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# MARDIE PROJECT

## ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN MARDIE MINERALS PTY LTD

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# 1 INTRODUCTION

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The purpose of this Environment and Social Management Plan (ESMP) is to identify the environmental and social management framework for BCI Minerals Ltd's (BCIM) Mardie Project.

This ESMP is a management tool that outlines environmental and social management strategies to ensure that environmental and social commitments and objectives are met by BCIM. This ESMP is primarily designed to be an overarching document that:

- Ensures compliance with key environmental and social approvals, consents and obligations;
- Identifies environmental and social management plans required for the Mardie Project; and
- Identifies legislative requirements which must be met by BCIM.

The scope of this ESMP is to cover the construction and operational activities of the Mardie Project. It is not intended to apply to investigative or exploration activities.

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# 2 PROJECT DESCRIPTION

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The Mardie Project will use seawater to produce raw salts as a feedstock for processing high purity salt, fertiliser grade sulphate of potash, and potentially other commercial by-products. It is located 80 kilometres (km) south-west of Karratha, in the Pilbara region of Western Australia (Figure 1). The Mardie Project includes access to the development envelope from Mardie Road via Pastoral Management Pty Ltd (PMPL) (Mardie Station) pastoral lease.

The Mardie Project includes terrestrial, intertidal and marine components and has a combined disturbance footprint of 11,283 hectares (ha). It includes the development of seawater intakes, concentrator and crystalliser ponds, processing plants, bitterns disposal pipeline and outfall diffuser, trestle jetty export facility, dredge channel, causeway, administration buildings, accommodation village, drainage channels and seawalls, access/haul roads, desalination plant, borrow pits, freshwater supply bores and pipelines, and associated infrastructure (including but not limited to power supply, communications equipment, workshops, laydown areas, sewage treatment plant, landfill facility).





Figure 1: Location of the Mardie Project



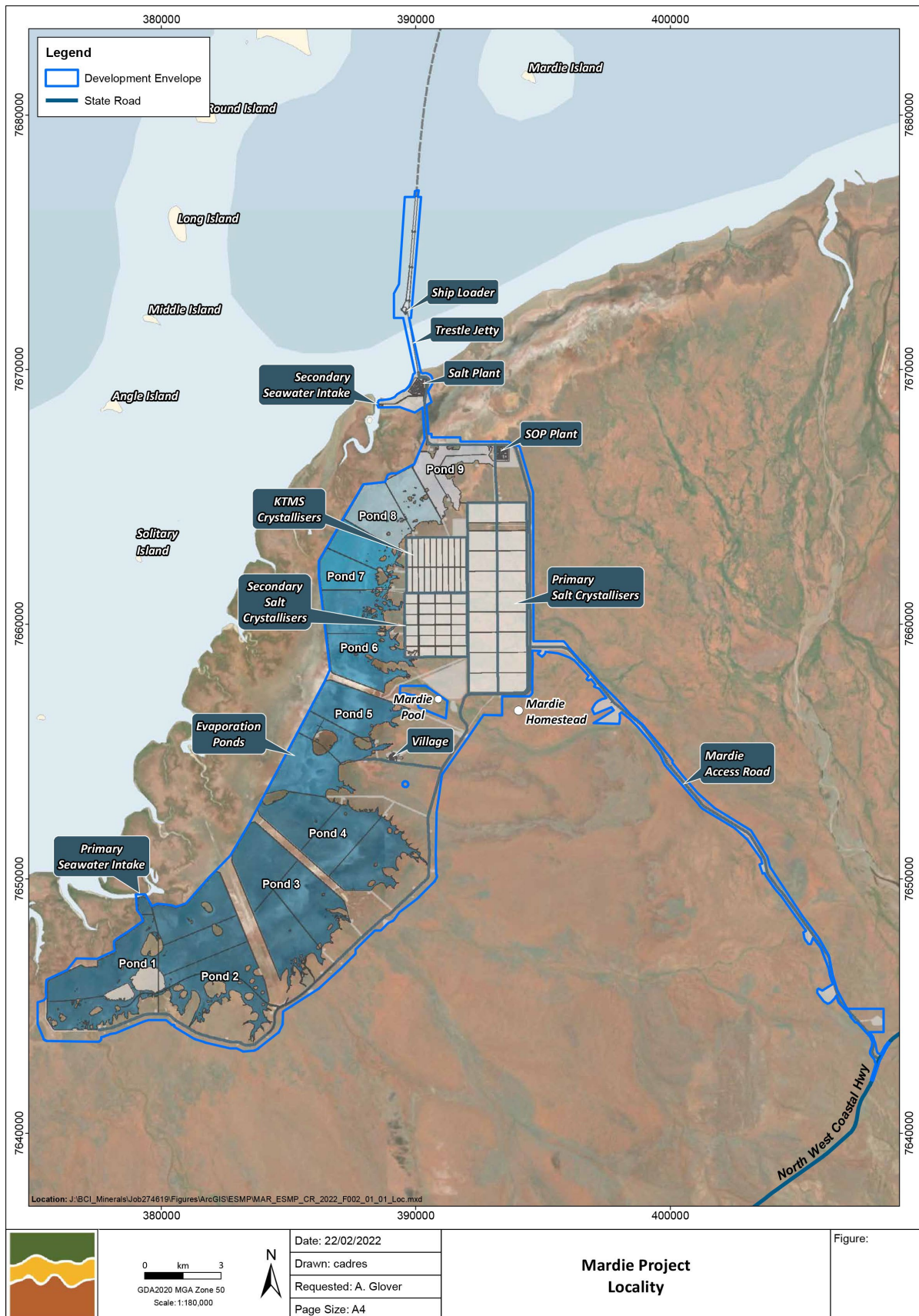


Figure 2: Mardie Project layout



## 3 OBJECTIVES

The objective of this ESMP is to enhance the environmental and social management awareness of BCIM and Contractor personnel by providing a management framework that:

- Identifies legislative requirements which must be met by BCIM;
- Outlines key environmental and social approvals; and
- Identifies environmental and social management plans required for the Mardie Project.

## 4 APPLICABLE LEGISLATION

All employees and contractors must comply with all Commonwealth and State environmental legislation relevant to the Mardie Project. Key Commonwealth and State Legislation related to the Mardie Project is listed in Table 1.

**Table 1: Key Commonwealth and State Legislation related to the Mardie Project**

Legislation	Application
<b>Commonwealth</b>	
<i>Environment Protection and Biodiversity Conservation Act 1999</i> (EPBC Act)	Protection of Matters of National Environmental Significance. Environmental protection in Commonwealth-managed lands or waters.
<i>Quarantine Act 1908</i>	Prevention of introduced marine pest species at the Mardie Port.
<i>National Native Title Act 1993</i>	Recognition and protection of Native Title.
<b>State</b>	
<i>Aboriginal Heritage Act 1972</i> and associated recent amendments	Management of Aboriginal Heritage.
<i>Agriculture and Related Resources Protection Act 1976</i>	Declared plants and animals which are nominated by the Agriculture Protection Board as current or potential pests.
<i>Biodiversity Conservation Act 2016</i> (BC Act) and associated Regulations	Provides for the conservation and protection of wildlife. Special provisions and schedules cover the protection of gazetted rare flora and fauna.
<i>Bush Fires Act 1954</i>	For the prevention, control and extinguishment of bush fires.
<i>Conservation and Land Management Act 1984</i>	Protection and management of nature reserves, state forest, marine parks, etc.
<i>Contaminated Sites Act 2003</i> and associated Regulations.	Provides for the identification, recording, management and remediation of contaminated sites.
<i>Dangerous Goods Safety Act 2004</i>	Legislated obligations, handling requirements and potential liabilities for hazardous goods.
<i>Environmental Protection Act 1986</i> (EP Act) and associated Regulations	Prevention, control and abatement of pollution, conservation protection and enhancement of the environment.
<i>Environmental Protection (Controlled Waste) Act 2001</i> and associated Regulations	Outlines the requirement to document the transport and disposal of liquid waste, in particular hazardous materials.
<i>Land Administration Act 1997</i>	Provision of leases for the development of some portions of the Mardie Project.
<i>Local Government Act 1995</i>	Functions of local government.



Legislation	Application
<i>Mines Safety and Inspection Act 1994</i>	For the safety of mines and mining operations and the inspection and regulation of mines, mining operations and plant and substances supplied to or used at mines.
<i>Mining Act 1978</i> (Mining Act) and associated Regulations	Management of exploration and mining of minerals. Mining tenement conditions.
<i>Port Authorities Act 1999</i>	Provision of leases and management for the development of the Mardie Port.
<i>Rights in Water and Irrigation Act 1914</i>	Provision for the regulation, management, use and protection of water resources, to provide for irrigation schemes, and for related purposes. Groundwater abstraction and surface water management.
<i>Soil and Land Conservation Act 1945</i>	For the conservation of soil and land resources, and to the mitigation of the effects of erosion, salinity and flooding.

## 5 CURRENT APPROVALS / AGREEMENTS

The Mardie Project was approved under State and Commonwealth environmental legislation under MS 1175 and EPBC 2018/8236 respectively. Copies of these approvals are available on the Department of Water and Environmental Regulation (DWER) and Department of Agriculture, Water and the Environment (DAWE) websites respectively.

The following approvals and agreements have also been obtained:

- Native title agreement with Wirrawandi Aboriginal Corporation RNTBC (Yaburara Mardudhunera) and the Kuruma Marthudunera Native Title Claim Group;
- Pastoral agreement with Pastoral Management Pty Ltd;
- Section 18 approvals pursuant to the *Aboriginal Heritage Act 1972*:
  - 69-17160
  - MIN-2020-1714 (80-03628)
  - MIN-2020-1715 (80-03640)
- Mining Proposal and Mine Closure Plan (Reg ID 85779) under the *Mining Act 1978*; and
- Works Approval W6594/2021/1 under Part V of the *Environmental Protection Act 1986*.

## 6 REMAINING REQUIRED APPROVALS

The remaining approval requirements for the Mardie Project are listed in Table 2. At the date of issue of this ESMP several of these approvals have been applied for but are not yet approved.

**Table 2: Remaining approval requirements for the Mardie Project**

Legislation	Approval requirement
<i>Biodiversity Conservation Act 2016</i> (BC Act) and associated Regulations	Licences to take flora and fauna if required.
<i>Dangerous Goods Safety Act 2004</i>	Dangerous Goods Licence if they are to be stored in significant volumes on site.
EPBC Act	Management Plans required under EPBC 2018/8236.
EP Act and associated Regulations	Management Plans required under MS 1175.



Legislation	Approval requirement
	Works Approval and Licence under Part V of the EP Act.
<i>Land Administration Act 1997</i>	Planning approval for any works on land issued under this Act.
<i>Planning and Development Act 2005</i>	Planning approval for any works on land issued under this Act.
<i>Mines Safety and Inspection Act 1994</i>	Project Management Plan and associated sub-plans.
<i>Port Authorities Act 1999</i>	Planning approval for any works on land issued under this Act.
<i>Rights in Water and Irrigation Act 1914</i>	26D Licence 5C Licence Bed and Banks Permit

## 7 MANAGEMENT PLANS

The Mardie Project was approved under State and Commonwealth environmental legislation under MS 1175 and EPBC 2018/8236 respectively. These approvals included conditions requiring the development and implementation of several management plans, as listed in Table 3. These management plans are limited to those legally required by the approvals listed above or under other legislation, there may also be management plans developed for internal use.

**Table 3: Environmental and social management plans required for the Mardie Project**

Management Plan	Scope of management plan
Benthic Communities and Habitat Monitoring and Management Plan	Monitor and mitigate the potential direct and indirect impacts of the Mardie Project on intertidal and sub-tidal benthic communities and habitat.
Compliance Assessment Plan	Detail how compliance with MS 1175 will be recorded and reported.
Dredge Management Plan	Monitor and mitigate the potential impacts of marine dredging and onshore dredge material disposal.
Groundwater Monitoring and Management Plan	Monitor and mitigate the potential impacts of groundwater seepage from the Mardie Project ponds.
Cultural Heritage Management Plan	Mitigate the impacts of the Mardie Project on areas of cultural heritage and Aboriginal heritage sites.
Illumination Plan	Monitor and mitigate the potential impacts of Mardie Project lighting on marine and terrestrial fauna.
Impact Reconciliation Procedure	Detail how disturbance within terrestrial areas will be recorded and reported for the purpose of payments under the Pilbara Environmental Offsets Fund.
Long-term Migratory Shorebird Monitoring Program	Monitor migratory shorebirds to ensure there are no reductions in the richness and abundance in the Mardie Project area attributable to the project.
Marine Environmental Quality Monitoring and Management Plan	Monitor and mitigate the potential water quality impacts associated with offshore bitterns disposal and port activities.
Marine Pest Procedure	Ensure marine pests do not enter WA or move within WA as a result of the Mardie Project.
Marine Turtle Monitoring Program	Monitor the marine turtle usage of offshore islands to ensure there are no adverse impact to marine turtle behaviour as a result of project-attributable light.
Mine Closure Plan	Provides detail about closure risks, planned closure strategies and completion criteria for the Mardie Project (Mining Act).



Management Plan	Scope of management plan
Monitoring and Adaptive Management Plan	Specify trigger and threshold monitoring criteria to determine compliance with condition outcomes, methods, data management, adaptive management, contingencies and reporting.
Offsets Plan	Provide detail about the proposed marine and intertidal offset programs.

## 8 INCIDENT RESPONSE

Environmental and social incidents are defined as being any breaches or non-adherences to relevant approvals, agreements or management plans. These incidents are to be reported internally and to the relevant Government authority or stakeholder if required by the incident reporting conditions or commitments in the applicable approval document, agreement or management plan.

All incidents will be managed in accordance with BCIM's Incident Reporting and Management Procedure (BCI-WHS-PRO-009). Timely completion of corrective actions will be logged and followed-up closely.

## 9 AUDIT AND REVIEW

### 9.1 INSPECTIONS

Inspections of all aspects of the Mardie Project will be undertaken by site-based construction and operations personnel and records resulting from these inspections will be utilised to inform the BCI internal audit program described below. Inspections could include the following:

- Compliance with approvals, agreements and management plans;
- Understanding and awareness of BCIM's Environment and Community Policies;
- Suitability of implemented waste management and audit of all records for each disposal;
- Storage and handling of dangerous goods and hazardous materials;
- Availability of spill response equipment;
- Understanding of environmental emergency procedures;
- Spill containment (drip trays etc.);
- Inspection of vessel / vehicle refueling procedures and fuel tank refilling operations and compliance with procedural documents;
- Assessment of dust controls;
- Assessment of sediment and runoff controls;
- Assessment of marine noise controls;
- Review of marine pest inspection reports and compliance with all regulations;
- Review of marine fauna observation reports and compliance of all vessels to regulations; and
- Assessment of wastewater management.

These environmental inspections will be properly documented and recorded in relevant registers and site records. Necessary corrective and/or preventative actions, as well as opportunities for continual improvement, will be discussed during site meetings and responsible persons will be assigned.



## 9.2 INTERNAL AUDITS

Internal audits of onsite activities will be conducted by BCI Corporate staff throughout the construction program and during operations. The main objective of the internal audit program is to monitor compliance with legislative and government approval obligations that require such audit or information to identify any instances of non-compliance and to support the submission of regulatorily required reporting. The internal audit program may also be utilised to ensure implementation of the environmental and social management system, to identify any events of non-conformance and to document and action such non-conformance events.

BCIM, in accordance with the conditions of MS 1175, have prepared and will maintain a Compliance Assessment Plan. The Compliance Assessment Plan shall indicate:

- (1) the frequency of compliance reporting;
- (2) the approach and timing of compliance assessments;
- (3) the retention of compliance assessments;
- (4) the method of reporting of potential non-compliances and corrective actions taken;
- (5) the table of contents of compliance assessment reports; and
- (6) public availability of compliance assessment reports.

BCIM shall assess compliance with MS 1175 in accordance with the Compliance Assessment Plan.

## 9.3 EXTERNAL AUDITS

External audits may be undertaken by audit consultants or regulatory agencies throughout the life of the Project.

The main objectives of the external audit program are to:

- Audit overall implementation of the ESMP and compliance with permits and approvals;
- Review effectiveness of environmental mitigation measures and Project environmental performance;
- Review EMS and procedures in place; and
- Prepare audit reports and provide results to BCIM.

BCIM will provide the auditors with all documentation, access and assistance necessary for completion of the audit and promptly close out any corrective actions resulting from the audit.

## 9.4 REVIEW

Reviews of the ESMP are key to continual improvement and for ensuring that the ESMP will continue to meet needs over the course of the Mardie Project. Management reviews also offer a great opportunity to keep the ESMP efficient and cost-effective.

A review of this ESMP would typically be undertaken:

- Following significant environmental incidents;
- When there is a need to improve performance in an area of environmental management; and
- Periodically for actions undertaken over long timeframes such as one, two or five years.



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## 10 REPORTING

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Both internal and external reporting will be required. Internal reporting promotes effective implementation of the ESMP and highlights areas of improvement. External reports may include reports on environmental incidents to the regulator, reports to stakeholders, reports to inform reviews of the plan and reports to meet the reporting requirements of approval conditions.

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## 11 GLOSSARY

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Term	Meaning
BC Act	<i>Biodiversity Conservation Act 2016</i>
BCIM	BCI Minerals Ltd
DAWE	Department of Agriculture, Water and the Environment
DWER	Department of Water and Environmental Regulation
EP Act	<i>Environmental Protection Act 1986</i>
EPBC Act	<i>Environmental Protection and Biodiversity Conservation Act 1999</i> (Commonwealth)
ESMP	Environmental and Social Management Plan
ha	Hectares
km	Kilometres
Mining Act	<i>Mining Act 1978</i>
MS	Ministerial Statement
PMPL	Pastoral Management Pty Ltd
WA	Western Australia

