation Act 1992* (NC Act) with the potential to occur in the Project area or surrounds (Table 4).

Fauna habitat observed across the survey area was considered to be of relatively low quality due to broad-scale vegetation clearing, cattle grazing, weed encroachment and the proximity of mining operations. Patches of suitable fauna habitat were available as riparian vegetation, Acacia woodland, gilgai habitat and rocky escarpments.

Four endangered, vulnerable or near threatened (EVNT), one special least concern and one migratory fauna species were recorded during field surveys. Recorded EVNT species comprise Ornamental Snake, Koala, Golden-tailed Gecko and White-throated Needletail.

Flora

The desktop searches identified 18 flora species listed as conservation significant under either the EPBC Act or NC Act with the potential to occur in the Project area or surrounds (Table 5).

The Protected Plant Trigger Map does not show any high risk areas within the Project area where EVNT native plants are present or are likely to be present.

Informal meanders during the initial ecological surveys identified *Solanum elaeagnifolium* and *Bertya oppositifolia* in the Project area.

Invasive Species

The EPBC Protected Matters Search (DAWE, 2021) identified 18 invasive species (including 11 fauna and 7 flora species) with the potential to occur within the Project area and surrounds (Table 6). Weeds reported here are either considered to be a weed of national significance or another introduced plant that are considered by the States and Territories to pose a particularly significant threat to biodiversity.

Table 4
Potentially Occurring Conservation Significant Fauna Species

| Scientific Name | Species Common Name | EPBC Act Status ¹ | NC Act Status ¹ | Likelihood |
|-------------------------------------|---------------------------------------|------------------------------|----------------------------|--|
| <i>Actitis hypoleucos</i> | Common Sandpiper | Mi | SLC | Unlikely |
| <i>Adelotus brevis</i> | Tusked Frog | - | V | Unlikely |
| <i>Apus pacificus</i> | Fork-tailed Swift | Mi, Ma | SLC | Potential fly-over species |
| <i>Calidris acuminata</i> | Sharp-tailed Sandpiper | Mi | SLC | Unlikely |
| <i>Calidris ferruginea</i> | Curlew Sandpiper | CE, Mi, Ma | CE | Unlikely |
| <i>Calidris melanotos</i> | Pectoral Sandpiper | Mi, Ma | SLC | Unlikely |
| <i>Chalinolobus dwyeri</i> | Large-eared Pied Bat | V | V | Unlikely |
| <i>Cuculus optatus</i> | Oriental Cuckoo | Mi | SLC | Unlikely |
| <i>Dasyurus hallucatus</i> | Northern Quoll | E | LC | Unlikely |
| <i>Delma torquata</i> | Adorned Delma | V | V | - ² |
| <i>Denisonia maculata</i> | Ornamental Snake | V | V | Likely REs on Land zone 4 |
| <i>Egernia rugosa</i> | Yakka Skink | V | V | Likely REs on land zone 5 or 7 |
| <i>Elseya albagula</i> | Southern Snapping Turtle | CE | CE | Unlikely |
| <i>Erythrorhynchus radiatus</i> | Red Goshawk | V | E | Unlikely |
| <i>Falco hypoleucos</i> | Grey Falcon | V | V | - ² |
| <i>Furina dunmali</i> | Dunmall's Snake | V | V | Potential |
| <i>Gallinago hardwickii</i> | Latham's Snipe | Mi, Ma | SLC | Potential |
| <i>Geophaps scripta scripta</i> | Squatter Pigeon (southern subspecies) | V | V | Likely REs on land zone 5 or 7 |
| <i>Grantiella picta</i> | Painted Honeyeater | V | V | Likely REs on land zone 3, RE11.5.3 and RE11.5.9 |
| <i>Hirundapus caudacutus</i> | White-throated Needletail | V, Mi, Ma | V | Potential fly-over species |
| <i>Macroderma gigas</i> | Ghost Bat | V | E | Unlikely |
| <i>Monarcha melanopsis</i> | Black-faced Monarch | Mi, Ma | SLC | Unlikely |
| <i>Monarcha trivirgatus</i> | Spectacled Monarch | Mi, Ma | SLC | Unlikely |
| <i>Motacilla flava</i> | Yellow Wagtail | Mi, Ma | SLC | Potential |
| <i>Myiagra cyanoleuca</i> | Satin Flycatcher | Mi, Ma | SLC | Potential |
| <i>Neochmia ruficauda ruficauda</i> | Star Finch | E | E | Unlikely |
| <i>Nyctophilus corbeni</i> | South-eastern Long-eared Bat | V | V | Potential |
| <i>Pandion haliaetus</i> | Eastern Osprey | Mi, Ma | SLC | Unlikely |
| <i>Poephila cincta cincta</i> | Southern Black-throated Finch | E | E | Unlikely |
| <i>Petauroides volans</i> | Greater Glider | V | V | Potential |
| <i>Phascolarctos cinereus</i> | Koala | V | V | Likely RE11.5.3, RE11.5.9, RE11.3.25, RE11.3.2, RE11.3.4, RE11.3.27, RE11.9.7 |
| <i>Rheodytes leukops</i> | Fitzroy River Turtle | V | V | Unlikely |
| <i>Rhipidura rufifrons</i> | Rufous Fantail | Mi, Ma | SLC | Unlikely |
| <i>Rostratula australis</i> | Australian Painted Snipe | E, Ma | E | Unlikely |
| <i>Turnix melanogaster</i> | Black-breasted Button-quail | V | V | Unlikely |

V = Vulnerable, E = Endangered, CE = Critically Endangered, Mi = Migratory, Ma = Marine SLC = special least concern, LC = least concern.

¹ Status current as at August 2021.

² Not considered in previous likelihood assessment, identified in June 2021 EPBC Act Protected Matters Report (DAWE, 2021).

Table 5
Potentially Occurring Conservation Significant Flora Species

| Scientific Name | Species Common Name | EPBC Act Status ¹ | NC Act Status ¹ | Likelihood |
|--|---------------------|------------------------------|----------------------------|--|
| <i>Aristida annua</i> | - | V | V | Likely REs on land zone 4 or 9 |
| <i>Arthraxon hispidus</i> | Hairy-joint Grass | V | V | .. ² |
| <i>Baeckea trapeza</i> | - | - | V | Unlikely |
| <i>Bertya opposens</i> | - | V | LC | Known RE11.7.2, RE11.7.1 and RE11.10.1 |
| <i>Cadellia pentastylis</i> | Ooline | V | V | Likely RE11.9.5 |
| <i>Daviesia discolor</i> | - | V | V | Unlikely |
| <i>Daviesia quatuorversus</i> | - | - | V | Unlikely |
| <i>Dichanthium setosum</i> | Bluegrass | V | LC | Unlikely |
| <i>Dichanthium queenslandicum</i> | King Bluegrass | E | V | Unlikely |
| <i>Homoranthus decumbens</i> | Rufous Fantail | E | V | Unlikely |
| <i>Logania diffusa</i> | - | V | V | Unlikely |
| <i>Macrozamia platyrhachis</i> | Cycad | E | E | Unlikely |
| <i>Marsdenia brevifolia</i> ³ | - | V | V | Unlikely |
| <i>Polianthion minutiflorum</i> | - | V | V | Likely REs on Land Zone 7 |
| <i>Sannantha brachypoda</i> | - | - | V | Unlikely |
| <i>Solanum adenophorum</i> | - | - | E | Likely REs associated with land zone 4 |
| <i>Solanum dissectum</i> | - | E | E | Likely REs on land zone 4 or 9 |
| <i>Solanum elachophyllum</i> | - | - | E | Likely REs on land zone 4 or 9 |

V = Vulnerable, E = Endangered, LC = Least Concern.

¹ Status current as at August 2021.

² Not considered in previous likelihood assessment, identified in June 2021 EPBC Act Protected Matters Report (DAWE, 2021).

³ Superseded by *Leichhardtia brevifolia* on 4 June 2021.

Table 6
Potentially Occurring Invasive Species

| Potentially Occurring Invasive Fauna | | Potentially Occurring Invasive Flora | |
|--------------------------------------|---------------------|--------------------------------------|--------------------------|
| Scientific Name | Species Common Name | Scientific Name | Species Common Name |
| <i>Columba livia</i> | Rock Pigeon | <i>Cryptostegia grandiflora</i> | Rubber Vine |
| <i>Passer domesticus</i> | House Sparrow | <i>Jatropha gossypifolia</i> | Cotton-leaved Physic-Nut |
| <i>Rhinella marina</i> | Cane Toad | <i>Lantana camara</i> | Lantana |
| <i>Bos taurus</i> | Domestic Cattle | <i>Opuntia</i> spp. | Prickly Pears |
| <i>Canis lupus familiaris</i> | Domestic Dog | <i>Parkinsonia aculeata</i> | Parkinsonia |
| <i>Felis catus</i> | Cat | <i>Parthenium hysterophorus</i> | Parthenium Weed |
| <i>Lepus capensis</i> | Brown Hare | <i>Vachellia nilotica</i> | Prickly Acacia |
| <i>Mus musculus</i> | House Mouse | - | - |
| <i>Oryctolagus cuniculus</i> | Rabbit | - | - |
| <i>Sus scrofa</i> | Pig | - | - |
| <i>Vulpes vulpes</i> | Red Fox | - | - |

Groundwater Dependent Ecosystems

The Groundwater Dependent Ecosystems Atlas (Bureau of Meteorology, 2021) provides regional mapping of groundwater dependent ecosystems (GDEs). This mapping shows (Figure 8):

- potential terrestrial GDEs located along Rockland Creek, Shotover Creek and their tributaries, and over larger parts of the western Project area;
- a small area of a potential aquatic GDE located along a drainage line in the far west of the Project area; and
- the remainder of the Project area having either a low or no potential for groundwater interaction.

Remote sensing of potential terrestrial GDEs has been undertaken focusing on BMA tenements in Central Queensland (including the tenements associated with the Project), with a 50 km buffer.

Areas of potential terrestrial GDEs were mapped across this study area using the Independent Environmental Scientific Committee developed method (Barron *et al.* 2012). This method specifies the capture of Landsat TM imagery at wet and dry times to detect areas that are persistently greener and wetter than the surrounding landscape – these areas are inferred to be terrestrial GDEs.

Based on the results of the remote sensing, there are only small areas within the Project area that are considered to be potential terrestrial GDEs.

Surveys of the Project area will be conducted to validate this regional mapping.

Suitable habitat for stygofauna may be present in parts of the Project area and surrounds where unconfined sediments are associated with larger watercourses.

Stygofauna sampling was undertaken at ten groundwater bores at the existing Blackwater Mine (to the north) in December 2020 and May 2021. No stygofauna were recovered from any of the 20 samples collected across two sampling events covering pre-wet and post-wet seasons.

Further investigation of stygofauna in the Project area will be undertaken to inform the EIS.

5.2 SOCIAL AND ECONOMIC ENVIRONMENT

5.2.1 Central Highlands Region, Blackwater and Emerald

Key industries for the Central Highlands Regional LGA are minerals, coal mining and agriculture (Central Highlands Regional Council, 2021). The Central Highlands Region is home to 18 currently operating coal mines and is the largest sapphire-producing fields in the Southern Hemisphere. The region produces over 100 million tonnes of coal per annum with mining contributing over 63% of the region's economic output (Central Highlands Development Corporation, 2020; Central Highlands Development Corporation, 2021). Agriculture is also a key contributor to the local economy.

It is expected that the surrounding townships would provide the majority of the services needed by the Project workforce during its operation, considering the multitude of currently existing services which cater to mine workers in these townships.

Considering the proposed Project mine life of approximately 90 years, and given that the Project is anticipated to require the employment of a significant number of workers who may reside in the region, the Project is anticipated to generate long-lasting economic growth to the region, especially within Blackwater and Emerald.

Blackwater

Situated approximately 50 km to the north-east of the Project, Blackwater was established in 1877 with the expansion of the Great Western Railway line. Blackwater expanded dramatically with the opening of the first of several coal mines in 1967 with the primary function of the town to service the surrounding coal mines in the region (Centre for the Government of Queensland, 2018a). The 2016 Australian Census (Australian Bureau of Statistics, 2016) identified that Blackwater had a population of 4,749 people.

Blackwater hosts a number of recreational facilities, including an Olympic sized swimming pool, a nine hole golf course, as well as a number of sporting facilities. In addition, Blackwater offers a number of health services including a hospital, as well as a number of dental and general medical centres.

Several accommodation and retail options are also located within Blackwater, including multiple hotels and WAVs, a supermarket, and a range of small stores and businesses. The town is also home to several kindergartens, two primary schools, a secondary school and showgrounds.

BMA have a long history with the Blackwater community and take great pride in the delivery of social value for the community over 50 years. Some examples of BMA's economic contributions to the Blackwater community include:

- Blackwater International Coal Centre.
- Blackwater Swimming Pool.
- Education partnerships with Blackwater State High School.
- Central Highlands Mining Trail partnership with Central Highlands Development Corporation.
- Childcare Assessment Review.
- Capricorn Rescue Helicopters.
- Local Buying Program.

Emerald

Situated approximately 80 km to the north-west of the Project, Emerald was established in a similar fashion to Blackwater with the expansion of the Great Western Railway line in 1878 (Centre for the Government of Queensland, 2018b). The 2016 Australian Census (Australian Bureau of Statistics, 2016) identified that Emerald had a population of 13,532 people.

Emerald is now the largest township within the Central Highlands region being a major transport hub for agriculture and various mining projects with the railway branching off to various projects further along in Clermont and Springsure.

Emerald hosts a number of services similar to Blackwater albeit on a larger scale. The town began to expand throughout the 1970s with a number of coal mines housing large numbers of workers within the township. With the region's largest airport located approximately 5 km to the south-east, servicing over 173,000 passengers per year, this supports several mining operations in the surrounding areas with FIFO workers (Central Highlands Development Corporation, 2020).

Numerous educational facilities are available, with five primary schools, three high schools and tertiary education facilities including a campus for Central Queensland University.

Additionally, Emerald offers a number of health services, including a hospital, as well as a number of dental and general medical centres.

A range of recreational services are located in the town with an 18-hole golf course, Olympic sized swimming pool, a racecourse, multiple sporting fields and clubs, a cinema and performing arts theatre, botanic gardens, and an art gallery. Emerald offers a range of retail and accommodation services with a number of supermarkets, shopping precincts, hotels and accommodation villages available.

BMA also have a history of contributing to the Emerald community through their activities associated with operation of the Gregory Crinum Complex (comprised of the Gregory Coal Mine and Crinum Underground Mine). Examples of BMA's contributions to the Emerald community include:

- Capricorn Rescue Helicopters.
- Central Highlands Science Centre.
- Emerald Police-Citizens Youth Club.
- Emerald State High School.
- Local Buying Program.

5.2.2 Accommodation and Housing

Accommodation Villages

There are a number of temporary accommodation options available in the vicinity of the Project, including the Rosewood Village, The Village on Blain and Stayover on Littlefield in Blackwater and the Discovery Parks village in Emerald.

The Project will involve the construction of a temporary construction WAV and permanent WAV (if required) to reduce the demand on the existing facilities.

BMA are currently contracted for a total of 584 beds between two third party camps in Blackwater. Additional beds are utilised when required.

Blackwater

A review of housing for sale on Domain.com.au in July 2021 indicated that over 150 properties in Blackwater were listed for sale (ranging from \$90,000 to \$550,000) and 50 properties were advertised as available to rent (ranging from \$150/week to \$520/week).

The 2016 Australian Census (Australian Bureau of Statistics, 2016) identified that in Blackwater:

- There was a total of 2,149 private dwellings. Of these, 1,427 were occupied and 722 were unoccupied.
- Approximately 29% of the private dwellings were owned outright or owned with a mortgage (average mortgage repayments were \$1,517 per month).
- Approximately 68% of the private dwellings were rented (average rental cost was \$150 per week).

Priority Development Areas (PDAs) are parcels of land within Queensland identified for specific accelerated development with a focus on economic growth. A PDA allows for shortened timeframes to stimulate economic, community and social growth by enabling development to reach the market sooner.

A PDA was declared across the majority of the town of Blackwater on 30 July 2010. The PDA seeks to deliver broader housing options for the region, and includes existing houses, some short-term accommodation facilities, retail, open space areas and commercial and industrial development.

A PDA was also declared over vacant land to the east of the town of Blackwater, known as the Blackwater East PDA, on 21 June 2013, at the request of the Central Highlands Regional Council.

The vision for the Blackwater East PDA builds on and extends the existing Blackwater PDA vision, providing for the delivery of residential development in a town associated with the Bowen Basin mining industry and agriculture. The Blackwater East PDA provides more affordable and diverse housing through the improved supply of residential land, supporting the needs of the Blackwater community.

Based on the above, Blackwater would have the capacity to support a portion of the Project workforce, either temporarily through hotels/motels or more permanently through the construction of additional housing in the Blackwater PDA or Blackwater East PDA.

During development of the EIS, specifically the Social Impact Assessment (SIA) components of the EIS, BMA would consult with the Central Highlands Regional Council regarding the need for and availability of housing in the region, and particularly in Blackwater. Consideration of housing availability in other nearby locations (e.g. Rolleston) would also be undertaken during the EIS process.

Company-owned Housing

BMA currently owns 134 residential properties in Blackwater, consisting of 112 houses and 51 units. BMA also rents an additional 19 houses and 1 unit.

5.2.3 Cultural Heritage

A number of cultural heritage sites have been identified within the Project area, primarily along the riparian corridor and ridge country adjacent to Rockland Creek.

The Project area, and the existing Blackwater Mine, are located within the extent of the Blackwater and South Blackwater Mines Indigenous Land Use Agreement (ILUA) (QI2001/035), formed with the Kangoolu People, the Gurang Land Council and the Ghungalu People in 2003.

Searches of the Queensland Heritage Register and the National Heritage List were undertaken (July 2021) with no culturally significant sites within or in proximity to the Project area (DAWE, 2021, Queensland Government, 2021b).

Cultural heritage clearances for areas of cultural heritage sensitivity will be obtained from the Native title holders before Project related ground disturbance is undertaken in accordance with the terms of the ILUA for the Project area.

5.3 BUILT ENVIRONMENT, TRAFFIC AND TRANSPORT

The majority of the existing, health, education and accommodation infrastructure within the region are located within the townships of Emerald, Blackwater and Rockhampton (Figure 1).

Major road transport routes in the vicinity of the Project are the Capricorn Highway, located to the north, the Fitzroy Developmental Road, located to the north-east, and the Dawson Highway, located to the south (Figure 1).

A number of minor roads and private unsealed roads and tracks are also located within the Project area.

The existing Rolleston Mine Railway is part of the Blackwater System, one of four systems in Aurizon's Central Queensland Coal Network. A new rail spur and loop would be constructed to connect to the Rolleston Mine Railway (Figure 2) and would be used to transport product coal from the Project to the Gladstone Port for export to international customers (subject to availability of rail and port allocation).

There is also potential to transport product coal via the Goonyella System to the Dalrymple Bay and Abbott Point ports, although these ports are located further from the Project. Several existing mines in the region have rail spurs and loops accessing the railway (Figure 1).

5.4 LAND USE AND TENURES

The Project area is located on MDL 155, MDL 189, ML 70167 and ML 70139 held by BMA (Figure 6).

Figure 6 shows the mining tenements in the vicinity of the Project. This includes MDLs, Exploration Permits for Coal (EPCs), ATPs, MLs and PLs. As described in Section 4.2.1, a number of petroleum tenements overlap with the Project. Access within these tenure overlaps will follow the process set out in legislation for joint interactions under the *Mineral Resources Act 1989* (MR Act) and *Mineral Energy Resources Common Provisions Act 2014*. The overlap with PL 1082 will require the development of a Joint Development Plan within 12 months of the MLA lodgement.

Figure 3 shows the rural properties in the vicinity of the Project. The mining tenements for the Project intersect with nine different properties, namely, the Bottle Tree Camp, Penrose, Togara, Struan, Coorumbene, Humboldt, Ganadero, Memooloo, and Terang properties. These are all freehold properties (Queensland Government, 2016). BMA currently holds the Ganadero, Memooloo and Terang properties with the other six being privately owned.

5.4.1 Key Local and Regional Land Uses

As described in Section 4.1, the Project is surrounded by a number of currently operating and potential coal mines.

The existing land use for properties in the Project area is predominantly cattle grazing with some sections of SCL. There are no nature conservation areas, including National or State Parks, in the Project area or immediate surrounds.

5.4.2 Key Local and Regional Land Tenures

A significant block of leasehold land exists within the Project area within MDL 155 and ML 70139 and continues to the north which is inclusive of the Blackwater mine area operated by BMA.

The majority of the land within the Project and surrounding areas to the east, south and west are freehold.

5.4.3 Native Title

The Gaangalu Nation People are the native title holders for the general Project region (Queensland Government, 2021). As described in Section 5.2.3, an ILUA (QI2001/035) covers the Project area.

5.5 PLANNING INSTRUMENTS AND GOVERNMENT POLICIES

The *Central Highlands Planning Scheme 2016* is the relevant scheme developed by the Central Highlands Regional Council (Section 4.2.3).

The following State and Regional plans, strategies and policies are relevant to the Project:

- *Environmental Protection (Air) Policy 2019* (EPP [Air]).
- *Environmental Protection (Noise) Policy 2019* (EPP [Noise]).
- EPP (Water and Wetland Biodiversity).
- *Central Queensland Regional Plan* (Queensland Government, 2013).
- *Queensland Environmental Offsets Policy* (DES, 2021a).
- *Queensland Waste Avoidance and Resource Productivity Strategy (2014-2024)* (DES, 2019).
- *State Planning Policy* (Department of Infrastructure, Local Government and Planning, 2017).

The following Commonwealth policies and guidelines are relevant to the Project:

- *Environmental Protection and Biodiversity Conservation Act 1999 Environmental Offsets Policy* (Department of Sustainability, Environment, Water, Population and Communities, 2012).
- *Information guidelines for proponents preparing coal seam gas and large coal mining development proposals* (Independent Expert Scientific Committee on Coal Seam Gas and Large Coal Mining Development, 2018).

6 POTENTIAL PROJECT IMPACTS

6.1 NATURAL ENVIRONMENT

6.1.1 Land

Potential impacts to land associated with the development of the Project include:

- land use changes due to mining and infrastructure (before land is rehabilitated);
- alteration of landforms due to development of the open cut pits, waste rock emplacements, the initial out-of-pit reject and tailings co-disposal facility and levees;
- disruption to the conduct of a PALU (e.g. reduction in the quantity or quality of a crop or impacts to the PALU's supply chain); and
- changes to the agricultural production or capacity of the land (e.g. direct disturbance of SCL or indirect impacts to SCL such as changes to overland flow).

In particular, direct impacts to land that is verified as being SCL are likely to result in reduced agricultural production. The capacity of particular areas to be rehabilitated to pre-existing agricultural capacity will depend on the type and scale of disturbance, location within the mining footprint and post-mining land use.

Changes to land uses would be managed by progressively rehabilitating the land in accordance with the Project's PRC Plan (to be developed), to achieve the required post-mining land use objectives.

The Project's final landform would be designed in consideration of the proposed mine sequence, extraction rate and mine layout; minimising potential environmental, social and economic impacts; and BMA's corporate objectives. The final landform for the Project would be safe, stable, non-polluting and able to sustain post-mining land uses where appropriate.

The Project's final landform may include residual voids, which would be designed and developed in consideration of relevant guidelines and legislative requirements. The opportunity for beneficial use of residual voids will be considered as part of the EIS.

The EIS will include an assessment of potential impacts to land, in consideration of the DES Guideline *Application Requirements for Activities with Impacts to Land* (DES, 2021b).

Field verification of the land shown as 'potential SCL' within and adjacent to the Project footprint will be conducted during preparation of the EIS to determine whether the land meets the criteria for SCL. If required, a Regional Interests Development Approval (RIDA) application will be submitted to verify the SCL mapping.

If land is verified to be SCL, an assessment of the potential impacts to the SCL in consideration of the required outcomes and prescribed solutions of the RPI Regulation will be conducted, and, if required, an application for a RIDA will be prepared.

Similarly, an application for a RIDA will be prepared in consideration of the required outcomes and prescribed solutions of the RPI Regulation, if impacts to the PAA are predicted to occur.

6.1.2 Water

Potential direct and indirect impacts to water resources may occur due to the development of the Project, including:

- changes to surface water catchment areas, flow regimes and channel geomorphology, primarily associated with construction of diversions and levees and catchment excision;
- potential for erosion and sedimentation impacts during surface disturbance works;
- changes to surface water flows and localised effects to receiving water quality during times of controlled water releases from water storages;
- groundwater drawdown, changes to groundwater flow directions and decrease in baseflow to surface water systems associated with advanced pit dewatering and groundwater inflows to active open cut pits and final voids;
- impacts to other water users in the region; and
- localised effects on groundwater quality.

The EIS will include an assessment of potential impacts to water (including a Groundwater Assessment, Surface Water Assessment, Flood Assessment and Geomorphology Assessment), in consideration of the DES Guideline *Application Requirements for Activities with Impacts to Water* (DES, 2021c).

6.1.3 Ecosystems, Flora and Fauna

Clearance during construction of Project infrastructure and progressive development of the open cut mining operation has the potential to disturb terrestrial and aquatic vegetation and habitats. The following biodiversity values may be impacted as a result of development of the Project:

- REs;
- MSES;
- Matters of National Environmental Significance (MNES);
- conservation significant species listed under the NC Act and EPBC Act;
- ESAs;
- wetlands; and
- GDEs.

Increased activity in the Project area would have the potential to introduce and spread additional weeds and feral animals.

The EIS will include Terrestrial and Aquatic Ecology Assessments, in consideration of the DES Guideline *Application Requirements for Activities with Impacts to Land* (DES, 2021b).

6.2 AMENITY, INCLUDING NOISE, AIR QUALITY, VIBRATION, LIGHTING, URBAN DESIGN AND VISUAL AESTHETICS

6.2.1 Noise and Vibration

Construction and operation of the Project will include a number of noise and vibration sources, including for example:

- earthmoving and mobile equipment used during construction activities;
- blasting during construction and operation of the mine;
- operation of the mining fleet and coal handling and processing infrastructure (crushers, conveyors, train load out); and
- vehicle and train movements.

Three dwellings on privately owned properties are located within approximately 3 km of the Project extent (Figure 4). Potential noise and vibration impacts may be experienced at varying degrees at nearby private receptors.

A Noise and Blasting Assessment will model representative construction and operation scenarios during the Project life to predict the potential noise and vibration impacts at private receptors to inform the requirement for mitigation measures.

The Noise and Blasting Assessment will consider the DES Guideline *Application Requirements for Activities with Noise Impacts* (DES, 2021d).

6.2.2 Air Quality and Greenhouse Gas

Air quality objectives are benchmarks set to protect the general health and amenity of the community in relation to air quality. The sections below identify the potential air emissions generated by the Project and the applicable air quality objectives/criteria.

In Queensland, air quality is managed under the *Environmental Protection Act 1994* (EP Act), the *Environmental Protection Regulation 2019* and the EPP (Air).

Mining activities during the life of the Project have the potential to generate particulate matter (i.e. dust) emissions in the form of:

- Total Suspended Particulate (TSP) matter;
- PM₁₀ (a subset of TSP); and
- PM_{2.5} (a subset of TSP and PM₁₀).

Mining activities generate particles in all the above size categories, with the majority generally larger than 2.5 µm. Fine particles (less than 2.5 µm) are typically generated through combustion processes.

Construction and operation of the Project will include a number of emission sources, including for example:

- dust generated during earthmoving and construction activities;
- operation of the construction and mining fleets and coal handling and processing infrastructure (crushers, conveyors, train load-out);
- dust and other air pollutants generated from blasting during construction and operation of the mine;
- dust emissions from coal and soil stockpiles;
- air pollutants emitted from diesel powered equipment and blasting;

- dust emissions from train loading and train movement; and
- direct (scope 1) and indirect (scope 2) greenhouse gases from electricity and diesel usage and fugitive coal seam methane release during construction and operation.

An Air Quality and Greenhouse Gas Assessment will model representative construction and operation scenarios during the Project life to predict the potential air quality impacts at private receptors to inform the requirement for mitigation measures. The Air Quality and Greenhouse Gas Assessment will also predict the direct (Scope 1) and indirect (Scope 2) greenhouse gas emissions associated with the Project.

The Air Quality and Greenhouse Gas Assessment will consider the DES Guideline *Application Requirements for Activities with Impacts to Air* (DES, 2021e).

6.2.3 Visual Aesthetics

Development of the following Project components would potentially result in visual and lighting impacts on nearby private receptors and public viewpoints (e.g. local roads):

- waste rock emplacements;
- vegetation clearance;
- elevated infrastructure items;
- open cut pit development;
- mobile and fixed lighting associated with night-time mining operations; and
- levees.

An assessment of visual and lighting impacts will be prepared as part of the EIS, and will consider the location and sensitivity of viewing locations. As the Project is directly adjacent to an existing mining complex, it is expected that the impacts would not be significantly different from the majority of viewpoints.

6.3 SOCIAL ENVIRONMENT – POTENTIAL BENEFICIAL AND ADVERSE IMPACTS

Potential beneficial and adverse impacts of the Project on the social values of the local and regional communities would be identified through direct engagement with potentially affected stakeholders and analysis of potential impacts against the attributes of the existing social environment.

The Project is expected to have a range of beneficial and adverse social impacts within the community, including the following examples:

- employment and training opportunities;
- injection of wealth into the local and regional economies;
- demographic change in regional and rural areas;
- increased housing demand (temporary and permanent);
- increased demand on community services and infrastructure (e.g. childcare and health services);
- land use changes;
- potential amenity impacts (air quality, noise, vibration and visual); and
- potential impacts on social cohesion.

Development of appropriate social impact management strategies for the Project will be key to managing the potential impacts on the social environment. The EIS will include a SIA, which itself will include a Social Impact Management Plan presenting the engagement, workforce, accommodation, procurement, and health and wellbeing strategies for the Project.

The SIA will be prepared in accordance with the Coordinator-General's *Social Impact Assessment Guideline* (Department of State Development, Manufacturing, Infrastructure and Planning, 2018) and the *Strong and Sustainable Resource Communities Act 2017* (SSRC Act).

6.4 ECONOMIC EFFECTS

The Project would result in significant economic benefits, including:

- employment of approximately 500-750 people during construction and up to approximately 1,200 people during operations;
- flow-on effects and indirect benefits to the local and regional economies;
- potential for development or expansion of new or established businesses in the local area and surrounds; and
- payment of significant royalties to the State and other tax payments.

The EIS will include an Economic Assessment of potential benefits and impacts the Project would have on labour demand, local business, wages, input costs and household goods and services.

6.5 BUILT ENVIRONMENT

Traffic associated with the construction and operation of the Project has the potential to increase delays at existing and new intersections on the local and regional road network. Additional traffic volumes may also impact the pavement of key roads which would be used by the Project workforce and visitors/deliveries.

Potential impacts on the local and regional road network will be assessed through a Traffic Impact Assessment as part of the EIS.

Transport of product coal by rail to the Gladstone Port via the Blackwater System would result in additional trains using the rail network. On average, it is expected that approximately 21 trains would be loaded per week when the Project is operating at its target production rate. A peak of up to six trains per day may be loaded on occasion to allow performance standards at the port to be met.

An analysis of the capacity of the rail and port system to accommodate the predicted demand from the Project will be included in the EIS.

6.6 MATTERS OF NATIONAL ENVIRONMENTAL SIGNIFICANCE UNDER THE EPBC ACT

MNES potentially relevant to the Project include:

- listed threatened species and ecological communities (Sections 5.1.4 and 5.1.5);
- migratory species (Section 5.1.5); and
- a water resource, in relation to coal seam gas development and large coal mining development (Section 5.1.2).

BMA will submit an EPBC Act Referral for the Project with DAWE to determine whether the Project is a 'controlled action' and requires assessment and approval under the EPBC Act. The referral will detail the potential impacts associated with the Project on MNES. The controlling provisions for the Project (should it be declared a 'controlled action') would be determined by DAWE.

7 ENVIRONMENTAL MANAGEMENT AND MITIGATION MEASURES

7.1 NATURAL ENVIRONMENT

Measures that would be implemented to manage potential impacts on the natural environment would include, but not necessarily be limited to:

- progressive rehabilitation in accordance with the Project's PRC Plan and Progressive Rehabilitation and Closure Plan Schedule (PRCP Schedule);
- appropriate landform design and establishment of post-mining land uses in consideration of agricultural land uses and native ecosystem values of the surrounding landscape;
- soil management practices, including the stripping and stockpiling of soil for use in rehabilitation;
- appropriate erosion and sediment controls and upslope drainage during vegetation clearance, soil stripping and rehabilitation activities;
- clear definition of areas to be cleared in a progressive manner as part of surface disturbance protocols;
- managing water use and management of the site water management system in accordance with the Environmental Authority conditions;
- minimising licenced extraction/harvesting of groundwater and surface water resources;
- dust suppression within active mining areas and at coal handling and processing circuits;
- measures to minimise and manage impacts to PALUs and SCL from the development of resource activities;
- appropriate design of blast events;
- designing for overall energy efficiency;
- consideration of purchasing renewable energy to supply the mine operations to minimise greenhouse gas generation;
- weed and feral animal control strategies;
- preparation of management plans and monitoring programs; and
- provision of biodiversity offsets for residual significant impacts to MSES and MNES (where required) in accordance with relevant State and Commonwealth policies and legislation.

The above measures will be refined and expanded upon to address the predicted impacts identified as part of the environmental assessments and stakeholder engagement to be conducted as part of the EIS.

7.2 BUILT ENVIRONMENT

Road diversion, upgrade and intersection design/construction requirements would be developed in consultation with the Central Highlands Regional Council and Department of Transport and Main Roads (DTMR).

Specific measures to mitigate impacts to the regional and local road network associated with Project traffic would be identified as part of the EIS (e.g. timeframes and escort requirements for heavy and oversize vehicle deliveries, dangerous goods transport controls).

Management measures associated with the transport of product coal (if any) would be developed as part of the EIS, in consultation with relevant stakeholders.

7.3 CULTURAL HERITAGE MANAGEMENT (INDIGENOUS)

The Project area, and the existing Blackwater Mine, are located within the extent of the Blackwater and South Blackwater Mines ILUA (QI2001/035), formed with the Kangoulou People, the Gurang Land Council and the Ghungalu People in 2003 (Section 5.2.3).

In accordance with the requirements for an EIS under the *Aboriginal Cultural Heritage Act 2003* (ACH Act), BMA would prepare a Cultural Heritage Management Plan (CHMP) for the Project.

7.4 NON-INDIGENOUS CULTURAL HERITAGE MANAGEMENT

There are no known non-indigenous significant values in the Project area. If non-indigenous significant values are identified during preparation of the EIS, appropriate management measures would be developed.

The potentially significant Humboldt Homestead is located outside the Project mining tenements (approximately 1 km from MDL 189) and will be given further consideration during preparation of the EIS.

7.5 GREENHOUSE GAS MANAGEMENT AND CLIMATE CHANGE CONSIDERATION

Measures to minimise the generation of direct (Scope 1) greenhouse gas emissions would be developed as part of the EIS and would likely include seeking the most efficient mine design, monitoring the fuel efficiency of mobile equipment, minimising the double-handling of materials and consideration of the use of alternative renewable energy sources to power facilities and equipment on-site.

BMA is actively assessing and pursuing options to reduce operational greenhouse gas emissions (Scope 1 and Scope 2) consistent with BHP's emissions reduction targets. BHP's emissions reduction targets are wholly aligned with the Queensland Government's, specifically:

- 30% reduction in Scope 1 and 2 emissions by 2030; and
- Net zero Scope 1 and 2 emissions by 2050.

Technical studies are underway to confirm the preferred pathway to materially reduce BMA's emissions and it is expected that BMA will decarbonise its assets by focussing on:

- energy efficiency;
- securing low carbon renewable electricity;
- electrification and fuel switching; and
- non-energy emissions reductions.

Through partnering with customers and others to accelerate the transition to carbon neutral steelmaking, BHP is also pursuing the long-term goal of net zero Scope 3 emission by 2050 (<https://www.bhp.com/sustainability/climate-change#goals>). Consistent with this approach, efforts are also underway to examine coal processing treatments that can improve combustion efficiency, and BMA is working with its customers to understand CO2 reduction opportunities.

Greenhouse gas emissions, energy production, energy consumption and other relevant information would be reported annually in accordance with the Commonwealth *National Greenhouse and Energy Reporting Act 2007*.

7.6 WASTE MANAGEMENT

Management of waste streams generated by the Project would be governed by the following relevant Queensland legislation:

- EP Act;
- *Environmental Protection Regulation 2019*;
- *Waste Reduction and Recycling Act 2011*; and
- *Waste Reduction and Recycling Regulation 2011*.

Waste management at the Project would follow the waste management hierarchy described in the *Waste Reduction and Recycling Act 2011*:

- a) avoid unnecessary resource consumption;
- b) reduce waste generation and disposal;
- c) re-use waste resources without further manufacturing;
- d) recycle waste resources to make the same or different products;
- e) recover waste resources, including the recovery of energy;
- f) treat waste before disposal, including reducing the hazardous nature of waste; and
- g) dispose of waste only if there is no viable alternative.

An on-site landfill would be developed for the disposal of certain waste streams generated on-site. Some waste streams, including hazardous wastes, would be removed from site by licensed contractors and recycled or disposed of at appropriate off-site facilities.

The Project waste management strategy would be developed further as part of the EIS, and would be prepared in consideration of the DES Guideline *Application Requirements for Activities with Waste Impacts* (DES, 2021f).

7.7 HAZARDS AND RISK

Hazards and risks are required to be identified and managed to reduce potential harm to people and the environment, as well as property. The EIS would include an assessment of both on-site and off-site risks.

The EIS risk assessment would be undertaken in accordance with Australian Standard/New Zealand Standard International Standards Organisation (ISO) 31000:2018 *Risk Management – Guidelines* and ISO 31010:2019 *Risk Management – Risk Assessment Techniques*.

In relation to flooding, all practicable measures would be taken to prevent flooding of the Project infrastructure areas. This would include flood levees and relevant waste rock emplacements being designed to provide appropriate flood immunity.

The *Manual for Assessing Consequence Categories and Hydraulic Performance of Structures* (DES, 2016) would be used to guide design, construction and management of water storage and management structures and facilities.

BMA would employ a team of appropriately qualified environmental personnel to monitor compliance with relevant legislation, approval instruments and environmental planning frameworks.

Construction and operation management plans would be developed in consultation with relevant stakeholders and utilised for day-to-day management of the Project operations/activities.

7.8 HEALTH AND SAFETY

As described in Section 7.7, the EIS would include an assessment of risk, including on-site and off-site health and safety risks.

In consideration of the *Coal Mining Safety and Health Act 1999*, BMA would implement an appropriate risk management system and health and safety management system with defined mitigation measures and strategies based on the outcomes of the risk assessment and consistent with the management systems developed for BMA's other Queensland mining operations.

7.9 ENVIRONMENTAL MANAGEMENT

BMA would implement its integrated Environmental Management System for the Project to guide the implementation of environmental management commitments and strategies. The Environmental Management System would also guide the monitoring and review process with the aim of continually improving environmental performance at the operations.

8 APPROVALS REQUIRED FOR THE PROJECT

Table 7 provides a description of the potential approvals required for the Project. These approvals may be refined through the environmental impact and mine planning process.

If declared a Coordinated Project, an EIS will be prepared under Part 4 of the SDPWO Act. Project components will be evaluated through the EIS such that the Coordinator-General can consider the Project as a whole and recommend approval conditions accordingly.

Table 7
Principal Required Statutory Approvals for the Project

| Legislation | Approval | Approval Trigger | Relevance to Project | Administering Authority | Within EIS Scope ¹ |
|--|--|--|--|--|-------------------------------|
| Commonwealth Government Approvals | | | | | |
| EPBC Act | EPBC Act referral and approval | Referral to the Commonwealth Minister of Environment is required if the Project may have a significant impact on MNES to determine if the Project is a 'controlled action' requiring approval under the EPBC Act. | If the Project is likely to have a significant impact on MNES, it should be referred to DAWE to determine whether it is a Controlled Action. If the Project is determined to be a Controlled Action, approval from DAWE will be required and it is expected that it will be assessed through a Bilateral Agreement between the Commonwealth and the State of Queensland under section 45 of the EPBC Act relating to Environmental Assessment. | DAWE | Yes |
| State Government Approvals | | | | | |
| SDPWO Act | Coordinated Project declaration, Prescribed Project declaration, critical infrastructure designation | In accordance with section 27(2)(b), the Coordinator-General may declare that a Project is a Coordinated Project if it has: <ul style="list-style-type: none"> • complex approval requirements, imposed by a local government, the State or the Commonwealth; • significant environmental effects; • strategic significance to the locality, region or State, including any infrastructure, economic and social benefits, capital investment or employment opportunities it may provide; or • significant infrastructure requirements. | The IAS forms part of the application for the declaration of the Project as a Coordinated Project (Section 1.2). The Coordinator-General will consider the application and determine whether the Project meets the requirements for declaration as a Coordinated Project. If declared a Coordinated Project, it is likely that it will be declared on the basis that an EIS is required for the Project which will be prepared in accordance with Part 4 of the SDPWO Act, allowing the Coordinator-General to coordinate the process, and ultimately providing some protection from third party review of the Coordinator-General's mandated conditions. | Department of State Development, Infrastructure, Local Government and Planning (DSDILGP) | Yes |
| | | A Prescribed Project is, among other things, one that the Minister (the Minister for State Development, Infrastructure, Local Government and Planning or Deputy Premier) considers to be of major economic or social significance to the State and provides a prescribed process for timely decision-making. A critical infrastructure designation is available for prescribed projects that the Minister considers to be critical or essential to the State for economic, environmental or social reasons. | The Coordinator-General may also, or separately, declare the Project to be a Prescribed Project. This allows the Coordinator-General to issue 'progression notices' (requiring other arms of Government to take steps in a prescribed time frame) and to step in and make decisions on behalf of other Government agencies. If the Project is declared to be a Prescribed Project, it may also be declared to be a Project for critical infrastructure. | DSDILGP | (as above) |

Table 7 (Continued)
Principal Required Statutory Approvals for the Project

| Legislation | Approval | Approval Trigger | Relevance to Project | Administering Authority | Within EIS Scope ¹ |
|---|--|---|--|---|-------------------------------|
| State Government Approvals (Continued) | | | | | |
| ACH Act | CHMP or other form of agreement | Where an EIS is required, a CHMP must be in place and approved under Division 2 of Part 7 of the ACH Act as a pre-requisite to the grant of any lease, licence, permit, approval or other authority required under any Act for the Project. | An existing ILUA exists between BMA (held by BHP Coal Pty Ltd) and the Gurang Land Council outlined in QI2001/035. The agreement registered on the 14 th of October 2003 covers the currently operational Blackwater Mine as well as the area of the Project. A CHMP will be prepared for the Project in accordance with the ACH Act. | Department of Seniors, Disability Services and Aboriginal and Torres Strait Islander Partnerships | No |
| EP Act | Environmental Authority | A site-specific Environmental Authority is required for the Project (section 124 of the EP Act). The Environmental Authority will authorise activities under the EP Act which includes the following Environmentally Relevant Activities (ERAs) that may be undertaken as part of the Project: <ul style="list-style-type: none"> • mining black coal; • Regulated Dams; • Environmental Offsets; • ERA 8 – Chemical Storage; • ERA 31 – Mineral Processing; and • ERA 63 – Sewage Treatment. | ERAs, including mining black coal, would be conducted as part of the Project. The site-specific Environmental Authority application is required to include detailed information regarding the proposed exercise of underground water rights (i.e. the taking or interference with associated water) including the aquifers to be affected, an assessment of the likely impacts on the quality of groundwater and other environmental values as well as strategies for avoiding, mitigating or managing the predicted impacts. | DES | Yes |
| | Notification of land – for notifiable activities | A proponent must notify DES of any activities listed in Schedule 3 of the EP Act that have the potential to cause land contamination. Notifiable activities on-site are likely to include: <ul style="list-style-type: none"> • abrasive blasting; • chemical storage (>10 tonnes); • mine wastes; and • petroleum product or oil storage (>25,000 litres diesel). | Required one week prior to activity occurring. | DES | Yes |

Table 7 (Continued)
Principal Required Statutory Approvals for the Project

| Legislation | Approval | Approval Trigger | Relevance to Project | Administering Authority | Within EIS Scope ¹ |
|---|--|--|---|---|-------------------------------|
| State Government Approvals (Continued) | | | | | |
| EP Act (Continued) | Registration as a suitable operator | Applicant must be registered as a suitable operator under section 318F of the EP Act prior to issue of the Environmental Authority. | BMA is registered as a suitable operator under section 318F of the EP Act. | DES | No |
| EP Act <i>Mineral and Energy Resources (Financial Provisioning) Act 2018</i> | PRC Plan and PRCP Schedule | A PRC Plan (including the PRCP Schedule) must be prepared and submitted as part of the Environmental Authority application and approved before BMA may carry out any activities under the Environmental Authority. | In order to become an Environmental Authority holder, a PRC Plan and supporting PRCP Schedule must be developed setting out binding and enforceable milestones for mine rehabilitation. The PRC Plan and supporting PRCP Schedule are to: <ul style="list-style-type: none"> plan where and how activities will be carried out on land to maximise the progressive rehabilitation of the land to a stable condition; and provide for the condition to which the land must be rehabilitated to prior to the surrender of the Environmental Authority. | DES, Queensland Treasury, Department of Resources (DoR) | Yes |
| MR Act | Mining Lease(s) | Coal mining and production and associated activities including processing must be conducted within a mining lease. | Mining and associated activities to be conducted as part of the Project, within MDL 155 and MDL 189 will require a mining lease. | Queensland Treasury, DoR | No |
| RPI Act | RIDA | Conducting a resource activity within an area of regional interest. | Areas of regional interest are located within the Project area (PAA and SCA). If the resource activity is to occur within an area of regional interest, and an exemption (e.g. land owner agreement) does not apply, a Regional Interest Development Approval will be required. | Department of Agriculture and Fisheries, DSDILGP | Yes |
| <i>Environmental Offsets Act 2014</i> (EO Act), EPBC Act | Approval of notice of election and offset delivery plan. | A significant residual impact on a prescribed environmental matter. | Where an activity has a significant residual impact on a prescribed environmental matter, an environmental offset may be required, to counterbalance this impact. The EO Act establishes the framework for delivery of environmental offsets at the State level, without limiting the functions or powers under the SDPWO Act. Any applicable offsets will be conditioned as part of the Environmental Authority and the EPBC Act approval. | DAWE, DES | Yes |

Table 7 (Continued)
Principal Required Statutory Approvals for the Project

| Legislation | Approval | Approval Trigger | Relevance to Project | Administering Authority | Within EIS Scope ¹ |
|---|-----------------------------|--|---|-------------------------|-------------------------------|
| State Government Approvals (Continued) | | | | | |
| NC Act <i>Nature Conservation (Animals) Regulation 2020</i> (NC Animals Regulation) | Species Management Program | Clearing of breeding habitat. | A Species Management Program will need to be prepared in accordance with section 335 of the NC Animals Regulation for approval by the DES prior to tampering with an animal breeding place. | DES | Yes |
| NC Act <i>Nature Conservation (Plants) Regulation 2020</i> | Vegetation clearing permits | <p>'Protected plant clearing permit' is required if:</p> <ul style="list-style-type: none"> the area is within a 'high risk area'; or BMA is aware of any EVNT species within the area to be cleared. <p>Whether an area is 'high risk' is determined by the 'protected plants flora survey trigger map' which allocates certain areas where EVNT species are known or likely to exist.</p> <p>If an area to be cleared is not identified on a flora survey trigger map as a high risk area, a flora survey is not required.</p> | <p>The Project may be required to obtain a clearing permit to authorise the clearing of EVNT species under the NC Act. Flora survey trigger maps for clearing protected plants obtained for the land underlying the Project indicated that MDL 155 and ML 70139 contain high risk areas. As a result, BMA may be required to apply for a clearing permit or obtain an exempt clearing notification.</p> <p>The flora survey trigger map must be reviewed every 12 months and can be amended by DES at any time to add or remove a high risk area. It is possible that the flora survey trigger map could be amended to add or remove a high risk area affecting the Project area, however this is unlikely.</p> | DES | Yes |

Table 7 (Continued)
Principal Required Statutory Approvals for the Project

| Legislation | Approval | Approval Trigger | Relevance to Project | Administering Authority | Within EIS Scope ¹ |
|---|--|---|---|--------------------------------------|-------------------------------|
| State Government Approvals (Continued) | | | | | |
| <i>Water Act 2000</i> (Water Act), MR Act | Water allocation or water licence - use and take of surface water or groundwater | <p>Under the Water Act, a person must not take, supply or interfere with water unless authorised.</p> <p>In terms of water required for the Project development or operation, section 101 of the Water Act provides that, subject to any alteration or limitation prescribed under a moratorium notice, water plan or a regulation under section 1046 of the Water Act, a person may:</p> <ul style="list-style-type: none"> take overland flow water for any purpose; or take or interfere with underground water for any purpose. <p>Additionally, under section 334ZP of the MR Act the holder of a mining lease may take or interfere with underground water in the area of the mining lease if the taking or interference happens during the course of, or results from, the carrying out of an authorised activity for the mining lease (associated water).</p> | <p>The Project may involve taking of, or interfering with, overland flow water and associated water.</p> <p>The Project is located within the Comet River Catchment (Highlands GMA) and is subject to the <i>Water Plan (Fitzroy Basin) 2011</i>.</p> <p>The <i>Water Plan (Fitzroy Basin) 2011</i> regulates interfering with, and taking of, overland flow water and groundwater from within the Fitzroy Water Plan Area, and states that:</p> <p>(a) the volume of overland flow water necessary to satisfy the requirements of an Environmental Authority may be taken without a water licence; and</p> <p>(b) a person may only take or interfere with groundwater in a GMA (such as Highlands) under a water permit, water licence or water allocation etc.</p> <p>In accordance with the MR Act, the Water Act and the complementary requirements of the EP Act, the EIS for the Project would assess the impacts of BMA exercising its right to take or interfere with associated water and overland flow water. This assessment would inform conditions to be included in the Environmental Authority for the Project.</p> <p>If associated water is taken under the general authorisation under section 334ZP of the MR Act, BMA is required to measure and report on the volume of associated water taken (including by evaporation if relevant) using the Queensland Digital Exploration Reports System within 21 days of the reporting period.</p> | DES, DRDMW, DoR, Queensland Treasury | Yes |
| Water Act | Riverine protection permit or Environmental Authority | A 'Riverine protection permit' may be required for activities that involve excavation or placing fill in a watercourse, lake or spring. | Exemption to this requirement applies where excavation or placing fill in watercourse, lake or spring is authorised under Environmental Authority. | DES, DRDMW | Yes |

Table 7 (Continued)
Principal Required Statutory Approvals for the Project

| Legislation | Approval | Approval Trigger | Relevance to Project | Administering Authority | Within EIS Scope ¹ |
|--|---|---|---|---|-------------------------------|
| State Government Approvals (Continued) | | | | | |
| <i>Mineral and Energy Resources (Common Provisions) Act 2014 (MERC Act)</i> <i>Mineral and Energy Resources (Common Provisions) Regulation 2016</i> | Provide notice of notifiable road use and obtain written consent or road compensation agreement or apply to Land Court for determination of compensation liability for notifiable road use (in absence of agreement/ consent) | Required if the Project proposes to use a public road for a 'notifiable road use', being: <ul style="list-style-type: none"> • use of a public road, within an authorised area for a resource authority, for transport relating to a seismic survey or drilling activity; or • use of a public road at more than the relevant haulage threshold rates, being 50,000 t per year on a State-controlled road or 10,000 t per year on another public road, if the haulage relates to transporting minerals that were mined released by mining or processed on land in an authorised area for a resource authority under the MR Act. | Whilst it is not intended to haul product coal via road given the availability of rail infrastructure within the Project area, if it was required BMA would seek for these works to be approved by the relevant public road authority. The relevant public road authority is: <ul style="list-style-type: none"> • DTMR for a State-controlled road on which a notifiable road use is carried out; or • the relevant local government with control of the relevant road. | DTMR and/or Central Highlands Regional Council depending on which roads (if any) are triggered for a notifiable road use, DoR | No |
| <i>Transport Infrastructure Act 1994</i> | Approval to interfere with a railway | Required if the Project would interfere with a railway. In this context, 'interfere' means: <ul style="list-style-type: none"> • carry out works in or on a railway corridor; or • otherwise interfere with the railway or its operation. | The Project requires the construction of a haul road crossing or bridge over the Rolleston Mine Railway for access to the MIA and connection of the Project rail spur and loop to the Rolleston Mine Railway. If approval is required, BMA will seek for these works to be approved by the DTMR under section 255 of the <i>Transport Infrastructure Act 1994</i> . | DTMR | Yes |
| Local Government Approvals | | | | | |
| <i>Planning Regulation 2017</i> | Development Application | Development approvals pursuant to the <i>Planning Regulation 2017</i> , the <i>Central Highlands Regional Council Planning Scheme 2016</i> may be required for operational works (such as excavation and filling, clearing of native vegetation and works that allow taking or interfering with water), material change of use, building works and reconfiguring a lot. | Project components located outside a mining lease. | Central Highlands Regional Council | Yes |

Table 7 (Continued)
Principal Required Statutory Approvals for the Project

| Legislation | Approval | Approval Trigger | Relevance to Project | Administering Authority | Within EIS Scope ¹ |
|-------------------------------------|-----------------------|---|---|-------------------------|-------------------------------|
| Other Approvals and Consents | | | | | |
| MERCP Act | Overlapping tenements | The interaction between MDL 155, MDL 189, and overlapping petroleum tenements is governed by MERCP Act Chapter 4. | <p>MDL 155 and MDL 189 is partially overlapped by ATP 2048 to the west, ATP 2061 (held by Comet Ridge Pty Ltd) to the east, and PL 1082 (held by Australia Pacific LNG Pty Ltd).</p> <p>If the MLA area overlaps ATP 2048 and ATP 2061, and BMA requires sole occupancy of the overlap area for its operations, an 'advance notice' must be given to the ATP holders within 10 business days after the MLA is lodged. BMA must also give an '18 months notice' to the ATP holders at least 18 months prior to the date it requires sole occupancy of the relevant area of the overlaps (i.e. to commence mining or to construct permanent infrastructure that requires sole occupancy).</p> <p>Should the ATP holder give notice of its intention to apply for a petroleum lease and should the petroleum lease be granted before a mining lease in the overlap area, the holders of the mining lease may be prevented from gaining sole occupancy of the overlap area for up to 11 years. In these circumstances or in the case of overlapping with PL 1082, a joint development plan will be required between BMA and Australia Pacific LNG Pty Ltd and/or Comet Ridge Pty Ltd. The joint development plan would be a vehicle for the companies to negotiate an earlier mining commencement date for sole occupancy by BMA.</p> | DoR | No |

Table 7 (Continued)
Principal Required Statutory Approvals for the Project

| Legislation | Approval | Approval Trigger | Relevance to Project | Administering Authority | Within EIS Scope ¹ |
|---|---------------------------------------|--|---|--------------------------|-------------------------------|
| Other Approvals and Consents (Continued) | | | | | |
| MR Act, MERCP Act | Restricted land consent | <p>Where restricted land, including land within 50 m laterally of prescribed distances of artesian wells, bores, dams, stockyards or water storages and 200 m laterally of permanent buildings used as a residence or for business are identified as included within the boundaries of the proposed mining lease, consent will be required from:</p> <ul style="list-style-type: none"> any owners of the restricted land for the purposes of the MRA and MERCP Act to the inclusion of the restricted land areas in the surface area of the mining lease; and relevant owners and occupiers of the restricted land areas outside the mining lease boundaries for the Project, before BMA can enter the area of the restricted land to carry out activities. | If restricted land is identified it will be relevant to the undertaking of the Project. | Queensland Treasury, DoR | No |
| MR Act | Land access – compensation agreements | <p>A mining lease cannot be granted unless:</p> <ul style="list-style-type: none"> compensation has been determined (whether by agreement or by determination of the Land Court) between BMA and each person who is the owner of land the surface of which is the subject of the MLA and of any surface access to the MLA; and the condition of the agreement or determination have been or are being complied with by BMA. | Compensation will be required to be agreed or determined with the underlying land owners for all areas where surface rights are sought for the MLA. | Queensland Treasury, DoR | No |

Table 7 (Continued)
Principal Required Statutory Approvals for the Project

| Legislation | Approval | Approval Trigger | Relevance to Project | Administering Authority | Within EIS Scope ¹ |
|---|-------------------------------|--|---|-------------------------|-------------------------------|
| Other Approvals and Consents (Continued) | | | | | |
| SSRC Act | N/A – no ‘approval’ required. | The SSCRC Act is applicable to a ‘large resource project’ which includes resource projects for which an EIS is required. | <p>The SSRC Act outlines mandatory requirements for a SIA in Queensland for resource projects undertaking an EIS under the EP Act or the SDPWO Act (which is expected to be the Project).</p> <p>The object of the SSRC Act is to ensure that residents in communities in the vicinity of large resource projects benefit from the construction and operation of these projects. The SSRC Act contains three main aspects:</p> <ul style="list-style-type: none"> • prohibition of a 100% FIFO workforce during the operational stage of large resource projects; • prevention of discrimination against local residents in recruitment of workers; and • requirement to carry out a SIA as part of the EIS. | DSDILGP | Yes |

¹ If declared a Coordinated Project, an EIS will be prepared under Part 4 of the SDPWO Act. Project components will be evaluated through the EIS such that the Coordinator-General can consider the Project as a whole and recommend approval conditions accordingly.

9 COSTS AND BENEFITS SUMMARY

The establishment and operation of the Project would stimulate demand in the local, regional and Queensland economies, leading to increased business turnover in a range of sectors and increased employment opportunities.

A specific cost-benefit analysis would be conducted as a component of the Project EIS and would detail the benefits and costs attributed to the Project.

Potential benefits and costs in addition to relevant positive and negative externalities would be valued where reasonable, or otherwise described using quantitative and qualitative information.

9.1 LOCAL, STATE AND NATIONAL ECONOMIES

The demand for high quality metallurgical coal continues to remain strong due to the industrial growth globally. The development of coal resources is therefore considered necessary to meet the current demand from this market.

Development of the Project will provide significant direct employment opportunities to the regional communities, and long-term flow on social and economic benefits.

BMA would target a workforce of primarily local and regional personnel.

Employment and other opportunities expected to be generated by the Project include:

- a construction workforce in the order of 500 to 750 personnel; and
- an operational workforce in the order of 1,200 personnel, at full development.

Economic contributions would be considered in the EIS at the local, regional and national levels, and in accordance with the Coordinator General's *Economic Impact Assessment Guideline* (Department of State Development, 2017).

9.2 NATURAL AND SOCIAL ENVIRONMENTS

Potential impacts on the natural and social environments would be considered as part of the detailed impact assessments in the EIS, including the cost-benefit analysis.

10 COMMUNITY AND STAKEHOLDER CONSULTATION

10.1 BACKGROUND

Coordinated stakeholder engagement is a key element of the assessment process for large developments and entails the inclusive and consultative interaction between a proponent and those organisations, communities and individuals potentially impacted by a project.

As a leading Australian mining company with a strong track record of identifying and developing high quality coal assets, BMA seeks to observe best practice stakeholder engagement approaches at all times. This means undertaking appropriate stakeholder identification, initiating meaningful and transparent dialogue, and listening to, and understanding, any concerns and issues as they arise.

BMA engages with the Blackwater community and other stakeholders through:

- Bi-annual meetings with the Central Highlands Regional Council.
- Community Reference Group Meetings.
- Regional Interagency Meetings.
- Social investment partnerships which include:
 - Central Highlands Development Corporation.
 - Blackwater State High School.
 - Vital Resources Fund.
 - Benefitting My Community program.
 - Capricorn Rescue Helicopters.
- CSIRO Local Voices Surveys.

BHP's Local Buying Program, established to support small local businesses in engaging with BMA and BHP. This program has over 177 local businesses participating from the Central Highlands region, with over \$10M approved spend injected into the region during the 2020-21 financial year.

A critical element to the Local Buying Program, is the Local Buying Foundation, which operates across the Central Highlands, Isaac and Mackay regions to build sustainable business communities for the future.

10.2 STAKEHOLDER ENGAGEMENT OBJECTIVES FOR BLACKWATER SOUTH

Stakeholder groups will have varying levels of interest, influence and information requirements in relation to a proposed development.

Consistent with the International Association for Public Participation (IAP2) Spectrum of Public Participation, which is acknowledged as an industry-leading stakeholder engagement framework, the focus of consultation at this stage of Project development is to 'inform' and 'consult'.

The key objectives of the program of stakeholder engagement for the Project are to:

- identify key stakeholders to determine their level of interest and influence;
- initiate contact with stakeholders to inform them about the Project, including any aspects of special relevance and interest based on the above assessment;
- identify any issues and concerns in relation to the Project;
- work constructively with stakeholders to address or mitigate issues raised during the approvals period; and
- provide feedback, where appropriate, to stakeholders on their issues and how these have been addressed.

10.3 OUR ENGAGEMENT PRINCIPLES

BMA adopts BHP's approach to community performance and stakeholder engagement which is consistent with the open and transparent approach outlined by Mitsubishi Development (<https://www.mdp.com.au/community/our-approach>).

BHP seeks to develop strong, mutually beneficial relationships with the local communities and regions, contributing to their economic and social development. BHP also understands and minimises adverse social and human rights impacts from their activities. There are three key principles:

Understanding host communities: To inform community engagement, community development and business plans, BHP seeks to understand the social and economic environment and identify and analyse stakeholders, social impacts and business risks.

Engaging with communities: To build strong, mutually beneficial relationships, BHP facilitates regular, open and honest dialogue to understand the expectations, concerns and interests of stakeholders and incorporate these into business plans.

Community development: To enhance reputation and social licence to operate and contribute to economic and social development and enhancement, BHP works openly with the communities in which it operates and with governments.

BHP's *'Our Requirements for Community'* details requirements to:

- Enable stakeholder expectations, concerns and interests to be understood and taken into account in business planning.
- Address gaps and opportunities identified in the social impacts and opportunities assessment.
- Facilitate open and honest dialogue.
- Consider specific needs of different stakeholders.
- Involve disadvantaged and vulnerable groups where identified, including women and Indigenous peoples.
- Use engagement methods appropriate for the culture and context.

The frequency and type of communication will vary and will involve a variety of potential consultation tools and approaches including:

- face-to-face meetings;
- roadshows;
- information sessions;
- newsletters and fact sheets;
- emails;
- media releases;
- advertising;
- Project website;
- community information sessions;
- digital communications campaigns; and
- qualitative and quantitative research.

Consultation and engagement has commenced with an initial focus on State Government regulatory, consent and coordination authorities, local landowners, the Gurang Traditional Owners, neighbouring mine owners and operators, and relevant infrastructure and service providers.

The stakeholder engagement effort will intensify over the coming months to include a broader cross-section of groups and individuals.

10.4 STAKEHOLDER ENGAGEMENT STRATEGY

It is anticipated that the following stakeholders would be consulted at various stages of Project development:

- local landholders;
- community groups;
- Central Highlands Regional Council;
- Native Title parties (Gurang Land Council);
- Office of the Coordinator-General;
- DES;
- DoR;
- Commonwealth DAWE;
- overlapping tenure holders; and
- infrastructure service providers.

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12 GLOSSARY, ACRONYMS AND ABBREVIATIONS

| | | | |
|-------------------|---|--------------------------------------|--|
| | | EPP (Air) | <i>Environmental Protection (Air) Policy 2019</i> |
| µg/m ³ | micrograms per cubic metre | EPP (Noise) | <i>Environmental Protection (Noise) Policy 2019</i> |
| ACH Act | <i>Aboriginal Cultural Heritage Act 2003</i> | EPP (Water and Wetland Biodiversity) | <i>Environmental Protection (Water and Wetland Biodiversity) Policy 2019</i> |
| AHD | Australian Height Datum | ERA | Environmentally Relevant Activity |
| ALA | Atlas of Living Australia | ESA | Environmentally Sensitive Area |
| ATP | Authority to Prospect | EVNT | endangered, vulnerable or near threatened |
| BMA | BM Alliance Coal Operations Pty Ltd | FIFO | fly-in fly-out |
| CHMP | Cultural Heritage Management Plan | GDE | groundwater dependent ecosystem |
| CHPP | coal handling and preparation plant | GMA | Groundwater Management Area |
| CMA | Cumulative Management Area | ha | hectares |
| CQCA | Central Queensland Coal Associates Joint Venture | IAP2 | International Association for Public Participation |
| CSG | coal seam gas | IAS | Initial Advice Statement |
| DAWE | Commonwealth Department of Agriculture, Water and the Environment | ILUA | Indigenous Land Use Agreement |
| DES | Department of Environment and Science | ISO | International Standards Organisation |
| DoR | Department of Resources | km | kilometres |
| DSDILGP | Department of State Development, Infrastructure, Local Government and Planning | LGA | Local Government Area |
| DTMR | Department of Transport and Main Roads | m | metres |
| EIS | Environmental Impact Statement | MERCP Act | <i>Mineral and Energy Resources (Common Provisions) Act 2014</i> |
| EO Act | <i>Environmental Offset Act 2014</i> | Mitsubishi Development | Mitsubishi Development Pty Ltd |
| EP Act | <i>Environmental Protection Act 1994</i> | MDL | Mineral Development Licence |
| EPBC Act | <i>Commonwealth Environment Protection and Biodiversity Conservation Act 1999</i> | ML | Mining Lease |
| EPC | Exploration Permit for Coal | MLA | Mining Lease Application |
| | | MNES | Matters of National Environmental Significance |
| | | MR Act | <i>Mineral Resources Act 1989</i> |

| | | | |
|-----------------------|---|----------------|---|
| MSES | Matters of State Environmental Significance | RPI Regulation | <i>Regional Planning Interests Regulation 2014</i> |
| Mt | million tonnes | SIA | Social Impact Assessment |
| Mtpa | million tonnes per annum | SSRC Act | <i>Strong and Sustainable Resource Communities Act 2017</i> |
| NC Act | <i>Nature Conservation Act 1992</i> | TEC | Threatened Ecological Community |
| NC Animals Regulation | <i>Nature Conservation (Animals) Regulation 2020</i> | TSP | total suspended particulate |
| OGIA | Office of Groundwater Impact Assessment | UWIR | Underground Water Impact Report |
| PAA | Priority Agricultural Area | Water Act | <i>Water Act 2000</i> |
| PALU | Priority Agricultural Land Use | WAV | workforce accommodation village |
| PDA | Priority Development Area | | |
| PL | Petroleum Lease | | |
| PM | particulate matter | | |
| PM _{2.5} | fine particles smaller than 2.5 µm | | |
| PM ₁₀ | fine particles smaller than 10 µm | | |
| PRC Plan | Progressive Rehabilitation and Closure Plan | | |
| PRCP Schedule | Progressive Rehabilitation and Closure Plan Schedule | | |
| SCA | Strategic Cropping Area | | |
| SCL | Strategic Cropping Land | | |
| SDPWO Act | <i>State Development and Public Works Organisation Act 1971</i> | | |
| t | tonnes | | |
| the Project | Blackwater South Coking Coal Project | | |
| RE | Regional Ecosystem | | |
| REMP | Receiving Environment Monitoring Program | | |
| RIDA | Regional Interests Development Approval | | |
| ROM | run-of-mine | | |
| RPI Act | <i>Regional Planning Interests Act 2014</i> | | |

APPENDIX A

EPBC ACT PROTECTED MATTERS SEARCH



EPBC Act Protected Matters Report

This report provides general guidance on matters of national environmental significance and other matters protected by the EPBC Act in the area you have selected.

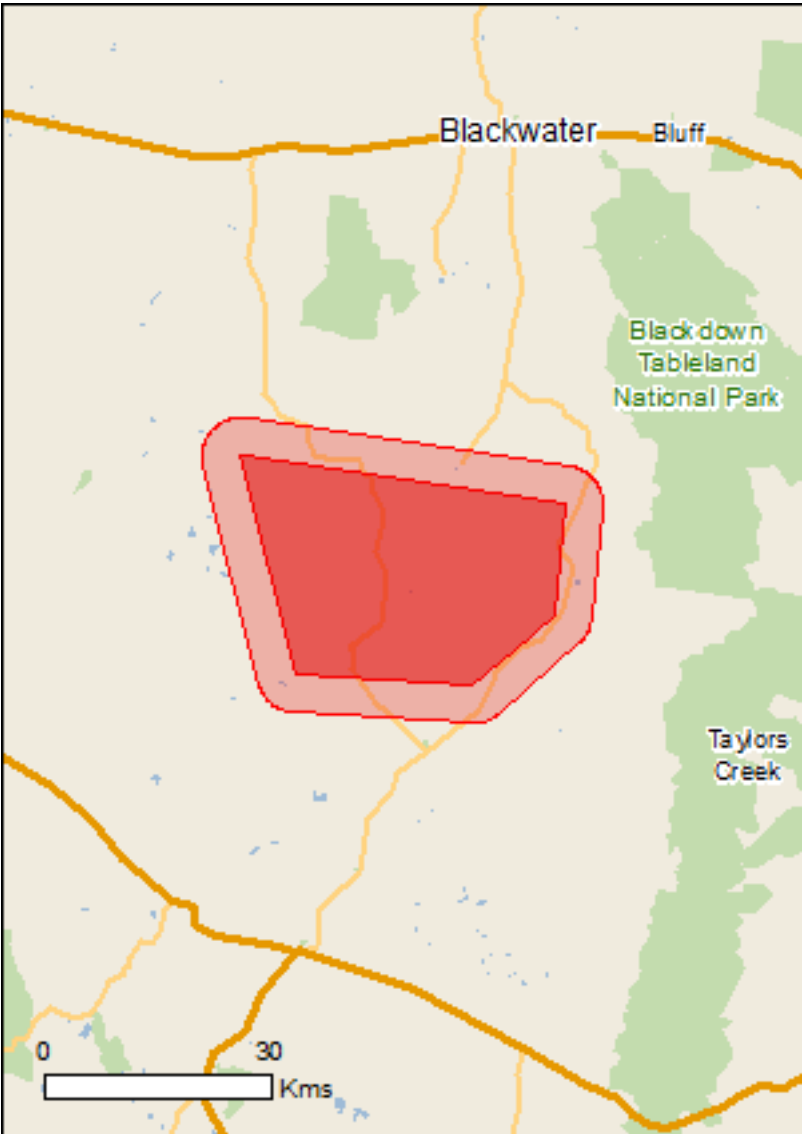
Information on the coverage of this report and qualifications on data supporting this report are contained in the caveat at the end of the report.

Information is available about [Environment Assessments](#) and the EPBC Act including significance guidelines, forms and application process details.

Report created: 23/06/21 16:28:53

- [Summary](#)
- [Details](#)

[Matters of NES](#)[Other Matters Protected by the EPBC Act](#)[Extra Information](#)
- [Caveat](#)
- [Acknowledgements](#)



This map may contain data which are ©Commonwealth of Australia (Geoscience Australia), ©PSMA 2015

[Coordinates](#)

Buffer: 5.0Km



Summary

Matters of National Environmental Significance

This part of the report summarises the matters of national environmental significance that may occur in, or may relate to, the area you nominated. Further information is available in the detail part of the report, which can be accessed by scrolling or following the links below. If you are proposing to undertake an activity that may have a significant impact on one or more matters of national environmental significance then you should consider the [Administrative Guidelines on Significance](#).

| | |
|---|------|
| World Heritage Properties: | None |
| National Heritage Places: | None |
| Wetlands of International Importance: | None |
| Great Barrier Reef Marine Park: | None |
| Commonwealth Marine Area: | None |
| Listed Threatened Ecological Communities: | 15 |
| Listed Threatened Species: | 28 |
| Listed Migratory Species: | 11 |

Other Matters Protected by the EPBC Act

This part of the report summarises other matters protected under the Act that may relate to the area you nominated. Approval may be required for a proposed activity that significantly affects the environment on Commonwealth land, when the action is outside the Commonwealth land, or the environment anywhere when the action is taken on Commonwealth land. Approval may also be required for the Commonwealth or Commonwealth agencies proposing to take an action that is likely to have a significant impact on the environment anywhere.

The EPBC Act protects the environment on Commonwealth land, the environment from the actions taken on Commonwealth land, and the environment from actions taken by Commonwealth agencies. As heritage values of a place are part of the 'environment', these aspects of the EPBC Act protect the Commonwealth Heritage values of a Commonwealth Heritage place. Information on the new heritage laws can be found at <http://www.environment.gov.au/heritage>

A [permit](#) may be required for activities in or on a Commonwealth area that may affect a member of a listed threatened species or ecological community, a member of a listed migratory species, whales and other cetaceans, or a member of a listed marine species.

| | |
|--|------|
| Commonwealth Land: | None |
| Commonwealth Heritage Places: | None |
| Listed Marine Species: | 16 |
| Whales and Other Cetaceans: | None |
| Critical Habitats: | None |
| Commonwealth Reserves Terrestrial: | None |
| Australian Marine Parks: | None |

Extra Information

This part of the report provides information that may also be relevant to the area you have nominated.

| | |
|--|------|
| State and Territory Reserves: | 2 |
| Regional Forest Agreements: | None |
| Invasive Species: | 18 |
| Nationally Important Wetlands: | None |
| Key Ecological Features (Marine) | None |

Details

Matters of National Environmental Significance

Listed Threatened Ecological Communities

[Resource Information]

For threatened ecological communities where the distribution is well known, maps are derived from recovery plans, State vegetation maps, remote sensing imagery and other sources. Where threatened ecological community distributions are less well known, existing vegetation maps and point location data are used to produce indicative distribution maps.

| Name | Status | Type of Presence |
|---|------------|---------------------------------------|
| Brigalow (Acacia harpophylla dominant and co-dominant) | Endangered | Community known to occur within area |
| Brigalow (Acacia harpophylla dominant and co-dominant) | Endangered | Community known to occur within area |
| Brigalow (Acacia harpophylla dominant and co-dominant) | Endangered | Community known to occur within area |
| Natural Grasslands of the Queensland Central Highlands and northern Fitzroy Basin | Endangered | Community likely to occur within area |
| Natural Grasslands of the Queensland Central Highlands and northern Fitzroy Basin | Endangered | Community likely to occur within area |
| Natural Grasslands of the Queensland Central Highlands and northern Fitzroy Basin | Endangered | Community likely to occur within area |
| Poplar Box Grassy Woodland on Alluvial Plains | Endangered | Community likely to occur within area |
| Poplar Box Grassy Woodland on Alluvial Plains | Endangered | Community likely to occur within area |
| Poplar Box Grassy Woodland on Alluvial Plains | Endangered | Community likely to occur within area |
| Semi-evergreen vine thickets of the Brigalow Belt (North and South) and Nandewar Bioregions | Endangered | Community likely to occur within area |
| Semi-evergreen vine thickets of the Brigalow Belt (North and South) and Nandewar Bioregions | Endangered | Community likely to occur within area |
| Semi-evergreen vine thickets of the Brigalow Belt (North and South) and Nandewar Bioregions | Endangered | Community likely to occur within area |
| Weeping Myall Woodlands | Endangered | Community likely to occur within area |
| Weeping Myall Woodlands | Endangered | Community likely to occur within area |
| Weeping Myall Woodlands | Endangered | Community likely to occur within area |

Listed Threatened Species

[Resource Information]

| Name | Status | Type of Presence |
|--|-----------------------|--|
| Birds | | |
| Calidris ferruginea Curlew Sandpiper [856] | Critically Endangered | Species or species habitat may occur within area |
| Erythrotriorchis radiatus Red Goshawk [942] | Vulnerable | Species or species habitat likely to occur within area |
| Falco hypoleucos Grey Falcon [929] | Vulnerable | Species or species habitat may occur within area |
| Geophaps scripta scripta Squatter Pigeon (southern) [64440] | Vulnerable | Species or species habitat known to occur |

| Name | Status | Type of Presence |
|---|------------|--|
| | | within area |
| Grantiella picta Painted Honeyeater [470] | Vulnerable | Species or species habitat may occur within area |
| Neochmia ruficauda ruficauda Star Finch (eastern), Star Finch (southern) [26027] | Endangered | Species or species habitat likely to occur within area |
| Poephila cincta cincta Southern Black-throated Finch [64447] | Endangered | Species or species habitat may occur within area |
| Rostratula australis Australian Painted Snipe [77037] | Endangered | Species or species habitat may occur within area |
| Mammals | | |
| Chalinolobus dwyeri Large-eared Pied Bat, Large Pied Bat [183] | Vulnerable | Species or species habitat may occur within area |
| Dasyurus hallucatus Northern Quoll, Digul [Gogo-Yimidir], Wijingadda [Dambimangari], Wiminji [Martu] [331] | Endangered | Species or species habitat likely to occur within area |
| Macroderma gigas Ghost Bat [174] | Vulnerable | Species or species habitat likely to occur within area |
| Nyctophilus corbeni Corben's Long-eared Bat, South-eastern Long-eared Bat [83395] | Vulnerable | Species or species habitat may occur within area |
| Petauroides volans Greater Glider [254] | Vulnerable | Species or species habitat likely to occur within area |
| Phascolarctos cinereus (combined populations of Qld, NSW and the ACT) Koala (combined populations of Queensland, New South Wales and the Australian Capital Territory) [85104] | Vulnerable | Species or species habitat known to occur within area |
| Plants | | |
| Aristida annua [17906] | Vulnerable | Species or species habitat known to occur within area |
| Arthraxon hispidus Hairy-joint Grass [9338] | Vulnerable | Species or species habitat may occur within area |
| Bertya opposens [13792] | Vulnerable | Species or species habitat known to occur within area |
| Cadellia pentastylis Ooline [9828] | Vulnerable | Species or species habitat likely to occur within area |
| Dichanthium queenslandicum King Blue-grass [5481] | Endangered | Species or species habitat may occur within area |
| Dichanthium setosum bluegrass [14159] | Vulnerable | Species or species habitat may occur within area |
| Macrozamia platyrhachis cycad [3412] | Endangered | Species or species habitat may occur within area |
| Marsdenia brevifolia [64585] | Vulnerable | Species or species |

| Name | Status | Type of Presence |
|--|-----------------------|---|
| Solanum dissectum [75720] | Endangered | habitat may occur within area Species or species habitat likely to occur within area |
| Reptiles | | |
| Delma torquata Adorned Delma, Collared Delma [1656] | Vulnerable | Species or species habitat may occur within area |
| Denisonia maculata Ornamental Snake [1193] | Vulnerable | Species or species habitat likely to occur within area |
| Egernia rugosa Yakka Skink [1420] | Vulnerable | Species or species habitat likely to occur within area |
| Elseya albagula Southern Snapping Turtle, White-throated Snapping Turtle [81648] | Critically Endangered | Species or species habitat likely to occur within area |
| Rheodytes leukops Fitzroy River Turtle, Fitzroy Tortoise, Fitzroy Turtle, White-eyed River Diver [1761] | Vulnerable | Species or species habitat likely to occur within area |
| Listed Migratory Species [Resource Information] | | |
| * Species is listed under a different scientific name on the EPBC Act - Threatened Species list. | | |
| Name | Threatened | Type of Presence |
| Migratory Marine Birds | | |
| Apus pacificus Fork-tailed Swift [678] | | Species or species habitat likely to occur within area |
| Migratory Terrestrial Species | | |
| Cuculus optatus Oriental Cuckoo, Horsfield's Cuckoo [86651] | | Species or species habitat may occur within area |
| Motacilla flava Yellow Wagtail [644] | | Species or species habitat may occur within area |
| Myiagra cyanoleuca Satin Flycatcher [612] | | Species or species habitat may occur within area |
| Rhipidura rufifrons Rufous Fantail [592] | | Species or species habitat may occur within area |
| Migratory Wetlands Species | | |
| Actitis hypoleucos Common Sandpiper [59309] | | Species or species habitat may occur within area |
| Calidris acuminata Sharp-tailed Sandpiper [874] | | Species or species habitat may occur within area |
| Calidris ferruginea Curlew Sandpiper [856] | Critically Endangered | Species or species habitat may occur within area |
| Calidris melanotos Pectoral Sandpiper [858] | | Species or species habitat may occur within area |
| Gallinago hardwickii Latham's Snipe, Japanese Snipe [863] | | Species or species |

| Name | Threatened | Type of Presence |
|---|------------|---|
| Pandion haliaetus Osprey [952] | | habitat may occur within area Species or species habitat may occur within area |

Other Matters Protected by the EPBC Act

| Listed Marine Species | [Resource Information] | |
|--|--------------------------|--|
| * Species is listed under a different scientific name on the EPBC Act - Threatened Species list. | | |
| Name | Threatened | Type of Presence |
| Birds | | |
| Actitis hypoleucos Common Sandpiper [59309] | | Species or species habitat may occur within area |
| Anseranas semipalmata Magpie Goose [978] | | Species or species habitat may occur within area |
| Apus pacificus Fork-tailed Swift [678] | | Species or species habitat likely to occur within area |
| Ardea ibis Cattle Egret [59542] | | Species or species habitat may occur within area |
| Calidris acuminata Sharp-tailed Sandpiper [874] | | Species or species habitat may occur within area |
| Calidris ferruginea Curlew Sandpiper [856] | Critically Endangered | Species or species habitat may occur within area |
| Calidris melanotos Pectoral Sandpiper [858] | | Species or species habitat may occur within area |
| Chrysococcyx osculans Black-eared Cuckoo [705] | | Species or species habitat likely to occur within area |
| Gallinago hardwickii Latham's Snipe, Japanese Snipe [863] | | Species or species habitat may occur within area |
| Haliaeetus leucogaster White-bellied Sea-Eagle [943] | | Species or species habitat likely to occur within area |

| Name | Threatened | Type of Presence |
|---|-------------|--|
| Merops ornatus Rainbow Bee-eater [670] | | Species or species habitat may occur within area |
| Motacilla flava Yellow Wagtail [644] | | Species or species habitat may occur within area |
| Myiagra cyanoleuca Satin Flycatcher [612] | | Species or species habitat may occur within area |
| Pandion haliaetus Osprey [952] | | Species or species habitat may occur within area |
| Rhipidura rufifrons Rufous Fantail [592] | | Species or species habitat may occur within area |
| Rostratula benghalensis (sensu lato) Painted Snipe [889] | Endangered* | Species or species habitat may occur within area |

Extra Information

| State and Territory Reserves | [Resource Information] |
|------------------------------|--------------------------|
| Name | State |
| Humboldt | QLD |
| Kenmare | QLD |

| Invasive Species | [Resource Information] |
|------------------|--------------------------|
|------------------|--------------------------|

Weeds reported here are the 20 species of national significance (WoNS), along with other introduced plants that are considered by the States and Territories to pose a particularly significant threat to biodiversity. The following feral animals are reported: Goat, Red Fox, Cat, Rabbit, Pig, Water Buffalo and Cane Toad. Maps from Landscape Health Project, National Land and Water Resouces Audit, 2001.

| Name | Status | Type of Presence |
|--|--------|--|
| Birds | | |
| Columba livia Rock Pigeon, Rock Dove, Domestic Pigeon [803] | | Species or species habitat likely to occur within area |
| Passer domesticus House Sparrow [405] | | Species or species habitat likely to occur within area |
| Frogs | | |
| Rhinella marina Cane Toad [83218] | | Species or species habitat known to occur within area |
| Mammals | | |
| Bos taurus Domestic Cattle [16] | | Species or species habitat likely to occur within area |
| Canis lupus familiaris Domestic Dog [82654] | | Species or species habitat likely to occur |

| Name | Status | Type of Presence |
|--|--------|--|
| | | within area |
| Felis catus Cat, House Cat, Domestic Cat [19] | | Species or species habitat likely to occur within area |
| Lepus capensis Brown Hare [127] | | Species or species habitat likely to occur within area |
| Mus musculus House Mouse [120] | | Species or species habitat likely to occur within area |
| Oryctolagus cuniculus Rabbit, European Rabbit [128] | | Species or species habitat likely to occur within area |
| Sus scrofa Pig [6] | | Species or species habitat likely to occur within area |
| Vulpes vulpes Red Fox, Fox [18] | | Species or species habitat likely to occur within area |
| Plants | | |
| Cryptostegia grandiflora Rubber Vine, Rubbervine, India Rubber Vine, India Rubbervine, Palay Rubbervine, Purple Allamanda [18913] | | Species or species habitat likely to occur within area |
| Jatropha gossypifolia Cotton-leaved Physic-Nut, Bellyache Bush, Cotton-leaf Physic Nut, Cotton-leaf Jatropha, Black Physic Nut [7507] | | Species or species habitat likely to occur within area |
| Lantana camara Lantana, Common Lantana, Kamara Lantana, Large-leaf Lantana, Pink Flowered Lantana, Red Flowered Lantana, Red-Flowered Sage, White Sage, Wild Sage [10892] | | Species or species habitat likely to occur within area |
| Opuntia spp. Prickly Pears [82753] | | Species or species habitat likely to occur within area |
| Parkinsonia aculeata Parkinsonia, Jerusalem Thorn, Jelly Bean Tree, Horse Bean [12301] | | Species or species habitat likely to occur within area |
| Parthenium hysterophorus Parthenium Weed, Bitter Weed, Carrot Grass, False Ragweed [19566] | | Species or species habitat likely to occur within area |
| Vachellia nilotica Prickly Acacia, Blackthorn, Prickly Mimosa, Black Piquant, Babul [84351] | | Species or species habitat likely to occur within area |

Caveat

The information presented in this report has been provided by a range of data sources as acknowledged at the end of the report.

This report is designed to assist in identifying the locations of places which may be relevant in determining obligations under the Environment Protection and Biodiversity Conservation Act 1999. It holds mapped locations of World and National Heritage properties, Wetlands of International and National Importance, Commonwealth and State/Territory reserves, listed threatened, migratory and marine species and listed threatened ecological communities. Mapping of Commonwealth land is not complete at this stage. Maps have been collated from a range of sources at various resolutions.

Not all species listed under the EPBC Act have been mapped (see below) and therefore a report is a general guide only. Where available data supports mapping, the type of presence that can be determined from the data is indicated in general terms. People using this information in making a referral may need to consider the qualifications below and may need to seek and consider other information sources.

For threatened ecological communities where the distribution is well known, maps are derived from recovery plans, State vegetation maps, remote sensing imagery and other sources. Where threatened ecological community distributions are less well known, existing vegetation maps and point location data are used to produce indicative distribution maps.

Threatened, migratory and marine species distributions have been derived through a variety of methods. Where distributions are well known and if time permits, maps are derived using either thematic spatial data (i.e. vegetation, soils, geology, elevation, aspect, terrain, etc) together with point locations and described habitat; or environmental modelling (MAXENT or BIOCLIM habitat modelling) using point locations and environmental data layers.

Where very little information is available for species or large number of maps are required in a short time-frame, maps are derived either from 0.04 or 0.02 decimal degree cells; by an automated process using polygon capture techniques (static two kilometre grid cells, alpha-hull and convex hull); or captured manually or by using topographic features (national park boundaries, islands, etc). In the early stages of the distribution mapping process (1999-early 2000s) distributions were defined by degree blocks, 100K or 250K map sheets to rapidly create distribution maps. More reliable distribution mapping methods are used to update these distributions as time permits.

Only selected species covered by the following provisions of the EPBC Act have been mapped:

- migratory and
- marine

The following species and ecological communities have not been mapped and do not appear in reports produced from this database:

- threatened species listed as extinct or considered as vagrants
- some species and ecological communities that have only recently been listed
- some terrestrial species that overfly the Commonwealth marine area
- migratory species that are very widespread, vagrant, or only occur in small numbers

The following groups have been mapped, but may not cover the complete distribution of the species:

- non-threatened seabirds which have only been mapped for recorded breeding sites
- seals which have only been mapped for breeding sites near the Australian continent

Such breeding sites may be important for the protection of the Commonwealth Marine environment.

Coordinates

-23.927834 148.553325,-23.927206 148.558818,-23.979917 148.93716,-24.099691 148.924113,-24.176137 148.82867,-24.164234 148.618556,-23.927834 148.553325

Acknowledgements

This database has been compiled from a range of data sources. The department acknowledges the following custodians who have contributed valuable data and advice:

- [-Office of Environment and Heritage, New South Wales](#)
- [-Department of Environment and Primary Industries, Victoria](#)
- [-Department of Primary Industries, Parks, Water and Environment, Tasmania](#)
- [-Department of Environment, Water and Natural Resources, South Australia](#)
- [-Department of Land and Resource Management, Northern Territory](#)
- [-Department of Environmental and Heritage Protection, Queensland](#)
- [-Department of Parks and Wildlife, Western Australia](#)
- [-Environment and Planning Directorate, ACT](#)
- [-Birdlife Australia](#)
- [-Australian Bird and Bat Banding Scheme](#)
- [-Australian National Wildlife Collection](#)
- Natural history museums of Australia
- [-Museum Victoria](#)
- [-Australian Museum](#)
- [-South Australian Museum](#)
- [-Queensland Museum](#)
- [-Online Zoological Collections of Australian Museums](#)
- [-Queensland Herbarium](#)
- [-National Herbarium of NSW](#)
- [-Royal Botanic Gardens and National Herbarium of Victoria](#)
- [-Tasmanian Herbarium](#)
- [-State Herbarium of South Australia](#)
- [-Northern Territory Herbarium](#)
- [-Western Australian Herbarium](#)
- [-Australian National Herbarium, Canberra](#)
- [-University of New England](#)
- [-Ocean Biogeographic Information System](#)
- [-Australian Government, Department of Defence](#)
- [Forestry Corporation, NSW](#)
- [-Geoscience Australia](#)
- [-CSIRO](#)
- [-Australian Tropical Herbarium, Cairns](#)
- [-eBird Australia](#)
- [-Australian Government – Australian Antarctic Data Centre](#)
- [-Museum and Art Gallery of the Northern Territory](#)
- [-Australian Government National Environmental Science Program](#)
- [-Australian Institute of Marine Science](#)
- [-Reef Life Survey Australia](#)
- [-American Museum of Natural History](#)
- [-Queen Victoria Museum and Art Gallery, Inveresk, Tasmania](#)
- [-Tasmanian Museum and Art Gallery, Hobart, Tasmania](#)
- Other groups and individuals

The Department is extremely grateful to the many organisations and individuals who provided expert advice and information on numerous draft distributions.

Please feel free to provide feedback via the [Contact Us](#) page.

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