# Permit

***Environmental Protection Act 1994***

## Environmental authority EPML02090614

*This environmental authority is issued by the administering authority under Chapter 5 of the* Environmental Protection Act 1994.

### Environmental authority number: EPML02090614

**Environmental authority takes effect on 7 December 2023.**

### Environmental authority holder(s)

| Name(s) | Registered address |
|---|---|
| BOWEN PCI PTY LTD | Level 7, 167 Eagle Street<br>BRISBANE CITY QLD 4000 |

### Environmentally relevant activity and location details

| Environmentally relevant activity/activities | Location(s) |
|---|---|
| Schedule 3 - 13 - Mining black coal | ML80194 |
| Ancillary 08 - Chemical Storage - 1 - Storing a total of 50t or more of chemicals of dangerous goods class 1 or class 2, division 2.3 under subsection (1)(a) | |
| Ancillary 08 - Chemical Storage - 3 - Storing more than 500 cubic metres of chemicals of class C1 or C2 combustible liquids under AS 1940 or dangerous goods class 3 under subsection (1)(c) | |
| Ancillary 60 - Waste disposal - 1(a) - Operating a facility for disposing of, in a year, the following quantity of waste mentioned in subsection (1)(a) - less than 50,000t | |



ABN 46 640 294 485

**Additional information for applicants**

Environmentally relevant activities

The description of any environmentally relevant activity (ERA) for which an environmental authority (EA) is issued is a restatement of the ERA as defined by legislation at the time the EA is issued. Where there is any inconsistency between that description of an ERA and the conditions stated by an EA as to the scale, intensity or manner of carrying out an ERA, the conditions prevail to the extent of the inconsistency.

An EA authorises the carrying out of an ERA and does not authorise any environmental harm unless a condition stated by the EA specifically authorises environmental harm.

A person carrying out an ERA must also be a registered suitable operator under the *Environmental Protection Act 1994* (EP Act).

Contaminated land

It is a requirement of the EP Act that an owner or occupier of contaminated land give written notice to the administering authority if they become aware of the following:

- the happening of an event involving a hazardous contaminant on the contaminated land (notice must be given within 24 hours); or
- a change in the condition of the contaminated land (notice must be given within 24 hours); or
- a notifiable activity (as defined in Schedule 3) having been carried out, or is being carried out, on the contaminated land (notice must be given within 20 business days)

that is causing, or is reasonably likely to cause, serious or material environmental harm.

For further information, including the form for giving written notice, refer to the Queensland Government website www.qld.gov.au, using the search term ‘duty to notify’.

Take effect

Please note that, in accordance with section 200 of the EP Act, an EA has effect:

a) if the authority is for a prescribed ERA and it states that it takes effect on the day nominated by the holder of the authority in a written notice given to the administering authority - on the nominated day; or

b) if the authority states a day or an event for it to take effect-on the stated day or when the stated event happens; or

c) otherwise on the day the authority is issued.

However, if the EA is authorising an activity that requires an additional authorisation (a relevant tenure for a resource activity, a development permit under the *Planning Act 2016* or an SDA Approval under the *State Development and Public Works Organisation Act 1971*), this EA will not take effect until the additional authorisation has taken effect.

If this EA takes effect when the additional authorisation takes effect, you must provide the administering authority written notice within 5 business days of receiving notification of the related additional authorisation taking effect.

If you have incorrectly claimed that an additional authorisation is not required, carrying out the ERA without the additional authorisation is not legal and could result in your prosecution for providing false or misleading information or operating without a valid environmental authority.

| | |
|---|---|
|  | 7 December 2023 |
| Signature | Date |

Dr Alison Cummings
Department of Environment and Science
Delegate of the administering authority
*Environmental Protection Act 1994*

**Enquiries:**
Business Centre (Coal)
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**Privacy statement**

Pursuant to section 540 of the EP Act, the Department is required to maintain a register of certain documents and information authorised under the EP Act. A copy of this document will be kept on the public register. The register is available for inspection by members of the public who are able take extracts, or copies of the documents from the register. Documents that are required to be kept on the register are published in their entirety unless alteration is required by the EP Act. There is no general discretion allowing the Department to withhold documents or information required to be kept on the public register. For more information on the Department's public register, search 'public register' at www.qld.gov.au. For queries about privacy matters please email privacy@des.qld.gov.au or telephone 13 74 68.

**Obligations under the *Environmental Protection Act 1994***

In addition to the requirements found in the conditions of this environmental authority, the holder must also meet their obligations under the EP Act, and the regulations made under the EP Act. For example, the holder must comply with the following provisions of the Act:

- general environmental duty (section 319)
- duty to notify environmental harm (section 320-320G)
- offence of causing serious or material environmental harm (sections 437-439)
- offence of causing environmental nuisance (section 440)
- offence of depositing prescribed water contaminants in waters and related matters (section 440ZG)
- offence to place contaminant where environmental harm or nuisance may be caused (section 443)

**Other permits required**

This permit only provides an approval under the *Environmental Protection Act 1994*. In order to lawfully operate you may also require permits / approvals from your local government authority, other business units within the department and other State Government agencies prior to commencing any activity at the site. For example, this may include permits / approvals with your local Council (for planning approval), the Department of Transport and Main Roads (to access state controlled roads), the Department of Resources (to clear vegetation), and the Department of Agriculture and Fisheries (to clear marine plants or to obtain a quarry material allocation).

**Conditions of environmental authority**
The environmentally relevant activity(ies) conducted at the location as described above must be conducted in accordance with the following site-specific conditions of approval. This environmental authority consists of the following Schedules and Appendices:

Schedule A General
Schedule B Air
Schedule C Noise
Schedule D Water
Schedule E Groundwater
Schedule F Waste Management
Schedule G Land and Rehabilitation
Schedule H Regulated Structures
Definitions
Attachment 1 Final disturbance footprint
Figure 1a Impact on SSBV (flora) – Bluff Coal Mine Stage One
Figure 1b Impact on SSBV (fauna) – Bluff Coal Mine Stage One
Figure 2a Impact on MSES – Bluff Coal Mine Stage Two
Figure 3 Groundwater Bore Monitoring Locations
Attachment 2 Rehabilitation Requirements
Attachment 3 Erosion Classification Framework

| **Schedule A: General** | |
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| **Condition number** | **Condition** |
| **A1** | **Scope of approval**<br>This environmental authority authorises environmental harm referred to in the conditions. Where there is no condition or this environmental authority is silent on a matter, the lack of a condition or silence does not authorise environmental harm. |
| **A2** | This environmental authority authorises the extraction of no more than 1.8 million tonnes per annum of run-of-mine (ROM) coal. |
| **A3** | **Maintenance and measures**<br>The environmental authority holder must:<br>a) install all measures, plant and equipment necessary to ensure compliance with the conditions of this environmental authority;<br>b) maintain such measures, plant and equipment in a proper and efficient condition;<br>c) operate such measures, plant and equipment in a proper and efficient manner; and<br>d) ensure all instruments and devices used for the measurement or monitoring of any parameter under any condition of this environmental authority are calibrated and certified by an appropriately qualified person (AQP). |
| **A4** | **Monitoring**<br>Record, compile and keep for a minimum of **five (5) years** all monitoring results required by this environmental authority and make available for inspection all or any of these records upon request by the administering authority. |

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| **A5** | Monitoring and determinations required under any condition of this environmental authority must be conducted by an AQP. |
| **A6** | Monitoring results for rehabilitation must be kept until final surrender is accepted. |
| **A7** | **Management Plan, Monitoring programs and Reports**<br>Management plans, monitoring programs and reports required under any condition of this environmental authority must be developed by an AQP. |
| **A8** | Upon request from the administering authority, copies of monitoring results, records, registers, monitoring programs, management plans and reports required by the conditions of this environmental authority must be made available and provided to the administering authority within:<br>(a) **ten (10) business days**; or<br>(b) an alternative timeframe agreed between the administering authority and the environmental authority holder. |
| **A9** | **Risk Management System**<br>The environmental authority holder must develop and implement a Risk Management System for all stages of mining activities which mirrors the content requirement of the Standard for Risk Management (ISO31000), or the latest edition of an Australian standard for risk management, to the extent relevant to environmental management. |
| **A10** | **Notification of emergencies, incidents and exceedances**<br>The environmental authority holder must notify the administering authority by written notification within **twenty-four (24) hours**, after becoming aware of any emergency, incident or exceedance that results in the release of contaminants not in accordance the conditions of this environmental authority. |
| **A11** | Within **ten (10) business days** following the initial notification of an emergency, incident or exceedance, or receipt of monitoring results, further advice must be provided to the administering authority, including the following:<br>a) results and interpretation of any samples taken and analysed;<br>b) outcomes of actions taken at the time to prevent or minimise unlawful environmental harm; and<br>c) proposed actions to prevent a recurrence of the emergency, incident or exceedance. |
| **A12** | **Complaints**<br>The environmental authority holder must record all environmental complaints received about the mining activities including:<br>a) name, address and contact number of the complainant;<br>b) time and date of complaint;<br>c) reasons for the complaint;<br>d) investigations undertaken;<br>e) conclusions formed;<br>f) actions taken to resolve the complaint;<br>g) any abatement measures implemented; and<br>h) person responsible for resolving the complaint. |

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| **A13** | The environmental authority holder must, when requested by the administering authority, undertake relevant specified monitoring to investigate any complaint of environmental nuisance or environmental harm. The results of the investigation (including an analysis and interpretation of the monitoring results) and abatement measures, where implemented, must be provided to the administering authority within **ten (10) business days** of completion of the investigation, or no later than **ten (10) business days** after the end of the timeframe nominated by the administering authority to undertake the investigation. |

| **Schedule B: Air** | |
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| **Condition number** | **Condition** |
| **B1** | The release of dust or particulate matter or both resulting from the authorised mining activities must not cause an environmental nuisance at any sensitive place or commercial place. |
| **B2** | **Dust and particulate matter monitoring**<br>Dust and particulate matter emissions generated by the mining activities must not exceed the following levels when measured at any sensitive place or commercial place:<br>a) Dust deposition of 120 milligrams per square metre per day, averaged over one (1) month, when monitored in accordance with the most recent version of Australian Standard AS3580.10.1 Methods for sampling and analysis of ambient air—Determination of particulate matter—Deposited matter – Gravimetric method.<br>b) A concentration of particulate matter with an aerodynamic diameter of less than ten (10) micrometres ($PM_{10}$) suspended in the atmosphere of fifty (50) micrograms per cubic metre over a 24-hour averaging time when monitored in accordance with the most recent version of either:<br>i) Australian Standard AS3580.9.6 Methods for sampling and analysis of ambient air—Determination of suspended particulate matter—$PM_{10}$ high volume sampler with size-selective inlet – Gravimetric method;<br>ii) Australian Standard AS3580.9.9 Methods for sampling and analysis of ambient air—Determination of suspended particulate matter—$PM_{10}$ low volume sampler—Gravimetric method; or<br>iii) Any alternative method of sampling $PM_{10}$, approved by the administering authority.<br>c) A concentration of particulate matter suspended in the atmosphere of 90 micrograms per cubic metre over a one (1) year averaging time, when monitored in accordance with the most recent version of AS/NZS3580.9.3 Methods for sampling and analysis of ambient air—Determination of suspended particulate matter—Total suspended particulate matter (TSP)—High volume sampler gravimetric method. |
| **B3** | The environmental authority holder must monitor air quality which must include, but not be limited to:<br>a) continuous monitoring in accordance with condition **B2(b);**<br>b) meteorological monitoring including, but not limited to, temperature, wind speed and direction, as a single location representative of the Bluff Coal Mine;<br>c) monitoring locations must comply with Australian Standard AS/NZS 3580.1.1 Methods for siting and analysis of ambient air. Part 1.1: Guide to siting air monitoring equipment; and,<br>d) investigation of all exceedances to determine the cause of emissions from Bluff Coal Mine.<br>Note: The administering authority will take into consideration any extenuating circumstances prior to determining an appropriate enforcement response in the event condition **C2** is contravened due to unforeseen events including, but not limited to, mischief or wilful damage, power failure or scheduled maintenance. |
| **B4** | When requested by the administering authority, dust and particulate monitoring must be undertaken in accordance with Condition **B2(a)** and **B2(c)** at a location(s) and within a timeframe nominated by the administering authority, and the results must be submitted within **ten (10) business days** to the administering authority following completion of monitoring. |

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| **B5** | If the monitoring, carried out in accordance with conditions **B3** and **B4**, indicates an exceedance of the relevant limits in condition **B2**, then the environmental authority holder must investigate whether the exceedance is due to emissions from the activity. If the mining activity is found to be the cause of the exceedance then the environmental authority holder must immediately implement dust abatement measures so that emissions of dust from the activity do not result in further environmental nuisance. |
| **B6** | **Air Emissions Management Plan**<br>An Air Emissions Management Plan must be developed and implemented for all stages of the authorised mining activities. |
| **B7** | The Air Emissions Management Plan required by condition **B6** must include:<br>a) a preventative management system for $PM_{10}$ and TSP; and<br>b) monitoring program for $PM_{10}$ and TSP between the mine and the township of Bluff. |
| **B8** | An annual report on the Air Emissions Management Plan required by condition **B5** must be submitted to the administering authority with each annual return. The report must include:<br>a) a review of the suitability of the dust management system;<br>b) recommendations or improvements to the Air Emissions Management Plan, including whether additional monitoring locations are required; and<br>c) the results of the monitoring program and the actions taken to reduce potential impacts on sensitive receptors and commercial places from the authorised mining activities, when applicable. |
| **B9** | **Dust management - Coal transport**<br>Take reasonable and practicable **measures** necessary to prevent release of windblown dust from vehicles used for transporting coal extracted from the **site.** Reasonable and practicable **measures** may include but are not limited to:<br>a) wetting down the load prior to transport;<br>b) having the entire load covered with a tarpaulin or similar material for the duration of transport; and<br>c) clearing of spillages from side rails, tail gates and draw bars of vehicles prior to and after delivery. |
| **B10** | **Dust control - trafficable areas**<br>Trafficable areas (including entry and exit points from Capricorn Highway) must be maintained using reasonable and practicable measures necessary to minimise the release of windblown or traffic generated dust to the atmosphere. Reasonable and practicable measures may include but are not limited to:<br>a) keeping surfaces clean;<br>b) sealing with bitumen or other suitable material;<br>c) using water sprays;<br>d) installing an effective truck body and wheel wash facility; and<br>e) using dust suppressants and wind breaks. |
| **B11** | **Odour nuisance**<br>The release of noxious or offensive odour(s) or any other noxious or offensive airborne contaminant(s) resulting from the mining activity must not cause an environmental nuisance at any sensitive or commercial place. |

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| **B12** | When requested by the administering authority, odour monitoring must be undertaken within a timeframe nominated by the administering authority to investigate any complaint of environmental nuisance at any sensitive or commercial place, and the results must be notified within **ten (10) business days** to the administering authority following completion of monitoring. |
| **B13** | If the administering authority determines the odour released to constitute an environmental nuisance, then the environmental authority holder must immediately implement odour abatement measures so that emissions of odour from the activity do not result in further environmental nuisance. |

| **Schedule C: Noise** | |
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| **Condition number** | **Condition** |
| **C1** | **Noise limits**<br>The environmental authority holder must ensure that noise generated by the mining activities does not cause the criteria in **Table C1 – Noise limits** to be exceeded at a sensitive or commercial place. |

**Table C1 – Noise limits**

| **Sensitive Place** | | | | | | |
|---|---|---|---|---|---|---|
| **Noise level dB(A) measured as:** | **Monday to Saturday** | | | **Sundays and Public Holidays** | | |
| | **7am to 6pm** | **6pm to 10pm** | **10pm to 7am** | **9am to 6pm** | **6pm to 10pm** | **10pm to 9am** |
| $LA_{eq, adj\ 15\ mins}$ | 50 | 45 | 40 | 45 | 40 | 35 |
| $LA_{1\ adj\ 15\ mins}$ | 55 | 50 | 45 | 50 | 45 | 40 |
| **Commercial Place** | | | | | | |
| **Noise level dB(A) measured as:** | **Monday to Saturday** | | | **Sundays and Public Holidays** | | |
| | **7am to 6pm** | **6pm to10pm** | **10pm to7am** | **7am to 6pm** | **6pm to 10pm** | **10pm to 7am** |
| $LA_{eq\ adj\ 15\ mins}$ | 55 | 50 | 45 | 50 | 45 | 40 |

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| **C2** | **Monitoring and reporting**<br>The environmental authority holder must conduct noise monitoring to determine compliance with **Table C1: Noise limits**, which must include, but not be limited to:<br>a) continuous noise monitoring, in accordance with relevant Australian Standards and at the locations identified in the Noise Management Plan required by condition **C5**;<br>b) quarterly attended monitoring, at the sensitive place in accordance with the most current version of the administering authority's Noise Monitoring Manual;<br>c) meteorological monitoring including, but not limited to, temperature, wind speed and direction;<br>d) the monitoring locations must comply with the relevant Australian Standards and the most current version of the administering authority's Noise Monitoring Manual; and,<br>e) investigation of all measured exceedances to determine the cause of noise emissions from Bluff Coal Mine.<br>Note: The administering authority will take into consideration any extenuating circumstances prior to determining an appropriate enforcement response in the event condition **C2** is contravened due to unforeseen events including, but not limited to, mischief or wilful damage, power failure or scheduled maintenance. |
| **C3** | Noise monitoring and recording required by condition **C2** must include the following descriptors, characteristics and matters:<br>a) $L_{AN,T}$ (where N equals the statistical levels of 1, 10 and 90 and T = 15 mins);<br>b) background noise $L_{A90}$;<br>c) the level and frequency of occurrence of impulsive or tonal noise and any adjustment and penalties to statistical levels;<br>d) atmospheric conditions including temperature, relative humidity and wind speed and directions;<br>e) location, date and time of monitoring; and<br>f) if the complaint concerns low frequency noise, Max $L_{pLIN,T}$ and one third octave band measurements in dB(LIN) for centre frequencies in the 10 – 200 Hz range. |

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| **C4** | If an exceedance in accordance with condition **C1** and **Table C1: Noise Limits** is identified and attributable to mine noise, the environmental authority holder must notify the administering authority within **ten (10) business days** of receiving the result. |
| **C5** | **Noise Management Plan**<br>A Noise Management Plan must be developed and implemented for all stages of the mining activity.<br>The Noise Management Plan must include:<br>a) a description of noise monitoring locations, including GPS coordinates and monitoring frequency;<br>b) a description of noise monitoring procedures to identify potential noise exceedances;<br>c) noise trigger values to prevent exceedances at sensitive receptors;<br>d) management and mitigation strategies to reduce noise levels at sensitive receptors;<br>e) Trigger Action Response Plan;<br>f) a description of the complaint management and investigation process; and,<br>g) an annual review of the acquired monitoring data and the suitability of the noise management plan. |
| **C6** | **Vibration and airblast overpressure nuisance**<br>The environmental authority holder must ensure that blasting does not cause the limits for peak particle velocity and air blast overpressure in **Table C2 – Blasting noise limits** to be exceeded at a sensitive or commercial place. |

**Table C2 – Blasting limits**

| **Blasting noise limits** | **Sensitive or commercial place limits** | |
|---|---|---|
| | **7am to 6pm** | **6pm to 7am** |
| Airblast overpressure | 115 dB (Linear) Peak for 9 out of 10 consecutive blasts initiated and not greater than 120 dB (Linear) Peak at any time | No blasting |
| Ground vibration peak particle velocity | 5mm/second peak particle velocity for 9 out of 10 consecutive blasts and not greater than 10 mm/second peak particle velocity at any time | No blasting |

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| **C7** | If an exceedance in accordance with **Condition C7** and **Table C2: Blasting limits** is identified, investigated and determined to be representative of mining noise the environmental authority holder must notify the administering authority within **ten (10) business days** of receiving the results. |

| **Schedule D: Water** | |
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| **Condition number** | **Condition** |
| **D1** | Contaminants must not be released to any waters as a result of the authorised mining activities, except as permitted under the conditions of this environmental authority. |
| **D2** | The release of mine affected water to any waters is not permitted. |
| **D3** | The release of mine affected water to internal water management infrastructure installed and operated in accordance with a Water Management Plan that complies with condition **D9** is permitted. |

**Table D1 - REMP quality characteristics**

| Quality Characteristic | Monitoring Frequency |
|---|---|
| Aluminium | During monitoring for REMP |
| Arsenic | |
| Cadmium | |
| Chromium | |
| Copper | |
| Iron | |
| Lead | |
| Mercury | |
| Nickel | |
| Zinc | |
| Boron | |
| Cobalt | |
| Manganese | |
| Molybdenum | |
| Selenium | |
| Silver | |
| Uranium | |
| Vanadium | |
| Ammonia | |
| Nitrate | |
| Petroleum hydrocarbons (C6-C9) | |
| Petroleum hydrocarbons (C10-C36) | |
| Fluoride (total) | |
| Sodium | |
| Total Suspended Solids | |
| Sulphate ($SO^4_2$-) (mg/L) | |
| Electrical conductivity (µS/cm) | |
| pH (pH Unit) | |

***Table D1 - REMP quality characteristics*** *notes:*

*1. All metals and metalloids must be measured as total (unfiltered) and dissolved (filtered).*

**Table D2 - Receiving water upstream background sites and downstream monitoring points**

| Monitoring Points | Receiving Waters Location Description | Latitude (decimal degree, GDA94) | Longitude (decimal degree, GDA94) |
|---|---|---|---|
| **Upstream Background Monitoring Points** | | | |
| CCU | Columba Creek | -23.599 | 149.085 |
| DCU | Duckworth Creek | -23.577 | 149.069 |
| **Downstream Monitoring Points** | | | |
| CCD | Columba Creek | -23.584 | 149.081 |
| RCD | Rufus Creek | -23.584 | 149.098 |
| DCD | Duckworth Creek | -23.571 | 149.109 |

*Note: The data from background monitoring points must not be used where they are affected by releases from other mines.*

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| **D3** | **Receiving Environment Monitoring Program (REMP)**<br>The environmental authority holder must develop and implement a REMP to monitor, identify and describe any adverse impacts to surface water environmental values, quality and flows due to the authorised mining activity. This must include monitoring the effects of the mine on the receiving environment periodically (under natural flow conditions) and while mine affected water is being discharged from the site.<br><br>For the purposes of the REMP, the receiving environment is the waters of the Columba, Duckworth and Rufus Creeks and connected or surrounding waterways within **10km** downstream of the release, including Taunton National Park. The REMP must encompass any sensitive receiving waters or environmental values downstream of the authorised mining activity that will potentially be directly or indirectly affected by an authorised release of mine affected water. |
| **D4** | The REMP must:<br>a) assess the condition or state of receiving waters, including upstream conditions, spatially within the REMP area, considering background water quality characteristics based on accurate and reliable monitoring data that takes into consideration temporal variation (e.g., seasonality);<br>b) be designed to facilitate assessment against water quality objectives for the relevant environmental values that need to be protected;<br>c) include monitoring from background reference sites (e.g., upstream or background) and downstream sites from the release (as a minimum, the locations specified in **Table D2 - Receiving water upstream background sites and downstream monitoring points**);<br>d) specify the frequency and timing of sampling required in order to reliably assess ambient conditions and to provide sufficient data to derive site specific background reference values in accordance with the Queensland Water Quality Guidelines 2006. This must include monitoring during periods of natural flow irrespective of mine or other discharges;<br>e) include monitoring and assessment of dissolved oxygen saturation, temperature and all water quality parameters listed in **Table D1 – REMP quality characteristics**;<br>f) include, where appropriate, monitoring of metals and metalloids in sediments (in accordance with ANZG 2018; Batley and/or most recent version of AS5667.1: Guidance on Sampling Bottom Sediments);<br>g) include, where appropriate, monitoring of macroinvertebrates in accordance with the AusRivas method;<br>h) apply procedures and/or guidelines from ANZG 2018 and other relevant guideline documents;<br>i) describe sampling and analysis methods and quality assurance and control; and<br>j) incorporate stream flow and hydrological information in the interpretations of water quality. |
| **D5** | A report outlining the findings of the REMP, including all monitoring results and interpretations in accordance with conditions **D3** and **D4** must be prepared annually. |
| **D6** | **Water reuse**<br>Mine affected water may be piped or trucked or transferred by some other means that does not contravene the conditions of this environmental authority. |

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| **D7** | **Temporary interference with waterways**<br>Destroying native vegetation, excavating, or placing fill in a watercourse, lake or spring necessary for and associated with mining operations must be undertaken in accordance with Department of Natural Resources, Mines and Energy (or its successor) *Guideline – Activities in a Watercourse, Lake or Spring associated with Mining Activities*. |
| **D8** | **Water Management Plan**<br>A Water Management Plan must be developed and implemented for all stages of the mining activities. |
| **D9** | The Water Management Plan must:<br>a) provide for effective water management of actual and potential environmental impacts resulting from the mining activity; and<br>b) include:<br>i. a study of the source of contaminants; and<br>ii. a water balance model for the site; and<br>iii. a water management system for the site; and<br>iv. an onsite water quality sampling program, including stratification sampling of pits used for water storages; and<br>v. measures to prevent, manage and reduce saline mine drainage ; and<br>vi. measures to maintain water management structures; and<br>vii. contingency procedures for incidents and emergencies; and<br>viii. a program for monitoring and review of the effectiveness of the water management plan and<br>ix. how erosion and sediment control measures detailed in the plan adequately minimise the release of sediment to receiving waters and must include at least the following:<br>1) an assessment of the size and characteristics of all catchment areas; and<br>2) an assessment of relevant properties of soils and waste materials; and<br>3) identification of receiving waters environmental values, water quality objectives and management intent; and<br>4) specification of minimum design criteria for erosion and sediment control structures to achieve the management intent of receiving waters; and<br>5) locations and descriptions of all erosion and sediment control measures; and<br>6) an audit schedule to ensure erosion and sediment control measures are maintained. |
| **D10** | The Water Management Plan must be reviewed by 1 September each calendar year. The review must be documented and:<br>a) include a statement that the Water Management Plan has been reviewed by an AQP; and<br>b) assess the plan against the requirements under condition **D9**; and<br>c) include recommended actions to ensure actual and potential environmental impacts are effectively managed; and<br>d) provide details and timelines of the actions to be taken; and<br>e) identify any amendments to be made to the Water Management Plan. |
| **D11** | A copy of the Water Management Plan must be kept up to date following each annual review. |

| **Schedule E: Groundwater** | |
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| **Condition number** | **Condition** |
| **E1** | **Groundwater**<br>Contaminants from the activity must not be released to groundwater. |
| **E2** | **Groundwater monitoring**<br>Groundwater quality and standing water level must be monitored at the locations and frequencies defined in **Table E1 – Groundwater monitoring locations and frequency** and **Figure 3– Groundwater Bore Monitoring Locations** of this environmental authority for quality characteristics identified in **Table E2 - Groundwater quality triggers and limits**. |

**Table E1 - Groundwater monitoring locations and frequency**

| **Monitoring Point** | **Location** | | **Surface RL (mAHD)[11]** | **Screened Interval (mbgl)** | **Monitoring Frequency** | **Aquifer** |
|---|---|---|---|---|---|---|
| | **Easting (GDA94 – Zone 54)** | **Northing (GDA94 – Zone 54)** | | | | |
| MB05 | 713497 | 7388060 | 188.5 | 86-92 | SWL – monthly for the first 12 months of operation and quarterly thereafter<br>Quality - quarterly | Aries Seam |
| MB08 | 712675 | 7390096 | 180.0 | 69-72 | | Aries Seam |
| MB09 | 712678 | 7390095 | 180.2 | 36-39 | | Regolith |
| MB12 | 712968 | 7387843 | 197.1 | 51-54 | | Overburden |
| MB13 | 713892 | 7388257 | 177.7 | 270.5-273.5 | | Aries Seam |
| MB14 | 713192 | 7389981 | 172.4 | 175.4-178.4 | | Aries Seam |
| VWP2* | 713186 | 7388600 | 154.2<br>148.0<br>147.3<br>151.0 | 81<br>97<br>161.5<br>202 | SWL -quarterly | Aries Seam<br>Interburden/Fault<br>Orion Seam<br>Pisces Sean |

[1] Top of bore casing

**Table E2 - Groundwater quality trigger and contaminant limits**

| Parameter[1] | Units | Contaminant Trigger Value[2] (Compliance) | Interim Contaminant Trigger Value (Interpretation)[8] | | | | | Limit type |
|---|---|---|---|---|---|---|---|---|
| | | MB05 | MB08 | MB09 | MB12 | MB13 | MB14 | |
| Electrical Conductivity | µS/cm | 35600[4] | 35440[6] | 35440[6] | 35440[6] | 35440[6] | 35440[6] | Three (3) consecutive exceedances of the trigger value |
| Total dissolved solids | mg/L | 23180[4] | 23100[6] | 23100[6] | 23100[6] | 23100[6] | 23100[6] | |
| pH | pH Unit | 7.06[8] - 8.03[7] | 7.01[8] - 8.03[7] | 7.01[8] - 8.03[7] | 7.01[8] - 8.03[7] | 7.01[8] - 8.03[7] | 7.01[8] - 8.03[9] | |
| Major anions [Ca, K, Mg, Na] | mg/L | For interpretation purposes only - no specific limit | | | | | | |
| Major cations [$Cl^-$, $OH^-$, $CO_3^{2-}$, $HCO_3^-$] | mg/L | For interpretation purposes only - no specific limit | | | | | | |
| Sulphate as SO4 | mg/L | 1250[4] | 1122[6] | 1122[6] | 1122[6] | 1122[6] | 1122[6] | |
| Aluminium | mg/L | 0.055[7] | 0.055[7] | 0.055[7] | 0.055[7] | 0.055[7] | 0.055[7] | |
| Antimony | mg/L | 0.009[7] | 0.009[7] | 0.009[7] | 0.009[7] | 0.009[7] | 0.009[7] | |
| Arsenic | mg/L | 0.013[7] | 0.013[7] | 0.013[7] | 0.013[7] | 0.013[7] | 0.013[7] | |
| Iron | mg/L | 2.5[5] | 0.055[7] | 0.055[7] | 0.055[7] | 0.055[7] | 0.055[7] | |
| Mercury | mg/L | 0.0006[7] | 0.0006[7] | 0.0006[7] | 0.0006[7] | 0.0006[7] | 0.0006[7] | |
| Molybdenum | mg/L | 0.034[7] | 0.034[7] | 0.034[7] | 0.034[7] | 0.034[7] | 0.034[7] | |
| Selenium | mg/L | 0.05[3] | 0.05[3] | 0.05[3] | 0.05[3] | 0.05[3] | 0.05[3] | |
| Silver | mg/L | 0.005[3] | 0.005[3] | 0.005[3] | 0.005[3] | 0.005[3] | 0.005[3] | |
| TPH C6-C9 Fraction | µg/L | 20[3] | 20[3] | 20[3] | 20[3] | 20[3] | 20[3] | |
| TPH C10-C36 (Sum of Total) (Lab Reported) | µg/L | 240[4] | 428[6] | 428[6] | 428[6] | 428[6] | 428[6] | |

[1] Metals/metalloids must be measured in dissolved fractions
[2] Limits apply to dissolved fractions
[3] Typical limit of reporting. Laboratory analytical method must be suitable to achieve LOR.
[4] bore specific 80th percentile triggers as per 'Bluff Coal Mine Groundwater Trigger development (11 May 2023)'
[5] bore specific 95th percentile triggers as per 'Bluff Coal Mine Groundwater Trigger development (11 May 2023)'
[6] site-wide 80th percentile triggers as per 'Bluff Coal Mine Groundwater Trigger development (11 May 2023)'
[7] for aquatic ecosystem protection, based on Australian and New Zealand Guidelines for Fresh and Marine Water Quality (ANZECC & ARMCANZ, 2000)
[8] Interpretation bore until 1 November 2025.

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| **E3** | By **1 October 2025**, a baseline dataset for monitoring bores MB08, MB09, MB12, MB13, MB14 must be established in accordance with the methodology and matters stated in the guideline "*Using monitoring data to assess groundwater quality and potential environmental impacts"*, February 2021 as amended from time to time. |
| **E4** | By **1 November 2025**, a report must be provided to the administering authority that proposes and justifies limits for bores referenced in **conditions EXX** (inclusive).<br>Limits must be determined:<br>a) for the relevant parameters detailed in **Table E2 – Groundwater quality trigger and contamination limits**<br>b) in accordance the guideline "Using monitoring data to assess groundwater quality and potential environmental impacts", February 2021 as amended from time to time |
| **E5** | Results of monitoring of groundwater from compliance bores identified in **Table E1 - Groundwater monitoring locations and frequency,** must not exceed any of the limits defined in **Table E2 - Groundwater quality triggers and limits** on **three (3)** consecutive occasions. |
| **E6** | If any limit specified in **Table E2 – Groundwater quality triggers and limits** are exceeded at the compliance bores specified in **Table – E1 Groundwater quality monitoring locations and frequency** on **three (3)** consecutive occasions, the holder of the environmental authority must notify the administering authority via WaTERS within **twenty-four (24) hours** of receiving the results. Further advice must be provided in accordance with condition **A11**. |
| **E7** | **Groundwater standing water level monitoring**<br>Groundwater levels when measured at the monitoring locations specified in **Table D7 - Groundwater monitoring locations and frequency** must not exceed the groundwater level trigger change thresholds specified in **Table E3 - Groundwater standing water level trigger threshold.** |

**Table E3 – Groundwater standing water level trigger threshold**

| Monitoring Bore | Reference water level (mAHD) | Level Trigger Threshold (mAHD) | Level Trigger Threshold (m below reference point) [1] |
|---|---|---|---|
| MB05 | 157.2 | 95.3 | 126.6 |
| MB08 | 148.376 | 65.1 | 96.7 |
| MB09 | 154.721 | 138.3 | 163.8 |
| MB12 | 176.5 | 169.1 | 189.7 |
| MB13 | 139.3 | 113.5 | 151.9 |
| MB14 | 147.1 | 56.0 | 81.3 |
| VWP (Aries Seam) | 152.5 | 69.3 | - |

[1] The reference point is top of casing

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| **E8** | If the level trigger thresholds specified in **Table – E3 Groundwater standing water level trigger threshold** are exceeded at the compliance bores specified in **Table – E1 Groundwater quality monitoring locations, frequency**, the holder of the environmental authority must notify the administering authority via WaTERS within **fourteen (14) days** of receiving the results. |
| **E9** | Monitoring and sampling must be carried out in accordance with written procedures that address and comply with the requirements of the latest version of the Queensland Government's 'Monitoring and Sampling Manual – Environmental Protection (Water) Policy 2009' unless otherwise approved by the administering authority. |
| **E10** | The following information must be recorded in relation to all groundwater monitoring:<br>a) the date on which the sample was taken;<br>b) the time at which the sample was taken;<br>c) the monitoring bore at which the sample was taken; and<br>d) the results of all monitoring.<br>*Note: the information required by **Condition E10** is only required for groundwater monitoring that has occurred since November 2021, when the environmental authority holder became Bowen PCI Pty Ltd.* |
| **E11** | **Groundwater Monitoring and Management Program**<br>By 30 June 2024, Aa Groundwater Monitoring and Management Program (GMMP) must be developed, implemented and maintained. |
| **E12** | The GMMP required by **Condition E11** must:<br>a) Describe the existing groundwater conceptual and numerical models;<br>b) identify all potential sources of contamination to groundwater from the activities authorised under this environmental authority;<br>c) identify all environmental values that may be impacted;<br>d) detail groundwater levels in all identified hydrogeological units present across and adjacent to the site to confirm existing groundwater flow paths;;<br>e) ensure potential groundwater impacts due to the activities authorised under this environmental authority are identified, monitored and mitigated;<br>f) ensure adequate groundwater monitoring and data analysis is undertaken to achieve the following objectives:<br>i. detect impacts to groundwater quality due to the activities authorised under this environmental authority;<br>ii. detect changes to groundwater level due to the activities authorised under this environmental authority;<br>iii. determine compliance with **condition E5**<br>iv. determine trends in groundwater quality;<br>v. assess the determine any interaction or impact from groundwater on surface water (groundwater monitoring locations should align with receiving environment surface water quality monitoring locations, if appropriate); and<br>g) document groundwater management and monitoring methodologies undertaken for the duration of all the activities authorised under this environmental authority;<br>h) provide an appropriate quality assurance and quality control program; and<br>i) include a review process to identify improvements to the program that includes addressing any comments provided by the administering authority. |

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| **E13** | The GMMP must be reviewed on an annual basis to determine if it continues to meet the requirements stated in **condition E12**. |
| **E14** | **Groundwater Model**<br>The environmental authority holder must submit an update to the current groundwater model, either every five (5) years commencing 31 December 2028, or if recommended by an AQP in accordance with **Condition E18**, whichever is earliest. |
| **E15** | The groundwater model review in condition **E14** must:<br>a) include all hydrogeological units potentially impacted by the activities authorised under this environmental authority;<br>b) be undertaken in accordance with the most recent version of the '*Australian Groundwater Modelling Guidelines' (2012)*;<br>c) be validated and recalibrated with all recent monitoring data; and<br>d) d) be documented and recorded. |
| **E16** | If the outcomes of the updated groundwater model required by **condition E14** differ from the predictions and associated impacts from the current groundwater model, the environmental authority holder must also submit a report to the administering authority within 28 days of completion of the review under **condition E14** that details the impacts to environmental values that will, or are likely to, occur as a result of the updates to the groundwater model. |
| **E17** | **Annual Groundwater Monitoring Report**<br>An Annual Groundwater Monitoring Report (AGMR) must be completed by **30 September** each year, for the previous calendar year's monitoring results. |
| **E18** | The AGMR required by **condition E17** must include:<br>a) a review of all the groundwater quality and SWL data of all groundwater bores listed within **Table E1 – Groundwater quality monitoring locations and frequency** and **Table E3 – Groundwater standing water level trigger threshold;**<br>b) an assessment of groundwater quality and SWL trends for all data from all groundwater bores listed in **Table E1 – Groundwater quality monitoring locations and frequency** and **Table E3 – Groundwater standing water level trigger threshold;**<br>c) an assessment of any impacts on groundwater level due to the mining activities; and<br>d) comparison with receiving environment surface water quality monitoring results to determine any interaction or impact from groundwater on surface water.<br>e) an assessment on the appropriateness of the current groundwater flow model; and<br>f) f) an assessment on the appropriateness of the groundwater monitoring network. |
| **E19** | **Bore construction, maintenance and decommissioning**<br>the construction, maintenance, operation and decommissioning of each groundwater monitoring bore must be undertaken by an appropriately qualified person in a manner that:<br>a) prevents contaminants entering the groundwater; and<br>b) ensures representative groundwater samples from the target hydrogeological unit; and<br>c) maintains the hydrogeological environment within the hydrogeological unit.<br>*Note: the requirements of **Condition E19** is only required for construction, maintenance, operation and decommissioning of groundwater monitoring bores that have occurred since November 2021, when the environmental authority holder became Bowen PCI Pty Ltd.* |

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| **E20** | A bore report must be kept for each monitoring bore which includes:<br>a) a unique identification reference number and geographic coordinate location;<br>b) construction information including but not limited to the depth of bore, depth and length of casing, depth and length of screening and bore sealing details;<br>c) stratigraphy and target hydrogeological unit of the bore; and<br>d) depth at which groundwater was intercepted and the final standing water level (SWL) after bore development.<br>*Note: the requirements of **Condition 20** is only required for the groundwater monitoring bores that were constructed since November 2021, when the environmental authority holder became Bowen PCI Pty Ltd.* |

| **Schedule F: Waste management** | |
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| **Condition number** | **Condition** |
| **F1** | Unless otherwise permitted by the conditions of this environmental authority or with prior approval from the administering authority and in accordance with a relevant standard operating procedure, waste must not be burnt. |
| **F2** | All regulated waste must be removed and transported from site by a person(s) who has the authority to transport such wastes to a facility that is lawfully able to accept the waste under the *Environmental Protection Act 1994*. |
| **F3** | The environmental authority holder may burn vegetation cleared in the course of carrying out extraction activities provided the activity does not cause environmental harm at any sensitive place or commercial place. |
| **F4** | **Waste Rock and Spoil Disposal Plan**<br>A Waste Rock and Spoil Disposal Plan must be developed and implemented for all stages of the authorised mining activities. |
| **F5** | A Waste Rock and Spoil Disposal Plan must include:<br>a) effective characterisation of the waste rock and spoil to predict under the proposed placement and disposal strategy the quality of runoff and seepage generated concerning potentially environmentally significant effects including salinity, acidity, alkalinity and dissolved metals, metalloids and non-metallic inorganic substances;<br>b) a program of progressive sampling and characterisation to identify dispersive and non-dispersive spoil and the salinity, acid and alkali producing potential and metal concentrations of waste rock;<br>c) a materials balance and disposal plan demonstrating how potentially acid forming and acid forming waste rock will be selectively placed and/or encapsulated to minimise the potential generation of acid mine drainage;<br>d) where relevant, a sampling program to verify encapsulation and/or placement of potentially acid-forming and acid-forming waste rock;<br>e) how often the performance of the plan will be assessed;<br>f) the indicators or other criteria on which the performance of the plan will be assessed;<br>g) a rehabilitation strategy; and<br>h) a periodic review of environmental performance against the plan and continual improvement |
| **F6** | The only contaminant permitted to be released to land is treated sewage effluent in compliance with the release limits stated in **Table F11 - Contaminant release limits to land**. |

**Table F1 - Contaminant release limits to land**

| Contaminant | Unit | Release limit | Limit type | Frequency |
|---|---|---|---|---|
| Nitrogen | mg/L | 30 | Maximum | Monthly |
| Phosphorus | mg/L | 15 | Maximum | Monthly |
| E-coli | Organisms/100ml | 1000 | Maximum | Monthly |
| pH | pH units | 6.0 – 9.0 | Range | Monthly |

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| **F7** | Treated sewage effluent may only be released to land in accordance with the conditions of this environmental authority for the purpose of dust suppression and/or firefighting. |
| **F8** | The application of treated effluent to land must be carried out in a manner such that:<br>a) vegetation is not damaged;<br>b) there is no surface ponding of effluent; and<br>c) there is no run-off of effluent. |
| **F9** | If areas irrigated with effluent are accessible to employees or the general public, prominent signage must be provided advising that effluent is present and care must be taken to avoid consuming or otherwise coming into unprotected contact with the effluent. |
| **F10** | All sewage effluent released to land must be monitored at the frequency and for the parameters specified in **Table F1 - Contaminant release limits to land**. |
| **F11** | The daily volume of effluent release to land must be measured and records kept of the volumes of effluent released. |
| **F12** | When circumstances prevent the irrigation or beneficial reuse of treated sewage effluent such as during or following rain events, waters must be directed to a wet weather storage or alternative measures must be taken to store/lawfully dispose of effluent. |

| **Schedule G: Land and Rehabilitation** | |
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| **Condition number** | **Condition** |
| **G1** | **Preventing contaminant release to land**<br>Contaminants must not be released to land which constitutes nuisance, material or serious environmental harm. |
| **G2** | Land disturbed by mining as depicted in **Attachment 1 – Final disturbance footprint** and **Table G3: Mining Domains** must be rehabilitated to a safe, stable and non-polluting landform, with a self-sustaining vegetation cover in accordance with **Attachment 2 – Rehabilitation Requirements** of this environmental authority. |
| **G3** | Rehabilitation must commence progressively in accordance with the Rehabilitation Management Plan required by condition **G5**. |
| **G4** | **Rehabilitation Management Plan**<br>A Rehabilitation Management Plan must be developed and implemented for all stages of the authorised mining activities. |
| **G5** | A Rehabilitation Management plan must include:<br>a) a map of existing and proposed rehabilitation including a classification of stage (i.e. time since establishment);<br>b) a strategy for progressive rehabilitation, including a progressive rehabilitation schedule;<br>c) details of the design objectives for rehabilitation of each domain to achieve rehabilitation requirements detailed in **Attachment 2 – Rehabilitation Requirements**;<br>d) specification of spoil characteristics, soil analysis and soil separation for use on rehabilitation;<br>e) identification of any topsoil deficit and describe how any deficit will be managed for successful rehabilitation;<br>f) details of rehabilitation methods to be applied to specific domains;<br>g) details of landform design including conceptual end of mine design;<br>h) details of how landform design will be consistent with the surrounding topography;<br>i) identification of planned native vegetation rehabilitation areas and corridors;<br>j) a description of a minimum of **three (3)** reference sites for use in rehabilitation monitoring;<br>k) a description of rehabilitation indicators and how these will be monitored;<br>l) a description of management actions to address unsuccessful rehabilitation or redesign; and<br>m) a post closure management and monitoring program, including:<br>n) operation and maintenance of:<br>(i) wastewater collection and reticulation systems;<br>(ii) wastewater treatment systems;<br>(iii) the groundwater monitoring network;<br>(iv) final cover systems; and<br>(v) vegetation cover.<br>(vi) monitoring of: |

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| | (A) surface water quality;<br>(B) groundwater quality;<br>(C) seepage rates;<br>(D) erosion rates;<br>(E) the integrity and effectiveness of cover systems; and<br>(F) the health and resilience of native vegetation cover. |
| **G6** | **Contaminated Land**<br>Before applying for surrender of a mining lease, the holder must (if applicable) provide to the administering authority a site investigation report under the Act, in relation to any part of the mining lease which has been used for notifiable activities or which the holder is aware is likely to be contaminated land, and also carry out any further work that is required as a result of that report to ensure that the land is suitable for its final land use. |
| **G7** | Before applying for progressive rehabilitation certification for an area, the holder must (if applicable) provide to the administering authority a site investigation report under the Act, in relation to any part of the area the subject of the application which has been used for notifiable activities or which the holder is aware is likely to be contaminated land, and also carry out any further work that is required as a result of that report to ensure that the land is suitable for its final land use under condition **G3**. |
| **G8** | Minimise the potential for contamination of land by hazardous contaminants. |
| **G9** | **Infrastructure**<br>All infrastructure, constructed by or for the environmental authority holder during the approved mining activities, including water storage structures, must be removed from the site prior to surrender, except where agreed in writing by the post mining land owner. This exception is not applicable where the land owner is also the environmental authority holder. |
| **G10** | **Chemicals and flammable or combustible liquids**<br>All explosives, hazardous chemicals, corrosive substances, toxic substances, gases and dangerous goods must be stored and handled in accordance with the latest edition of AS1940—The storage and handling of flammable and combustible liquids, AS3833-The storage and handling of mixed classes of dangerous goods, in packages and intermediate bulk containers and AS4452-The storage and handling of toxic substances.<br>Where no relevant Australian standard exists, store such materials within an effective on-site containment system. |
| **G11** | **Biodiversity offsets – Queensland Biodiversity Offset Policy**<br>Conditions **G12** and **G13** apply only to the Bluff Coal Mine Stage One Offsets. |
| **G12** | The environmental authority holder must deliver an offset for impacts on applicable state significant biodiversity values, in accordance with Queensland Biodiversity Offset Policy. The biodiversity offset must be consistent with the requirements for an offset as identified in the Biodiversity Offset Strategy (as per condition **G13**) and must be provided:<br>a) prior to impacting on state significant biodiversity values; or<br>b) where a land based offset is to be provided, within **twelve (12) months** of the later of either of the following<br>(i) the date of issue of this environmental authority; or<br>(ii) the relevant stage identified in the Biodiversity Offset Strategy submitted under condition **G13**; or |

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| | c) where an offset payment is to be provided, within **four (4) months** of the later of either of the following<br>(i) the date of issue of this environmental authority; or<br>(ii) the relevant stage identified in the Biodiversity Offset Strategy submitted under conditions **G13**. |
| **G13** | A Biodiversity Offset Strategy must be developed and submitted to the administering authority within either **thirty (30) days**, or a lesser period agreed to by the administering authority, prior to impacting on the applicable state significant biodiversity values outlined in **Table G1 - Significant residual impacts to State Significant Biodiversity Values (SSBV) – Stage One, Figure 1a – Impact on SSBV (flora) – Bluff Coal Mine Stage One** and **Figure 1b - Impact on SSBV (fauna) – Bluff Coal Mine Stage One**. |
| **G14** | **Biodiversity offsets – Queensland Environmental Offsets Policy**<br>Conditions **F16** to **F21** apply only to the Bluff Coal Mine Stage Two Offsets. |
| **G15** | Significant residual impacts to prescribed environmental matters, are only authorised to occur if:<br>a) for the prescribed environmental matters specified in **Table G2 – Significant residual impacts to prescribed environmental matters**, the impacts occur at the location(s) specified for that prescribed environmental matter in **Figure 2a – Impact on MSES – Bluff Coal Mine Stage Two**.<br>b) for the prescribed environmental matter specified in **Table G2 – Significant residual impacts to prescribed environmental matters**, the impacts do not exceed the maximum extent of impact specified for that prescribed environmental matter. |
| **G16** | Records demonstrating that each impact to a prescribed environmental matter not listed in **Table FG – Significant residual impacts to prescribed environmental matters** did not, or is not likely to, result in a significant residual impact to that matter must be:<br>a) completed by an appropriately qualified person; and<br>b) kept for the life of the environmental authority. |
| **G17** | An environmental offset made in accordance with *the Environmental Offsets Act 2014* and Queensland Environmental Offsets Policy, as amended from time to time, must be undertaken for the maximum extent of impact to each prescribed environmental matter authorised in **Table G2 - Significant residual impacts to prescribed environmental matters**, unless a lesser extent of the impact has been approved in accordance with condition **G19**. |
| **G18** | Prior to the commencement of any impacts to a prescribed environmental matter for which an environmental offset is required by condition **G17**, a report that contains an analysis of the estimated maximum extent of impact to each prescribed environmental matter must be provided to the administering authority. |
| **G19** | The report required by condition **G18** must be approved by the administering authority before the notice of election, if applicable, is given to the administering authority. |

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| **G20** | The notice of election for the environmental offset required by condition **G19**, if applicable, must be provided to the administering authority no less than **three (3) months** before the proposed commencement of the significant residual impacts for which the environmental offset is required, unless a lesser timeframe is agreed to by the administering authority. |

**Table G1 - Significant residual impacts to State Significant Biodiversity Values (SSBV) – Stage One**

| SSBV | Stage One extent of impact (ha) mapped RE | Location of Impact |
|---|---|---|
| **Regulated Vegetation** | | |
| Regional ecosystems within the defined distance from the defining banks of a relevant watercourse on the vegetation management watercourse map: Stream Order 1 | 11.9 | Western dump, pit, western track, and ROM<br>Refer to Figure 1a |
| Regional ecosystems within the defined distance from the defining banks of a relevant watercourse on the vegetation management watercourse map: Stream Order 2 | 4.7 | Western dump<br>Refer to Figure 1a |
| Connectivity area:<br>• 11.3.25<br>• 11.5.2<br>• 11.7.2<br>TOTAL | <br>9.3<br>98.1<br>94.8<br>**202.2** | Western dump, pit and western track<br>Refer to Figure 1a and 1b |
| **Protected flora habitat** | | |
| Habitat for a plant that is Near Threatened wildlife - native frangipani (*Cerbera dumicola*) | 30.2 | Western dump<br>Refer to Figure 1a |
| Habitat for a plant that is Near Threatened wildlife - large-fruited trefoil (*Desmodium macrocarpum*) | 78.6 | Western dump, pit and western track<br>Refer to Figure 1a |
| **Protected fauna habitat** | | |
| Habitat for an animal that is Near Threatened wildlife – golden-tailed gecko (*Strophurus taenicauda*) | 107.9 | Western dump and western track<br>Refer to Figure 1b |
| Habitat for an animal that is Near Threatened wildlife – little pied bat (*Chalinolobus picatus*) | 199 | Western dump, pit and western track<br>Refer to Figure 1b |
| **Protected fauna habitat (to be offset under EPBC Act)** | | |
| Habitat for an animal that is Vulnerable wildlife – Squatter pigeon (*Geophaps scripta scripta*) | 65 | - |
| Habitat for an animal that is Vulnerable wildlife – Koala (*Phascolarctos cinereus*) | 65 | - |

**Table G2 – Significant residual impacts to prescribed environmental matters – Stage Two**

| Prescribed environmental matters | Maximum extent of impact (ha) – Stage Two | Location of impact |
|---|---|---|
| **Regulated vegetation** | | |
| Regional ecosystems within the defined distance from the defining banks of a relevant watercourse on the vegetation management watercourse map: RE11.5.2 | 12 | Western dump, eastern dump, and pit<br>Refer to Figure 2a |
| Regional ecosystems within the defined distance from the defining banks of a relevant watercourse on the vegetation management watercourse map: RE11.7.2 | 13 | Western dump<br>Refer to Figure 2a |
| Connectivity area:<br>• 11.3.25<br>• 11.5.2<br>• 11.5.2a<br>• 11.5.3<br>• 11.7.2<br>TOTAL | <br>2<br>60<br>12.5<br>54.5<br>114<br>**243** | Western dump, eastern dump, and pit<br>Refer to Figure 2a |
| **Protected fauna habitat (to be offset under EPBC Act)** | | |
| Habitat for an animal that is Vulnerable wildlife – Squatter pigeon (*Geophaps scripta*) | 185 | - |
| Habitat for an animal that is Vulnerable wildlife – Koala (*Phascolarctos cinereus*) | 185 | - |

**Table G3 – Mining Domains**

| Domain | Area (Ha) | Location |
|---|---|---|
| Mine Industrial Area and Infrastructure Areas | 102.6 | Attachment 1 – Final disturbance footprint |
| Overburden Dumps (out-of-pit [east and west] overburden dumps and in-pit overburden dump) | 351.5 | |
| Water Management Infrastructure | 12.4 | |
| | | |
| Residual void | 48.8 | |
| Total disturbance extent (including the Residual Void) | 515.3 | |

| **Schedule H: Regulated Structures (Dams and Levees)** | |
|---|---|
| **Condition number** | **Condition** |
| **H1** | The consequence category of any structure must be assessed by a suitably qualified and experienced person in accordance with the *Manual for Assessing Consequence Categories and Hydraulic Performance of Structures* (EM635) at the following times:<br>a) prior to the design and construction of the structure; or<br>b) prior to any change in its purpose or the nature of its stored contents. |
| **H2** | A consequence assessment report and certification must be prepared for each structure assessed and the report may include a consequence assessment for more than one structure. |
| **H3** | Certification must be provided by the suitably qualified and experienced person who undertook the assessment, in the form set out in the *Manual for Assessing Consequence Categories and Hydraulic Performance of Structures* (EM635). |
| **H4** | **Design and construction of a regulated structure**<br>All regulated structures must be designed by, and constructed[2] under the supervision of, a suitably qualified and experienced person in accordance with the requirements of the *Manual for Assessing Consequence Categories and Hydraulic Performance of Structures* (EM635). |
| **H5** | Construction of a regulated structure is prohibited unless the holder has submitted a consequence category assessment report and certification to the administering authority has been certified by a suitably qualified and experienced person for the design and design plan and the associated operating procedures in compliance with the relevant condition of this authority. |
| **H6** | Certification must be provided by the suitably qualified and experienced person who oversees the preparation of the design plan in the form set out in the *Manual for Assessing Consequence Categories and Hydraulic Performance of Structures* (EM635), and must be recorded in the Regulated Dams/Levees register. |
| **H7** | Regulated structures must:<br>a) be designed and constructed in accordance with and conform to the requirements of the *Manual for Assessing Consequence Categories and Hydraulic Performance of Structures* (EM635);<br>b) be designed and constructed with due consideration given to ensuring that the design integrity would not be compromised on account of:<br>(i) floodwaters from entering the regulated dam from any watercourse or drainage line; and<br>(ii) wall failure due to erosion by floodwaters arising from any watercourse or drainage line.<br>c) for regulated dams that are dams associated with a failure to contain – seepage: have the floor and sides of the dam designed and constructed to prevent or minimise the passage of the wetting front and any entrained contaminants through either the floor or sides of the dam during the operational life of the dam and for any period of decommissioning and rehabilitation of the dam. |

[2] Certification of design and construction may be undertaken by different persons.

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| **H8** | Certification by the suitably qualified and experienced person who supervises the construction must be submitted to the administering authority on the completion of construction of the regulated structure, and state that:<br>a) the 'as constructed' drawings and specifications meet the original intent of the design plan for that regulated structure; and<br>b) construction of the regulated structure is in accordance with the design plan. |
| **H9** | **Operation of a regulated structure**<br>Operation of a regulated structure is prohibited unless the holder has submitted to the administering authority:<br>a) one paper copy and one electronic copy of the design plan and certification of the 'design plan' in accordance with condition **G6**;<br>b) a set of 'as constructed' drawings and specifications;<br>c) certification of those 'as constructed drawings and specifications' in accordance with condition **H8**;<br>d) where the regulated structure is to be managed as part of an integrated containment system for the purpose of sharing the DSA volume across the system, a copy of the certified system design plan.<br>e) the requirements of this authority relating to the construction of the regulated structure have been met;<br>f) the holder has entered the details required under this authority, into a Register of Regulated Dams; and<br>g) there is a current operational plan for the regulated structures. |
| **H10** | **Mandatory reporting level**<br>Conditions **G11 to G13** inclusive only apply to Regulated Structures which have not been certified as low consequence category for 'failure to contain – overtopping'. |
| **H11** | The Mandatory Reporting Level (MRL) must be marked on a regulated dam in such a way that during routine inspections of that dam, it is clearly observable. |
| **H12** | The environmental authority holder must, as soon as practical and within **forty-eight (48) hours** of becoming aware, notify the administering authority when the level of the contents of a regulated dam reaches the MRL. |
| **H13** | The environmental authority holder must, immediately on becoming aware that the MRL has been reached, act to prevent the occurrence of any unauthorised discharge from the regulated dam. The holder must record any changes to the MRL in the Register of Regulated Structures. |
| **H14** | **Design storage allowance**<br>The environmental authority holder must assess the performance of each regulated dam or linked containment system over the preceding November to May period based on actual observations of the available storage in each regulated dam or linked containment system taken prior to **1 July** of each year. |
| **H15** | By **1 November** of each year, storage capacity must be available in each regulated dam (or network of linked containment systems with a shared DSA volume), to meet the Design Storage Allowance (DSA) volume for the dam (or network of linked containment systems). |

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| **H16** | The environmental authority holder must, as soon as possible and within **forty-eight (48) hours** of becoming aware that the regulated dam (or network of linked containment systems) will not have the available storage to meet the DSA volume on **1 November** of any year, notify the administering authority. |
| **H17** | The environmental authority holder must, immediately on becoming aware that a regulated dam (or network of linked containment systems) will not have the available storage to meet the DSA volume on **1 November** of any year, act to prevent the occurrence of any unauthorised discharge from the regulated dam or linked containment systems. |
| **H18** | **Annual inspection report**<br>Each regulated structure must be inspected each calendar year by a suitably qualified and experienced person. |
| **H19** | At each annual inspection, the condition and adequacy of all components of the regulated structure must be assessed and a suitably qualified and experienced person must prepare an annual inspection report containing details of the assessment and include recommended actions to ensure the integrity of the regulated structure. |
| **H20** | The suitably qualified and experienced person who prepared the annual inspection report must certify the report in accordance with the *Manual for Assessing Consequence Categories and Hydraulic Performance of Structures* (EM635). |
| **H21** | The environmental authority holder must:<br>a) within **twenty (20) business days** of receipt of the annual inspection report, provide to the administering authority:<br>(i) The recommendations section of the annual inspection report;<br>(ii) If applicable, any actions being taken in response to those recommendations; and<br>b) if, following receipt of the recommendations and (if applicable) actions, the administering authority requests a full copy of the annual inspection report from the holder, provide this to the administering authority within **ten (10) business days** of receipt of the request. |
| **H22** | **Transfer arrangements**<br>The environmental authority holder must provide a copy of any reports, documentation and certifications prepared under this authority, including but not limited to any Register of Regulated Structures, consequence assessment, design plan and other supporting documentation, to a new holder on transfer of this authority. |
| **H23** | **Decommissioning and rehabilitation**<br>Dams must not be abandoned but be either:<br>a) decommissioned and rehabilitated to achieve compliance with condition **G24**; or<br>b) be left in-situ for a beneficial use(s) provided that:<br>i) it no longer contains contaminants that will migrate into the environment;<br>ii) it contains water of a quality that is demonstrated to be suitable for its intended beneficial use(s); and<br>iii) the administering authority, the environmental authority holder and the landholder agree in writing that the dam will be used by the landholder following the cessation of the environmentally relevant activity(ies). |

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| **H24** | After decommissioning, all significantly disturbed land caused by the carrying out of the environmentally relevant activity(ies) must be rehabilitated to meet the following final acceptance criteria:<br>a) the landform is safe for humans and fauna;<br>b) the landform is stable with no subsidence or erosion gullies for at least three (3) years;<br>c) any contaminated land (e.g. contaminated soils) is remediated and rehabilitated<br>d) not allowing for acid mine drainage; or<br>e) there is no ongoing contamination to waters (including groundwater);<br>f) rehabilitation is undertaken in a manner such that any actual or potential acid sulfate soils on the area of significant disturbance are treated to prevent or minimise environmental harm in accordance with the *Instructions for the treatment and management of acid sulfate soils* (2001)<br>g) all significantly disturbed land is reinstated to the pre-disturbed soil suitability class;<br>h) for land that is not being cultivated by the landholder:<br>(i) groundcover, that is not a declared pest species is established and self-sustaining<br>(ii) vegetation of similar species richness and species diversity to pre-selected analogue sites is established and self-sustaining, and<br>(iii) the maintenance requirements for rehabilitated land is no greater than that required for the land prior to its disturbance caused by carrying out the petroleum activity(ies).<br>i) for land that is to be cultivated by the landholder, cover crop is revegetated, unless the landholder will be preparing the site for cropping within **three (3) months** of mining activities being completed. |
| **H25** | **Register of Regulated Dams**<br>A Register of Regulated Dams must be established and maintained by the holder for each regulated dam. |
| **H26** | The environmental authority holder must provisionally enter the required information in the Register of Regulated Dams when a design plan for a regulated dam is submitted to the administering authority. |
| **H27** | The environmental authority holder must make a final entry of the required information in the Register of Regulated Dams once compliance with condition **G9** has been achieved. |
| **H28** | The environmental authority holder must ensure that the information contained in the Register of Regulated Dams is current and complete on any given day. |
| **H29** | All entries in the Register of Regulated Dams must be approved by the chief executive officer for the environmental authority holder, or their delegate, as being accurate and correct. |
| **H30** | The environmental authority holder must, at the same time as providing the annual return, supply to the administering authority a copy of the records contained in the Register of Regulated Dams, in the electronic format required by the administering authority. |

**END OF CONDITIONS**

## Definitions

Words and phrases used throughout this environmental authority are defined below. Where a definition for a term used in this environmental authority is not provided within this environmental authority, but is provided in the *Environmental Protection Act 1994* (the Act) or subordinate legislation, the definition in the Act or subordinate legislation must be used.

**'the Act'** means the *Environmental Protection Act 1994*.

**'acid rock drainage'** means any contaminated discharge emanating from a mining activity formed through a series of chemical and biological reactions when geological strata is disturbed and exposed to oxygen and moisture.

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

**'annual inspection report'** means an assessment prepared by a suitably qualified and experienced person containing details of the assessment against the most recent consequence assessment report and design plan (or system design plan);

a) against recommendations contained in previous annual inspections reports;

b) against recognised dam safety deficiency indicators;

c) for changes in circumstances potentially leading to a change in consequence category;

d) for conformance with the conditions of this authority;

e) for conformance with the 'as constructed' drawings;

f) for the adequacy of the available storage in each regulated dam, based on an actual observation or observations taken after 31 May each year but prior to 1 November of that year, of accumulated sediment, state of the containment barrier and the level of liquids in the dam (or network of linked containment systems);

g) for evidence of conformance with the current operational plan.

**'annual exceedance probability'** or '**AEP'** means the probability that at least one event in excess of a particular magnitude will occur in any given year.

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

**'assessed'** or '**assessment'** by a suitably qualified and experienced person in relation to a consequence assessment of a dam, means that a statutory declaration has been made by that person and, when taken together with any attached or appended documents referenced in that declaration, all of the following aspects are addressed and are sufficient to allow an independent audit of the assessment:

a) exactly what has been assessed and the precise nature of that determination;

b) the relevant legislative, regulatory and technical criteria on which the assessment has been based;

c) the relevant data and facts on which the assessment has been based, the source of that material, and the efforts made to obtain all relevant data and facts; and

d) the reasoning on which the assessment has been based using the relevant data and facts, and the relevant criteria.

**'authority'** means this environmental authority , authorised under Chapter 5 of the Act.

**'background'**, with reference to the water schedule means the average of samples taken prior to the commencement of mining from the same waterway that the current sample has been taken.

**'blasting'** means the use of explosive materials to fracture:

a) rock, coal and other minerals for later recovery; or

b) structural components or other items to facilitate removal from a site or for reuse.

'**calendar month'** means the period from a day of one month to the corresponding day for the next month if such exists or if not to the last day of the next month (e.g. as from 3 January to 3 February or from 31 January to 28 (or 29) February).

**'certification'** means assessment and approval must be undertaken by a suitably qualified and experienced person in relation to any assessment or documentation required by this Manual, including design plans, 'as constructed' drawings and specifications, construction, operation or an annual report regarding regulated structures, undertaken in accordance with the Board of Professional Engineers of Queensland Policy Certification by RPEQs (ID: 1.4 (2A)).

**'certifying, certify or certified'** have a corresponding meaning as 'certification'.

**'chemical'** means:

a) an agricultural chemical product or veterinary chemical product within the meaning of the Agricultural and *Veterinary Chemicals Code Act 1994* (Commonwealth); or

b) a dangerous good under the Australian Code for the Transport of Dangerous Goods by Road and Rail approved by the Australian Transport Council; or

c) a lead hazardous substance within the meaning of the *Workplace Health and Safety Regulation 1997*;

d) a drug or poison in the Standard for the Uniform Scheduling of Drugs and Poisons prepared by the Australian Health Ministers' Advisory Council and published by the Commonwealth; or

e) any substance used as, or intended for use as:

   (i) a pesticide, insecticide, fungicide, herbicide, rodenticide, nematicide, miticide, fumigant or related product; or

   (ii) a surface active agent, including, for example, soap or related detergent; or

   (iii) a paint solvent, pigment, dye, printing ink, industrial polish, adhesive, sealant, food additive, bleach, sanitiser, disinfectant, or biocide; or

   (iv) a fertiliser for agricultural, horticultural or garden use; or

   (v) a substance used for, or intended for use for mineral processing or treatment of metal, pulp and paper, textile, timber, water or wastewater; or

   (vi) manufacture of plastic or synthetic rubber.

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

**'complaint'** means:

a) a statement, made by a complainant, expressing dissatisfaction; or,
b) a formal allegation against the environmental authority holder.

**'construction'** or **'constructed'** in relation to a regulated structure includes building a new regulated structure and lifting or otherwise modifying an existing regulated structure, but does not include investigations and testing necessary for the purpose of preparing a design plan.

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

**'consequence category'** means a category, either low, significant or high, into which a dam is assessed as a result of the application of tables and other criteria in the *Manual for Assessing Consequence Categories and Hydraulic Performance of Structures* (EM635).

**'dam'** means a land-based structure or a void that contains, diverts or controls flowable substances, and includes any substances that are thereby contained, diverted or controlled by that land-based structure or void and associated works.

**'dam crest volume'** means the volume of material (liquids and/or solids) that could be within the walls of a dam at any time when the upper level of that material is at the crest level of that dam. That is, the instantaneous maximum volume within the walls, without regard to flows entering or leaving (for example, via spillway).

**'design plan'** is a document setting out how all identified consequence scenarios are addressed in the planned design and operation of a regulated structure.

**'design storage allowance'** or **'DSA'** means an available volume, estimated in accordance with the Manual for Assessing Consequence Categories and Hydraulic Performance of Structures (EM635) published by the administering authority, must be provided in a dam as at 1 November each year in order to prevent a discharge from that dam to an annual exceedance probability (AEP) specified in that Manual.

**'designer'** for the purposes of a regulated dam, means the certifier of the design plan for the regulated dam.

**'disturbance'** of land includes:

a) compacting, removing, covering, exposing or stockpiling of earth;

b) removal or destruction of vegetation or topsoil or both to an extent where the land has been made susceptible to erosion;

c) carrying out mining within a watercourse, waterway, wetland or lake;

d) the submersion of areas by tailings or hazardous contaminant storage and dam/structure walls;

e) temporary infrastructure, including any infrastructure (roads, tracks, bridges, culverts, dam/structures, bores, buildings, fixed machinery, hardstand areas, airstrips, helipads etc) which is to be removed after the mining activity has ceased; or

f) releasing of contaminants into the soil, or underlying geological strata.

However, the following areas are not included when calculating areas of 'disturbance':

a) areas off lease (e.g. roads or tracks which provide access to the mining lease);

b) areas previously disturbed which have achieved the rehabilitation outcomes;

c) by agreement with the administering authority, areas previously disturbed which have not achieved the rehabilitation objective(s) due to circumstances beyond the control of the mine operator (such as climatic conditions);

d) areas under permanent infrastructure. Permanent infrastructure includes any infrastructure (roads, tracks, bridges, culverts, dam/structures, bores, buildings, fixed machinery, hardstand areas, airstrips, helipads etc) which is to be left by agreement with the landowner.

e) disturbance that pre-existed the grant of the tenure.

**'EC'** means electrical conductivity.

**'effluent'** treated waste water released from sewage treatment plants.

**'emergency action plan'** means documentation forming part of the operational plan held by the holder or a nominated responsible officer, that identifies emergency conditions that sets out procedures and actions that will be followed and taken by the dam owner and operating personnel in the event of an emergency. The actions are to minimise the risk and consequences of failure, and ensure timely warning to downstream communities and the implementation of protection measures. The plan must require dam owners to annually update contact.

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

**'ha'** means hectares.

**'hazard category'** means a category, either low significant or high, into which a dam is assessed as a result of the application of tables and other criteria in *Manual for Assessing Hazard Categories and Hydraulic Performance of Dams* (EM635).

**'holder'** means any person who is the holder of, or is acting under, this environmental authority.

**'hydraulic performance'** means the capacity of a regulated dam to contain or safely pass flowable substances based on the design criteria specified for the relevant consequence category in the *Manual for Assessing Consequence Categories and Hydraulic Performance of Structures* (EM635).

**'infrastructure'** means water storage dams, levees, roads and tracks, buildings and other structures built for the purpose of the mining activity.

**'LAeq, adj 15 mins'** means the average equivalent A-weighted sound pressure level, adjusted for noise character and measured over a time period of not less than 15 minutes. **'land'** in the 'land schedule' of this document means land excluding waters and the atmosphere, that is, the term has a different meaning from the term as defined in the *Environmental Protection Act 1994*. For the purposes of the *Acts Interpretation Act 1954*, it is expressly noted that the term 'land' in this environmental authority relates to physical land and not to interests in land.

**'land use'** –means the selected post mining use of the land, which is planned to occur after the cessation of mining operations.

**'LpLIN,T'** means linear sound pressure over a period of time.

**'leachate'** means a liquid that has passed through or emerged from, or is likely to have passed through or emerged from, a material stored, processed or disposed of at the operational land which contains soluble, suspended or miscible contaminants likely to have been derived from the said material.

**'levee'** means an embankment that only provides for the containment and diversion of stormwater or flood flows from a contributing catchment, or containment and diversion of flowable materials resulting from releases from other works, during the progress of those stormwater or flood flows or those releases; and does not store any significant volume of water or flowable substances at any other times.

**'low consequence dam'** means any dam that is not a high or significant consequence category as assessed using the *Manual for Assessing Consequence Categories and Hydraulic Performance of Structures* (EM635).

**'m'** means metres.

**'mandatory reporting level'** or **'MRL'** means a warning and reporting level determined in accordance with the criteria in the *Manual for Assessing Consequence Categories and Hydraulic Performance of Structures* (EM635) published by the administering authority.

**'manual'** means the *Manual for Assessing Consequence Categories and Hydraulic Performance of Structures* (EM635) published by the administering authority.

**'maximum extent of impact'** means the total, cumulative, residual extent and duration of impact to a prescribed environmental matter that will occur over a project's life after all reasonable avoidance and reasonable on-site mitigation measures have been, or will be, undertaken.

**'mine affected water':**

a) means the following types of water:

   i) pit water, tailings dam water, processing plant water;

   ii) water contaminated by a mining activity which would have been an environmentally relevant activity under Schedule 2 of the *Environmental Protection Regulation* 2008 if it had not formed part of the mining activity;

   iii) rainfall runoff which has been in contact with any areas disturbed by mining activities which have not yet been rehabilitated, excluding rainfall runoff discharging through release points associated with erosion and sediment control structures that have been installed in accordance with the standards and requirements of an Erosion and Sediment Control Plan to manage such runoff, provided that this water has not been mixed with pit water, tailings dam water, processing plant water or workshop water;

   iv) groundwater which has been in contact with any areas disturbed by mining activities which have not yet been rehabilitated;

   v) groundwater from the mine's dewatering activities;

   vi) a mix of mine affected water (under any of paragraphs i)-v) and other water.

b) does not include surface water runoff which, to the extent that it has been in contact with areas disturbed by mining activities that have not yet been completely rehabilitated, has only been in contact with:

i) land that has been rehabilitated to a stable landform and either capped or revegetated in accordance with the acceptance criteria set out in the environmental authority but only still awaiting maintenance and monitoring of the rehabilitation over a specified period of time to demonstrate rehabilitation success; or

ii) land that has partially been rehabilitated and monitoring demonstrates the relevant part of the landform with which the water has been in contact does not cause environmental harm to waters or groundwater, for example:

a. areas that are been capped and have monitoring data demonstrating hazardous material adequately contained with the site;

b. evidence provided through monitoring that the relevant surface water would have met the water quality parameters for mine affected water release limits in this environmental authority, if those parameters had been applicable to the surface water runoff; or

iii) both.

**'mining activity'** means

a) an activity that is an authorised activity for a mining tenement under the *Mineral Resources Act 1989*; or,
b) another activity that is authorised under the *Mineral Resources Act 1989* that grants rights over land.

**'measures'** includes any measures to prevent or minimise environmental impacts of the mining activity such as bunds, silt fences, diversion drains, capping, and containment systems.

**'modification'** or **'modifying'** (see definition of 'construction').

**'natural flow'** means the flow of water through waters caused by nature.

**'non-polluting'** means having no adverse impacts upon the receiving environment.

**'operational plan'** for a regulated structure includes:

a) (normal operating procedures and rules (including clear documentation and definition of process inputs in the DSA allowance);

b) contingency and emergency action plans including operating procedures designed to avoid and/or minimise environmental impacts including threats to human life resulting from any overtopping or loss of structural integrity of the regulated structure.

**'peak particle velocity (ppv)'** means a measure of ground vibration magnitude which is the maximum rate of change of ground displacement with time, usually measured in millimetres/second (mm/s).

**'receiving environment'** in relation to an activity that causes or may cause environmental harm, means the part of the environment to which the harm is, or may be, caused. The receiving environment includes (but is not limited to):

a) a watercourse;

b) groundwater; and

c) an area of land that is not specified as a disturbed area in Attachment 1 – Final disturbance footprint of this environmental authority.

The term does not include land that is specified as a disturbed area in Attachment 1 – Final disturbance footprint of this environmental authority.

**'receiving waters'** means the waters into which this environmental authority authorises releases of mine affected water.

**'Register of Regulated Dams'** includes:

a) date of entry in the register;

b) name of the dam, its purpose and intended/actual contents;

c) the consequence category of the dam as assessed using *the Manual for Assessing Consequence Categories and Hydraulic Performance of Structures* (EM635);

d) dates, names, and reference for the design plan plus dates, names, and reference numbers of all document(s) lodged as part of a design plan for the dam;

e) name and qualifications of the suitably qualified and experienced person who certified the design plan and 'as constructed' drawings;

f) for the regulated dam, other than in relation to any levees:

   i) the dimensions (metres) and surface area (hectares) of the dam measured at the footprint of the dam;

   ii) coordinates (latitude and longitude in GDA94) within five metres at any point from the outside of the dam including its storage area;

   iii) dam crest volume (megalitres);

   iv) spillway crest level (metres AHD);

   v) maximum operating level (metres AHD);

   vi) storage rating table of stored volume versus level (metres AHD);

   vii) design storage allowance (megalitres) and associated level of the dam (metres AHD);

   viii) mandatory reporting level (metres AHD);

g) the design plan title and reference relevant to the dam;

h) the date construction was certified as compliant with the design plan;

i) the name and details of the suitably qualified and experienced person who certified that the constructed dam was compliant with the design plan;

j) details of the composition and construction of any liner;

k) the system for the detection of any leakage through the floor and sides of the dam;

l) dates when the regulated dam underwent an annual inspection for structural and operational adequacy, and to ascertain the available storage volume for 1 November of any year;

m) dates when recommendations and actions arising from the annual inspection were provided to the administering authority; and

n) dam water quality as obtained from any monitoring required under this authority as at 1 November of each year.

**'regulated dam'** means any dam in the significant or high consequence category as assessed using the *Manual for Assessing Consequence Categories and Hydraulic Performance of Structures* (EM635) published by the administering authority.

**'regulated structure'** includes land-based containment structures, levees, bunds and voids, but not a tank or container designed and constructed to an Australian Standard that deals with strength and structural integrity.

**'rehabilitation'** the process of reshaping and revegetating land to restore it to a stable landform

**'release event'** means a surface water discharge from mine affected water storages or contaminated areas on the licensed place.

**'RL'** means reduced level, relative to mean sea level as distinct from depths to water.

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

**'residual void'** means a void approved to remain post-mining.

**'saline mine drainage'** means drainage that is characterised by high sulfate salinity but near-neutral pH and low concentrations of heavy metals.

**'sensitive place'** means:

a) a dwelling, residential allotment, mobile home or caravan park, residential marina or other residential premises; or

b) a motel, hotel or hostel; or

c) an educational institution; or

d) a medical centre or hospital; or

e) a protected area under the Nature Conservation Act 1992, the Marine Parks Act 1992 or a World Heritage Area; or

f) a public park or gardens.

*Note: The definition of 'sensitive place' and 'commercial place' is based on Schedule 1 of* Environmental Protection Policy (Noise) 2008*. That is, a sensitive place is inside or outside on a dwelling, library & educational institution, childcare or kindergarten, school or playground, hospital, surgery or other medical institution, commercial & retail activity, protected area or an area identified under a conservation plan under* Nature Conservation Act 1992 *as a critical habitat or an area of major interest, marine park under* Marine Parks Act 2004*, park or garden that is outside of the mining lease and open to the public for the use other than for sport or organised entertainment. A commercial place is inside or outside a commercial or retail activity.*

*A mining camp (i.e., accommodation and ancillary facilities for mine employees or contractors or both, associated with the mine the subject of the environmental authority) is not a sensitive place for that mine or mining project, whether or not the mining camp is located within a mining tenement that is part of the mining project the subject of the environmental authority. For example, the mining camp might be located on neighbouring land owned or leased by the same company as one of the holders of the environmental authority for the mining project, or a related company. Accommodation for mine employees or contractors is a sensitive place if the land is held by a mining company or related company, and if occupation is restricted to the employees, contractors and their families for the particular mine or mines which are held by the same company or a related company.*

*For example, a township (occupied by the mine employees, contractors and their families for multiple mines that are held by different companies) would be a sensitive place, even if part or all of the township is constructed on land owned by one or more of the companies.*

**'significant residual impact'** has the meaning in section 8 *Environmental Offsets Act 2014*.

**'structure'** means dam or levee.

**'suitably qualified and experienced person'** in relation to regulated structures means a person who is a Registered Professional Engineer of Queensland (RPEQ) under the provisions of *the Professional Engineers Act 2002*, and has demonstrated competency and relevant experience:

a) for regulated dams, an RPEQ who is a civil engineer with the required qualifications in dam safety and dam design.

b) for regulated levees, an RPEQ who is a civil engineer with the required qualifications in the design of flood protection embankments.

*Note: It is permissible that a suitably qualified and experienced person obtain subsidiary certification from an RPEQ who has demonstrated competence and relevant experience in either geomechanics, hydraulic design or engineering hydrology.*

**'system design plan'** means a plan that manages an integrated containment system that shares the required DSA and/or ESS volume across the integrated containment system.

**'trafficable areas'** means the full width of any access road for Bluff Coal Mine including entry and exit points from Capricorn Highway.

**'µS/cm'** means micro siemens per centimetre.

**'valid application'** means an application which meets the criteria under sections 226 and 226A of the *Environmental Protection Act 1994.*

**'void'** means any constructed, open excavation in the ground.

**'watercourse'** has the same meaning given in the *Water Act 2000*.

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

**'waters'** includes river, stream, lake, lagoon, pond, swamp, wetland, unconfined surface water, unconfined natural or artificial watercourse, bed and bank of any waters, dams, non-tidal or tidal waters (including the sea), storm water channel, storm water drain, and groundwater and any part thereof.

**END OF DEFINITIONS**

**Attachment 1 – Final disturbance footprint**

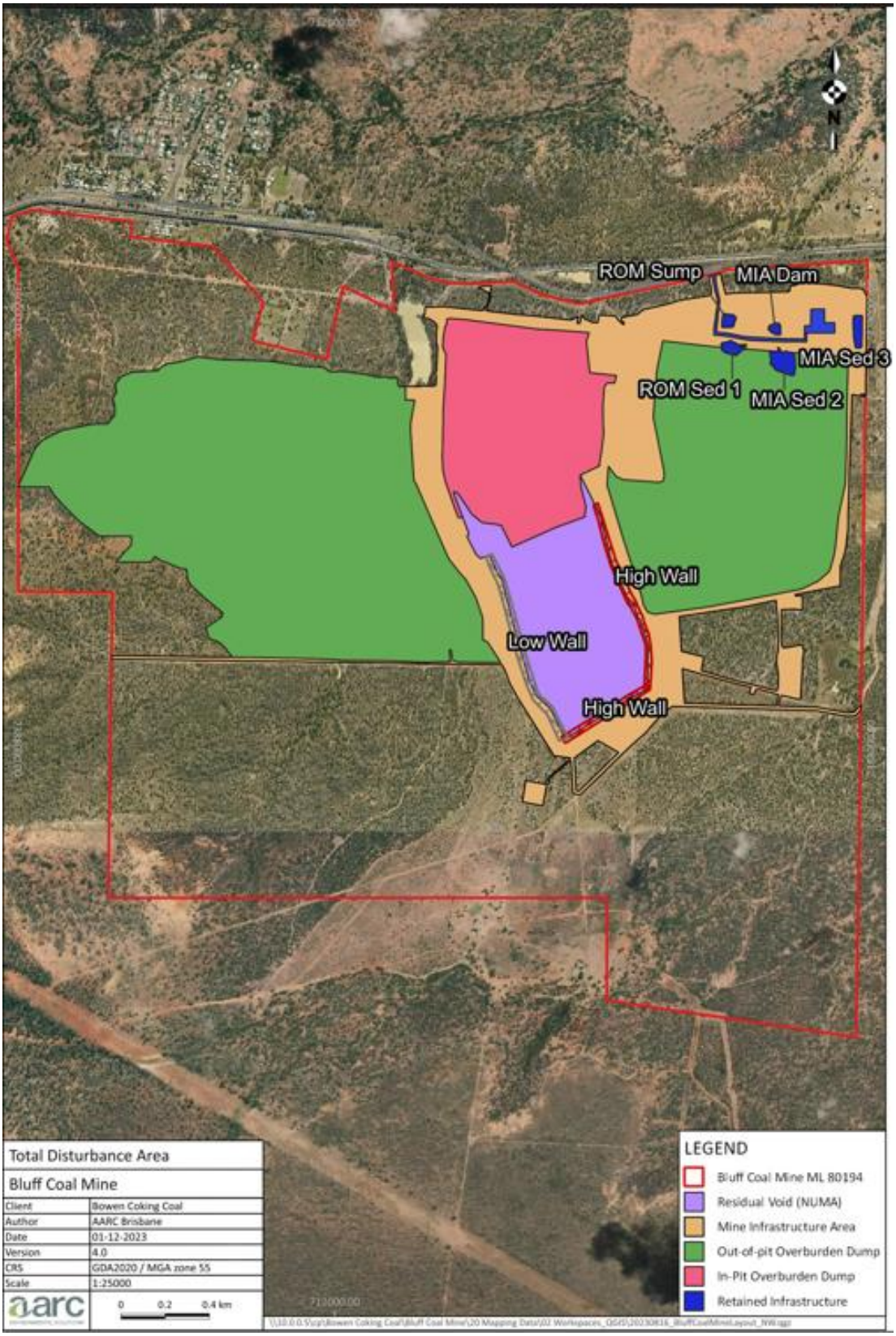


**Figure 1a: Impact on SSBV (flora) – Bluff Coal Mine Stage One**

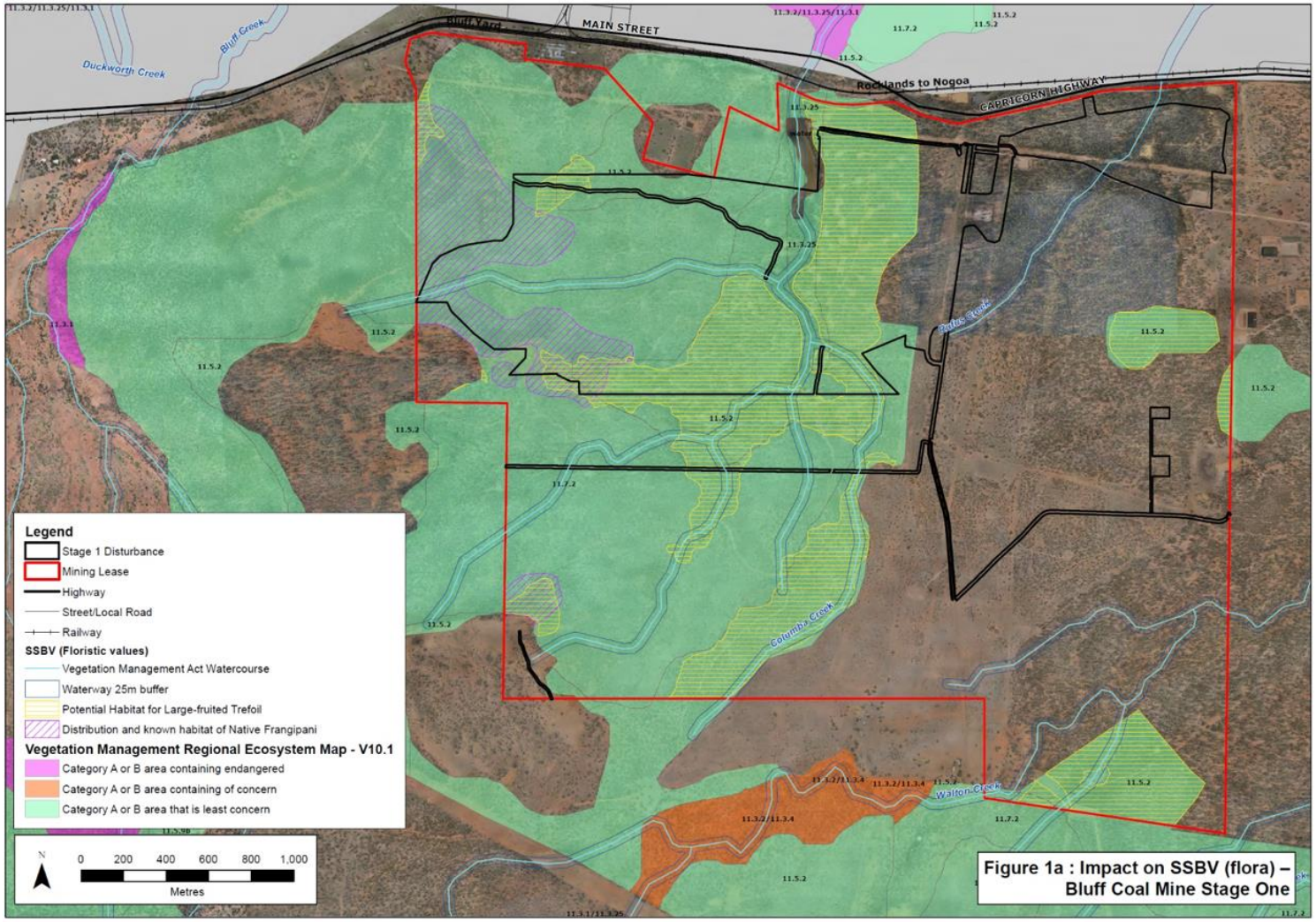


**Figure 1b: Impact on SSBV (fauna) – Bluff Coal Mine Stage One**

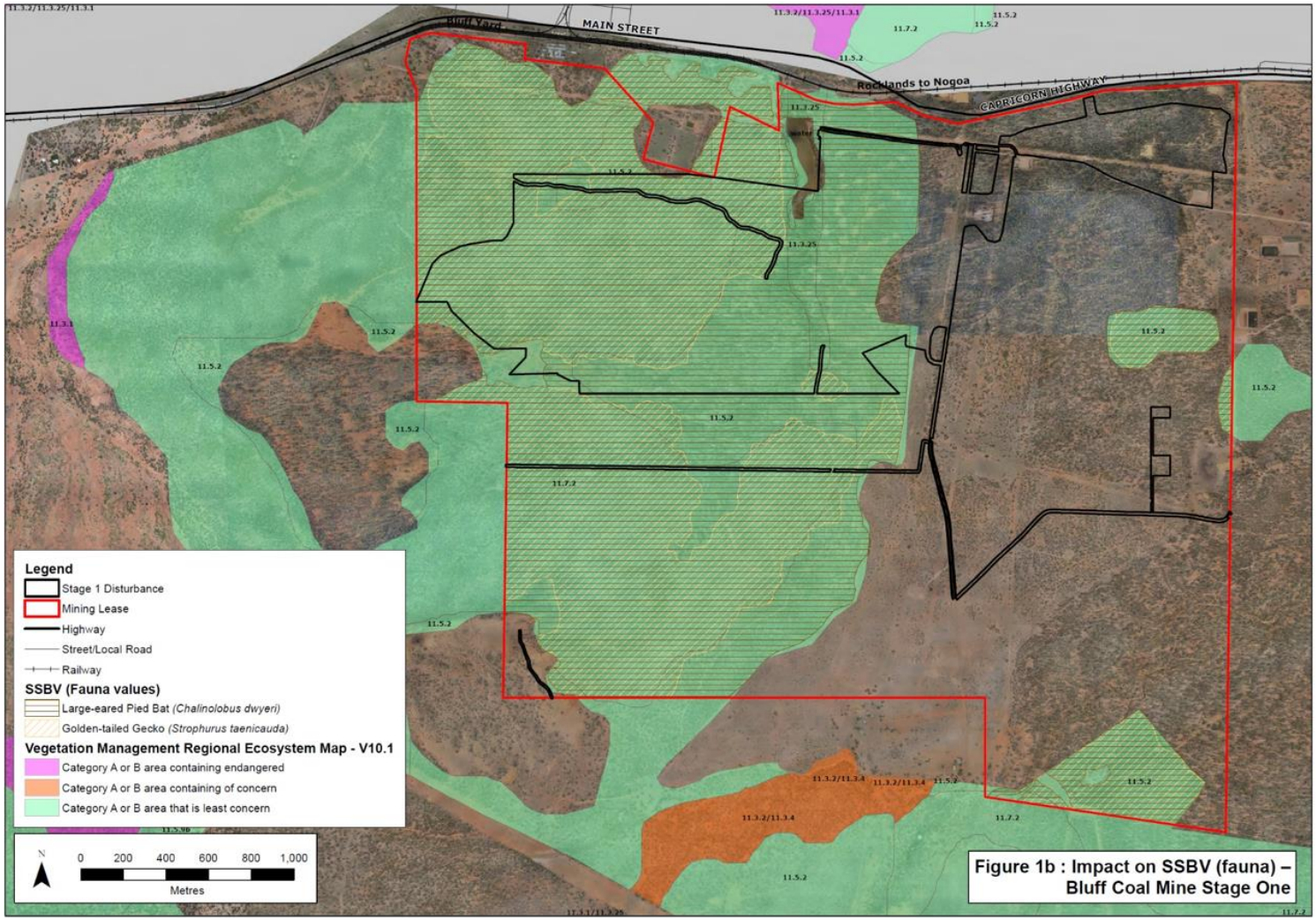


**Figure 2a: Impact on MSES – Bluff Coal Mine Stage Two**

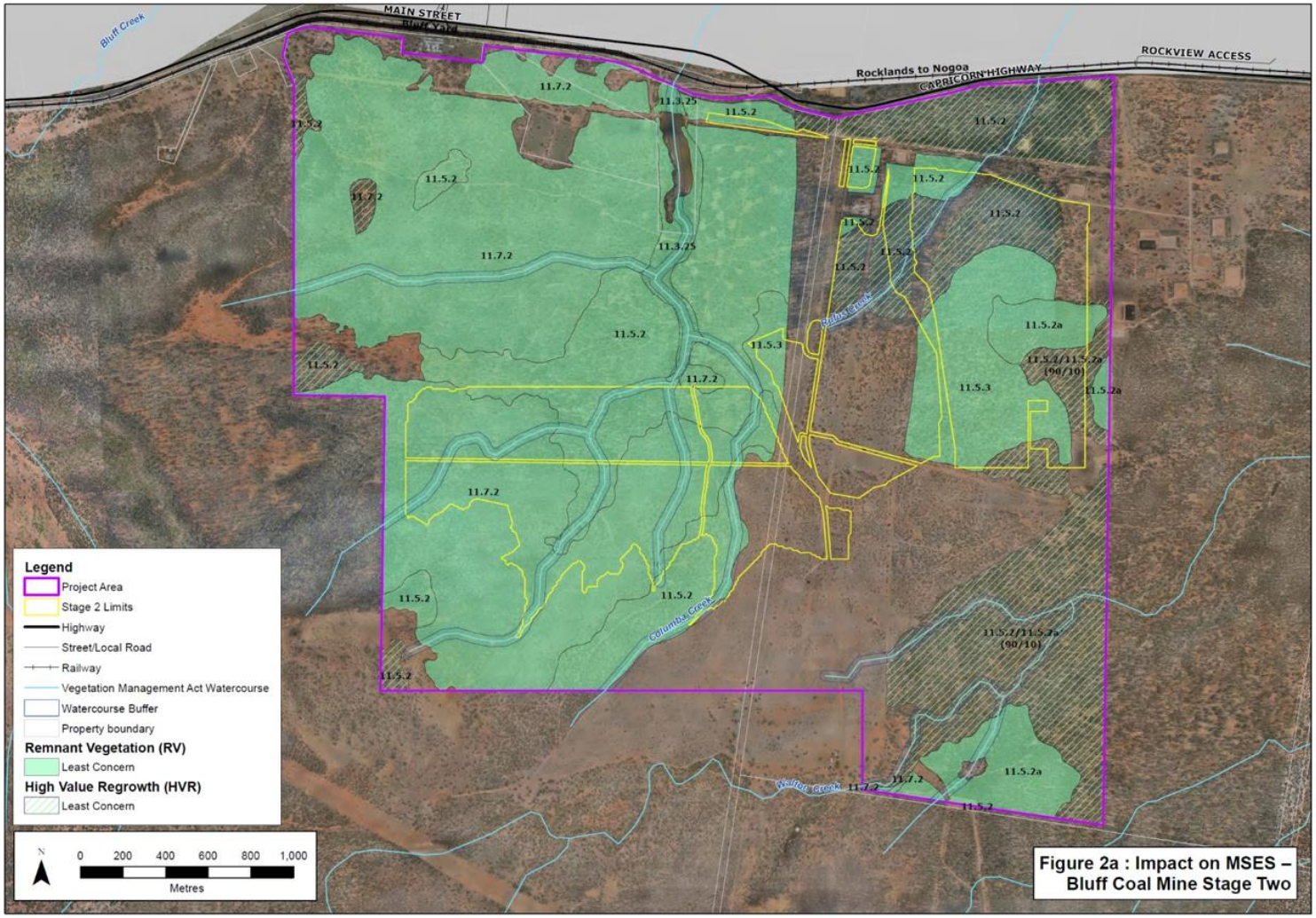
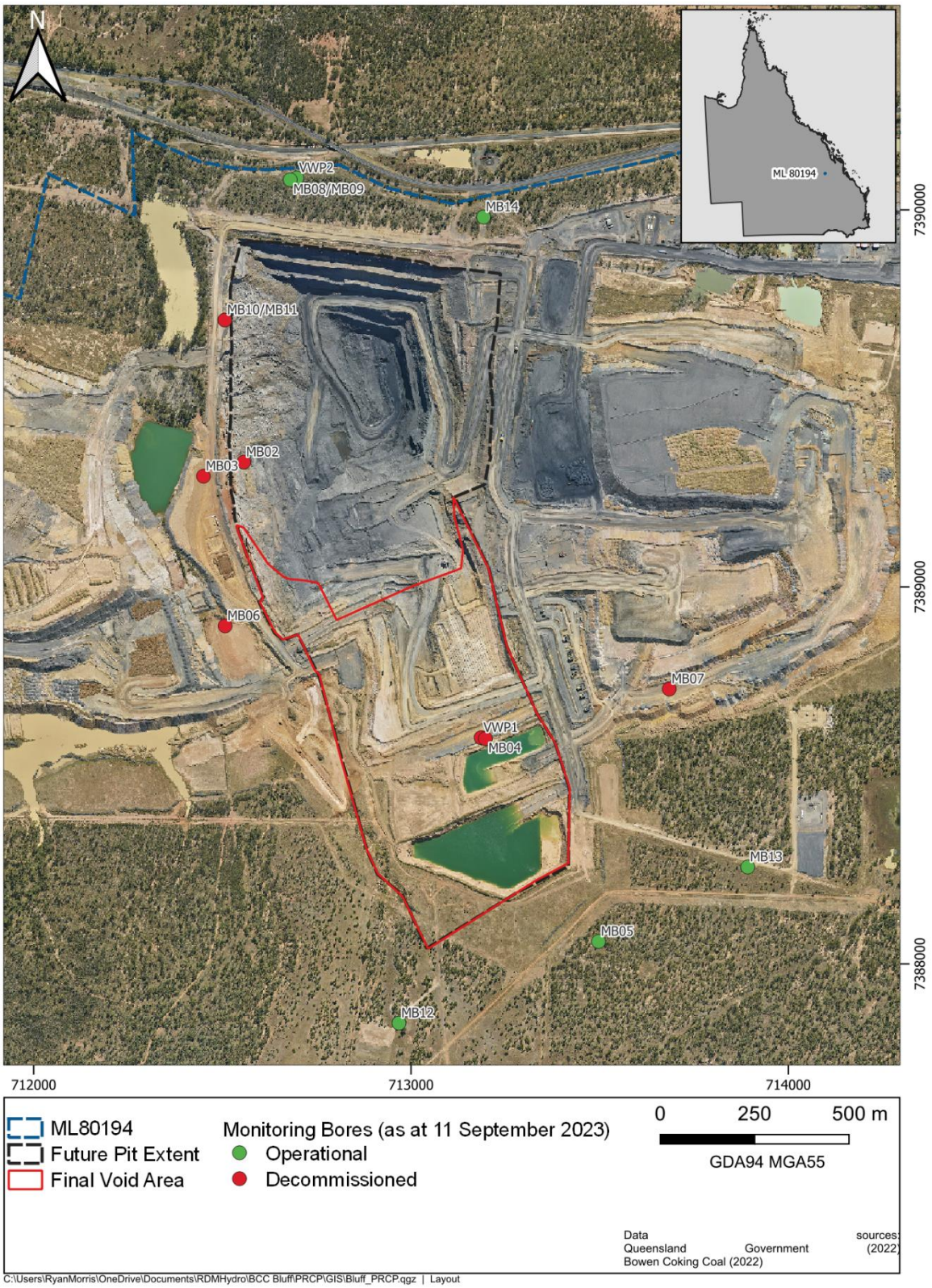


**Figure 3: Groundwater Bore Monitoring Locations**



**Attachment 2 – Rehabilitation Requirements**

| Mine Domain | Mine Feature Name | Post-mining land use (PMLU) | Rehabilitation Goal | Rehabilitation Objectives | Indicators | Completion Criteria |
|---|---|---|---|---|---|---|
| Residual Void | Residual Void | Non-use management area (NUMA) | Long-term safety | Site is safe for humans and animals now and in the foreseeable future. | Presence and/or absence of physical risk factors which could result in injury or death.<br>Geotechnical Study report<br>Risk Assessment documentation. | A Geotechnical study has been completed within three (3) years prior to mine closure to confirm:<br>• that Highwall slopes are stable and safe<br>• the criteria of 33º (65%) for Lowwall and an average of 40º (84%) for Highwall slopes are achievable and sustainable over the long term.<br>• a safety assessment of Highwall slopes that are >30º and >5m in height has been conducted.<br>• risk assessment relative to safety of humans, stock and wildlife completed and risk mitigation measures have been implemented in accordance with relevant guidelines and Australian Standards such as ISO31000 Risk Management.<br>• completion of a Rehabilitation Report by an appropriately qualified person (AQP) at the end of the mine life to ensure successful rehabilitation of the final void and other landforms. This Rehabilitation Report has been completed in accordance with the relevant guidelines and Australian standards. |
| Residual Void | Residual Void | NUMA | Long-term safety | Site is safe for humans and animals now and in the foreseeable future. | Presence and availability of heavy metals and other toxic material or other introduced contaminants. | The identification of potential hazardous materials during mine life through water quality monitoring and material characterisation has been conducted.<br>During the 5 years prior to mine closure surface water monitoring and leaching tests have been undertaken in compliance with guidelines derived from ANZECC 2000.<br>Hydrological modelling has been conducted of the groundwater environment in the vicinity of the ~~final~~ residual void to establish relationship between water in the residual void and the groundwater. |

| Mine Domain | Mine Feature Name | Post-mining land use (PMLU) | Rehabilitation Goal | Rehabilitation Objectives | Indicators | Completion Criteria |
|---|---|---|---|---|---|---|
| | | | | | | Evidence has been included in decommissioning records of elimination of any exposed carbonaceous material that may present a spontaneous combustion risk.<br><br>Evidence in decommissioning records that carbonaceous material has been encapsulated within an inert cover. |
| Residual Void | Residual Void | NUMA | Long-term safety | Site is safe for humans and animals now and in the foreseeable future. | Adequacy and long term performance of safety barriers, etc. | Access to highwalls is restricted by a safety bund constructed to the following specifications:<br>• established from the slope crest at a distance outside the 'zone of void influence'.<br>• A minimum height of 2m; and<br>• A minimum base width of 5m.<br><br>The boundary of the residual void area is fenced on the outside of the safety bund to specification (five strand barbed stock fencing).<br><br>Safety signage designed in accordance with Australian Standard is erected at 100m intervals along the fence line.<br><br>Residual void design ensures the void is PMF protected<br><br>Cattle have been excluded from accessing bunding. |
| Residual Void | Residual Void | NUMA | Non -polluting | Polluted water contained on site. | Water quality.<br><br>Leachate and drainage control | Surface water monitoring has been conducted with water quality criteria derived from ANZG 2018 for 3 years post mining operation.<br><br>Evidence that effective leachate prevention has been conducted through testing of mining waste and management in accordance with a documented Mine Waste Management Plan.<br><br>Evidence from surface water monitoring that successful prevention measures have been |

| Mine Domain | Mine Feature Name | Post-mining land use (PMLU) | Rehabilitation Goal | Rehabilitation Objectives | Indicators | Completion Criteria |
|---|---|---|---|---|---|---|
| | | | | | | implemented for poor quality leachate or discharge mobilisation from the void to watercourses.<br><br>A groundwater study has been conducted on the long-term groundwater levels and on the post-mining aquifer recovery (once the details of the ~~final~~ residual void for mine closure has been finalised).<br><br>Evidence that no significant difference in water quality has occurred relative to historic (background) groundwater quality.<br><br>Successful establishment of adequate drainage control between the Residual Void edge and location of bunds has been made to redirect any runoff away from the edge of the void.<br><br>Evidence in the Rehabilitation Report that the void water levels have remained similar to modelled scenarios and the risk of void overflow have been maintained as minimal where appropriate.<br><br>Predictive modelling undertaken by an AQP, confirming that the voids will remain as a groundwater sink and that there is no risk of contamination post mining. |
| Residual Void | Residual Void | NUMA | Non -polluting | Hazardous and toxic materials are not buried within the mine area. | A life of mine hazardous materials register indicating the volumes used and disposal methods is available. | Evidence has been included in Rehabilitation Report that required waste management measures have been implemented.<br><br>An audit of the hazardous materials register has been conducted to identify the location, use and disposal of potentially hazardous materials during the life of the mine. |
| Residual Void | Residual Void | NUMA | Stable | Very low probability of subsidence, slope slippage or degradation of the Highwall. | Laboratory and field studies conducted to determine probabilities of landform failure. | A Geotechnical study has been completed and assessment that residual void slopes are stable and safe by appropriately qualified persons has been conducted. |

| Mine Domain | Mine Feature Name | Post-mining land use (PMLU) | Rehabilitation Goal | Rehabilitation Objectives | Indicators | Completion Criteria |
|---|---|---|---|---|---|---|
| | | | | | | Residual void assessed to be geotechnically stable by an AQP achieving a Factor of Safety (FoS) of ≥1.5 for the in-situ pit walls.<br><br>Safety assessment has been conducted of the residual void slopes that are <40° and>5m in height.<br><br>Completion of an assessment report by a Registered Professional Engineer of Queensland (RPEQ) on the geotechnical issues and erosivity of the proposed final landforms, including residual voids, to demonstrate long-term landform stability. Reference has been made to the Queensland Mining Guidelines (or subsequent reprints) during the completion of this assessment.<br><br>Absence of active rill/gully erosion. |
| Residual Void | Residual Void | NUMA | Non-polluting | Post mine land use for the residual voids is NUMA with water storage. | Physical and chemical properties of contained water. | Void lake to store high salinity water. Predictive modelling undertaken by an AQP, confirming that the voids will remain as a groundwater sink and that there is no risk of contaminant release to surface or groundwaters post-mining. |
| Residual Void | Residual Void | NUMA | Stable | Post mine land use for areas between Residual Void crest and safety bund walls is vegetation establishment, which excludes cattle. | Groundcover and erosion. | Evidence has shown ground cover between the void crests and bunds as being >70% where ground cover is defined as any cover that assists in controlling erosion and may include live cover.<br><br>Results have shown that significant active erosion features are not present and that any initial erosion has been stabilised by vegetation cover. |
| Overburden dumps | In-pit and out-of-pit dumps, quarry and sections of ROM crushing and screening areas. | Low-intensity Grazing | Long-term safety | Site is safe for humans and animals now and in the foreseeable future. | Presence and or absence of physical risk factors which could result in injury or death.<br><br>Risk assessment documentation | Engineering and design plans are finalised.<br><br>All earthworks completed to final landform design.<br><br>Disturbed slopes are ≤10%<br><br>Erosion and sediment control systems are installed as per the construction design and verified by an AQP. |

| Mine Domain | Mine Feature Name | Post-mining land use (PMLU) | Rehabilitation Goal | Rehabilitation Objectives | Indicators | Completion Criteria |
|---|---|---|---|---|---|---|
| | | | | | | Installation of drainage lines to design specifications and certified by an AQP.<br><br>All temporary infrastructure removed (piping, signage etc.)<br><br>AQP certifies that as constructed landform achieves design criteria for geotechnical stability |
| Overburden dumps | In-pit and out-of-pit dumps, quarry and sections of ROM crushing and screening areas. | Low-intensity Grazing | Long-term safety | Site is safe for humans and animals now and in the foreseeable future. | Exposure to and availability of heavy metals and other toxic material or other introduced contaminants. | Contaminated land assessment completed by a AQP indicates that no contamination unsuitable for the PMLU remains or is occurring.<br><br>If required, a site investigation report including a site suitability statement must be prepared and submitted in accordance with the provisions of Chapter 7, Part 8 of the *Environmental Protection Act 1994*.<br><br>Waste tracking information is recorded and submitted for contaminated and hazardous material removed/transported to an approved landfill for disposal.<br><br>Validation testing confirms that contaminated and hazardous materials have been removed or remediated successfully.<br><br>Land is removed from the Contaminated Land Register.<br><br>Land is removed from the Environmental Management Register, if feasible.<br><br>Ongoing overburden and reject characterisation programs.<br><br>Surface water monitoring has been conducted consistent with guidelines derived from-ANZG 2018 for the final 5 years of mine operation and for 3 years post mine operation.<br><br>Local program of fire control and prescribed weeds and woody weeds control have been conducted. |

| Mine Domain | Mine Feature Name | Post-mining land use (PMLU) | Rehabilitation Goal | Rehabilitation Objectives | Indicators | Completion Criteria |
|---|---|---|---|---|---|---|
| Overburden dumps | In-pit and out-of-pit dumps, quarry and sections of ROM crushing and screening areas. | Low-intensity Grazing | Long-term safety | Site is safe for humans and animals now and in the foreseeable future. | Adequacy and long term performance of safety barriers. | Fencing and appropriate signage is in place to restrict access has been erected, where applicable.<br>Where risk mitigation measures include fencing and appropriate signage around a perimeter to restrict access, these have been erected in accordance with relevant guidelines and Australian Standards. |
| Overburden dumps | In-pit and out-of-pit dumps, quarry and sections of ROM crushing and screening areas. | Low-intensity Grazing | Non -polluting | Hazardous overburden, tailings and reject materials adequately handled. | A program of identification of hazardous and benign overburden, tailings, and reject materials. | Selective burial of hazardous materials tailings and rejects and covering of landforms with benign materials including topsoil has been conducted.<br>If required, a selection of an appropriate “barrier layer” beneath the top capping suitable to the level of contaminants not removed, has been applied.<br>Topsoil must be of a quality appropriate for achieving the PMLU.<br>Where required, ameliorants such as gypsum are added to improve soil quality characteristics at the rates recommended by an AQP. |
| Overburden dumps | In-pit and out-of-pit dumps, quarry and sections of ROM crushing and screening areas. | Low-intensity Grazing | Non -polluting | Elimination of all permanent water storages on the site outside the final void. | Polluted water contained on site.<br>Leachate and drainage control | Mine water has been transferred to the final mining void at cessation of operations.<br>Surface and groundwater water monitoring has been conducted according to guidelines derived from ANZECC 2000 for 5 years during mine operation and for 3 years post mine operation.<br>Minor drainage works to reinforce and consolidate natural drainage to the north of site as part of final landform have been completed.<br>Evidence in the Rehabilitation Report, as prepared by an AQP, that the rock lined drains have remained stable. |

| Mine Domain | Mine Feature Name | Post-mining land use (PMLU) | Rehabilitation Goal | Rehabilitation Objectives | Indicators | Completion Criteria |
|---|---|---|---|---|---|---|
| Overburden dumps | In-pit and out-of-pit dumps, quarry and sections of ROM crushing and screening areas. | Low-intensity Grazing | Stable | Very low probability of subsidence or slope slippage. | Design criteria.<br>Safety assessment.<br>Erosion rate.<br>Slope stability. | A Geotechnical study and assessment that the elevated landforms are stable and safe has been conducted by qualified entity.<br>All elevated landform batters regraded to ≤10%.<br>Evidence provided in the Rehabilitation Report that the reshaping of elevated sections of the landform have complied with the site's final landform design criteria.<br>No evidence of erosion classified as 'moderate' or 'severe' as defined by Attachment 3 - Erosion classification framework.<br>Evidence that the reshaping of the upper surface of the elevated landforms has been to a stable gradient to direct runoff to the rock-lined waterway and prevent gully erosion.<br>Slopes on elevated sections of the landform are geotechnically stable enough to maintain covers constructed for containment of hazardous material and for ecosystem support. |
| Overburden dumps | In-pit and out-of-pit dumps, quarry and sections of ROM crushing and screening areas. | Low-intensity Grazing | Stable | Landform design achieves appropriate erosion rates. | Slope angle and length. | All batters of elevated sections of the landform have been graded to ≤10%.<br>Slope breaks are such that the length of slope between breaks will be less than 220 metres.<br>Slope breaks include a waterway and a graded bank. constructed at a slope of less than 2%. |
| Overburden dumps | In-pit and out-of-pit dumps, quarry and sections of ROM crushing and screening areas. | Low-intensity Grazing | Stable | Landform design achieves appropriate erosion rates. | Rate of soil loss. | A benchmark erosion study has been conducted based on rainfall and sediment run- off rates in undisturbed region (to be conducted by qualified entity).<br>Drainage points have been established at least every 220 meters on exposed slopes.<br>Mulch has been applied if required. |

| Mine Domain | Mine Feature Name | Post-mining land use (PMLU) | Rehabilitation Goal | Rehabilitation Objectives | Indicators | Completion Criteria |
|---|---|---|---|---|---|---|
| | | | | | | No evidence of erosion classified as 'moderate' or 'severe' as defined by Attachment 3 - Erosion classification framework.<br><br>Results have shown that significant active erosion features are not present and that any initial erosion has been stabilised by vegetation cover.<br><br>Evidence has been included in Rehabilitation Report. |
| Overburden dumps | In-pit and out-of-pit dumps, quarry and sections of ROM crushing and screening areas. | Low-intensity Grazing | Stable | Vegetation cover to minimise erosion.<br><br>Resilience to Disturbance.<br><br>A perennial, self-sustaining ground cover is maintained that is resilient to environmental stresses such as fire, drought and pest species is extensive enough to control erosion; and contributes to the integrity of constructed covers. | Vegetation type and density. | Scarification with direct seeding and fertiliser (primary grasses and legumes) has been completed.<br><br>Contour ripping has been completed.<br><br>Revegetation works have been implemented in accordance with standard establishment techniques including deep contour ripping and establishment of self-sustaining pasture species.<br><br>Vegetation groundcover >70%.<br><br>Revegetation seeding rate for grass seed mix at minimum rate of 10 kg/ha.<br><br>A minimum of 4 palatable perennial pasture species are present within the seed mix during revegetation.<br><br>Palatable pasture species have been established.<br><br>Evidence of utilised revegetation techniques has been included in the Rehabilitation Report. |
| Overburden dumps | In-pit and out-of-pit dumps, quarry and sections of ROM crushing and screening areas. | Low-intensity Grazing | Sustainable land use | Soil properties to support the final land use proposed to be a self-sustaining grazing PMLU comprising of local grazing pasture species. | Physical and Chemical properties of surface materials. | Testing to confirm achievement of broad characteristics similar to reference (undisturbed) areas.<br><br>Land suitability assessment by an AQP certifies that land has achieved a post-mine land suitability class of 4 or better for low intensity grazing*. |

| Mine Domain | Mine Feature Name | Post-mining land use (PMLU) | Rehabilitation Goal | Rehabilitation Objectives | Indicators | Completion Criteria |
|---|---|---|---|---|---|---|
| Overburden dumps | In-pit and out-of-pit dumps, quarry and sections of ROM crushing and screening areas. | Low-intensity Grazing | Sustainable land use | Establish specified self-sustaining pasture vegetation for low intensity cattle grazing | Presence of key species.<br>Species type and diversity.<br>Weeds. | Weed presence is a maximum of 10% of total vegetative groundcover confirmed by an AQP in annual monitoring. Weed management recommendations to be provided in annual reports.<br>Environmental Audit has been conducted by an AQP to grade success of:<br>• Erosion mitigation program;<br>• Vegetation program;<br>• Water monitoring program; and<br>• Weed management.<br>Species from surrounding pasture communities have been introduced into the revegetation seed mix and establishment has been attempted. |
| Overburden dumps | In-pit and out-of-pit dumps, quarry and sections of ROM crushing and screening areas. | Low-intensity Grazing | Sustainable land use | Establish land use with comparable management requirements to similarly used non-mined agricultural land. | Initial establishment of pasture species to form the basis of a longer term self-sustaining grazing PMLU. | Land Suitability Class has been determined to be Land Class 4 or better*.<br>Environmental audit conducted by appropriately qualified persons to:<br>• Establish progress towards a self-sustaining grazing PMLU;<br>• Identify the Land Suitability Class; and<br>• Establish adequacy and predicted long-term performance of safety barriers. |
| Mine Infrastructure Area (MIA) and Infrastructure areas | Infrastructure, crushing equipment, screening equipment, ROM areas and roads. | Low-intensity Grazing | Long-term safety | Site is safe for humans and animals now and in the foreseeable future. | Unless the subsequent landholder agrees in writing to assume responsibility for infrastructure components such as roads, the final rehabilitation plan will include the following indicators and activities.<br>Removal of all constructed structures including dams, | Excavations have been backfilled.<br>Risk assessment relative to safety of humans, stock and wildlife completed and risk mitigation measures have been implemented in accordance with relevant guidelines and Australian Standards such as ISO 31000 Risk Management.<br>Any remaining infrastructure has written agreement with post-mining landholder. |

| Mine Domain | Mine Feature Name | Post-mining land use (PMLU) | Rehabilitation Goal | Rehabilitation Objectives | Indicators | Completion Criteria |
|---|---|---|---|---|---|---|
| | | | | | concrete to a depth of 1m, disused industrial equipment and materials. | With the exception of any infrastructure to remain as part of the PMLU or where infrastructure is agreed to be retained by the landholder as evidenced by a signed landholder agreement, the following are complete:<br>a) All services, such as water, electricity and gas, disconnected, terminated and removed.<br>b) All buildings and associated infrastructure dismantled and removed offsite.<br>c) All hardstand, concrete areas and roads (bitumen, blue metal, aggregate etc.) removed.<br>d) All fencing that is not part of PMLU requirements removed.<br>e) All pipelines drained and removed.<br>f) All waste removed.<br>g) All surface water drainage infrastructure removed.<br>h) All drillholes, bores, sediment ponds and sumps decommissioned.<br>i) All machinery and equipment removed from site.<br>j) All dams dewatered and desilted.<br>k) Remove HV and LV power lines.<br>l) Disconnect services to sewage treatment plants.<br>m) Demolish and remove above ground tanks.<br>Confirmation all equipment and infrastructure not being retained for post-mine use has been removed. |

| Mine Domain | Mine Feature Name | Post-mining land use (PMLU) | Rehabilitation Goal | Rehabilitation Objectives | Indicators | Completion Criteria |
|---|---|---|---|---|---|---|
| Mine Infrastructure Area (MIA) and Infrastructure areas | Infrastructure, crushing equipment, screening equipment, ROM areas and roads. | Low-intensity Grazing | Long-term safety | Site is safe for humans and animals now and in the foreseeable future. | Exposure to and availability of heavy metals and other toxic material or other introduced contaminants. | Contaminated land assessment completed by AQP indicates that no contamination unsuitable for the PMLU remains or is occurring.<br><br>If required, a site investigation report including a site suitability statement must be prepared and submitted in accordance with the provisions of Chapter 7, Part 8 of the *Environmental Protection Act 1994*.<br><br>Contaminated and hazardous material either remediated in-situ or removed/transported to an approved landfill for disposal and waste tracking information recorded and submitted.<br><br>Validation testing confirms that contaminated and hazardous materials have been removed or remediated successfully.<br><br>Land is removed from the Contaminated Land Register.<br><br>Land is removed from the Environmental Management Register, if feasible.<br><br>200 mm of topsoil has been spread over disturbed areas<br><br>Where required, ameliorants such as gypsum are added to improve soil quality characteristics at the rates recommended by an AQP;<br><br>Surface water monitoring has been conducted and complies with guidelines derived from ANZG 2018 for 5 years during mine operation and for 3 years post mine operation.<br><br>Local program of fire control and proscribed weeds and woody weeds control has been implemented. |

| Mine Domain | Mine Feature Name | Post-mining land use (PMLU) | Rehabilitation Goal | Rehabilitation Objectives | Indicators | Completion Criteria |
|---|---|---|---|---|---|---|
| Mine Infrastructure Area (MIA) and Infrastructure areas | Infrastructure, crushing equipment, screening equipment, ROM areas and roads. | Low-intensity Grazing | Long-term safety | Site is safe for humans and animals now and in the foreseeable future. | Adequacy and long term performance of safety barriers. | Fencing and appropriate signage around a perimeter is in place to restrict access; these have been erected in accordance with relevant guidelines and Australian Standards. |
| Mine Infrastructure Area (MIA) and Infrastructure areas | Infrastructure, crushing equipment, screening equipment, ROM areas and roads. | Low-intensity Grazing | Non -polluting | Hazardous material adequately handled. | Technical design of capping.<br>Compliance with risk assessment documentation. | Capping requirement has been established over mine life.<br>If required, an appropriate “barrier layer” has been selected and implemented beneath the top capping suitable to the level contaminants not removed.<br>Topsoil must be tested for pH, EC and ESP and certified by an AQP as suitable to meet PMLUs.<br>Where required, ameliorants such as gypsum are added to improve soil quality characteristics at the rates recommended by an AQP;<br>Compliance with the Rehabilitation Management Plan.<br>Evidence of decommissioning has been included in the Rehabilitation Report. |
| Mine Infrastructure Area (MIA) and Infrastructure areas | Infrastructure, crushing equipment, screening equipment, ROM areas and roads. | Low-intensity Grazing | Non -polluting | Polluted water contained on site. | Surface, groundwater and downstream monitoring. | Mine water transferred to the final mining void at cessation of operations.<br>Surface water monitoring in accordance with guidelines derived from ANZG 2018 has been conducted for 5 years during mine operation and for 3 years post mine operation.<br>Minor drainage works to reinforce and consolidate natural drainage has been implemented. |

| Mine Domain | Mine Feature Name | Post-mining land use (PMLU) | Rehabilitation Goal | Rehabilitation Objectives | Indicators | Completion Criteria |
|---|---|---|---|---|---|---|
| Mine Infrastructure Area (MIA) and Infrastructure areas | Infrastructure, crushing equipment, screening equipment, ROM areas and roads. | Low-intensity Grazing | Stable | Very low probability of subsidence or slope failure. | Design criteria of slopes regraded to ≤10% | Completion of a Geotechnical study and assessment that rehabilitated MIA areas are stable and safe by qualified entity. |
| Mine Infrastructure Area (MIA) and Infrastructure areas | Infrastructure, crushing equipment, screening equipment, ROM areas and roads. | Low-intensity Grazing | Stable | Landform design achieves appropriate erosion rates. | Slope angle and length. | All slopes have been regraded to ≤10% |
| Mine Infrastructure Area (MIA) and Infrastructure areas | Infrastructure, crushing equipment, screening equipment, ROM areas and roads. | Low-intensity Grazing | Stable | Landform design achieves appropriate erosion rates. | Rate of soil loss. | A benchmark erosion study has been conducted based on rainfall and sediment run- off rates in undisturbed region (to be conducted by qualified entity).<br>Drainage points at least every 220 meters on exposed slopes have been established.<br>Mulch has been applied if required.<br>No evidence of erosion classified as 'moderate' or 'severe' as defined by Attachment 3 - Erosion classification framework. |
| Mine Infrastructure Area (MIA) and Infrastructure areas | Infrastructure, crushing equipment, screening equipment, ROM areas and roads. | Low-intensity Grazing | Stable | Vegetation cover to minimise erosion and to re-establish the pre-mine agricultural capability. | Vegetation type and density to support cattle grazing at the same standard as the pre-mining grazing activity. | Scarification with direct seeding and fertilizer (primarily grasses and legumes) has been conducted.<br>Contour deep ripping, establish grasses and legumes to support cattle grazing has been implemented.<br>The success of the final land use is measured by live weight gain in grazing cattle on mining infrastructure lands. |

| Mine Domain | Mine Feature Name | Post-mining land use (PMLU) | Rehabilitation Goal | Rehabilitation Objectives | Indicators | Completion Criteria |
|---|---|---|---|---|---|---|
| | | | | | | Evidence in the Rehabilitation Report that measured erosion rates have shown to be comparable to unmined land in the same locality.<br><br>Results have shown that significant active erosion features are not present and that any initial erosion has been stabilised by vegetation cover;<br><br>Evidence has been included in Rehabilitation Report. |
| Mine Infrastructure Area (MIA) and Infrastructure areas | Infrastructure, crushing equipment, screening equipment, ROM areas and roads. | Low-intensity Grazing | Sustainable land use | All infrastructure to be removed or retained where applicable | Beneficial land use – low intensity grazing - is established and proven to be sustainable. | Predicted economics and /or benefits have been defined and agreed by the stakeholders.<br><br>Buildings, water management structures, roads (except those used by the public) and other infrastructure have been removed unless stakeholders have entered into formal written agreements for their retention.<br><br>Where practicable, area accomplishes and remains as sustainable grazing. |
| Mine Infrastructure Area (MIA) and Infrastructure areas | Infrastructure, crushing equipment, screening equipment, ROM areas and roads. | Low-intensity Grazing | Sustainable land use | Soil properties to support eventual use as grazing land. | Physical and Chemical properties of surface materials. | Topsoil must be tested for pH, EC and ESP and certified by an AQP as suitable to meet PMLUs.<br><br>Where required, ameliorants such as gypsum are added to improve soil quality characteristics at the rates recommended by an AQP; |
| Mine Infrastructure Area (MIA) and Infrastructure areas | Infrastructure, crushing equipment, screening equipment, ROM areas and roads. | Low-intensity Grazing | Sustainable land use | Soil properties to support eventual use as grazing land. | Physical properties. | Regrading to an appropriate gradient has been undertaken for dry-land grazing practices. |

| Mine Domain | Mine Feature Name | Post-mining land use (PMLU) | Rehabilitation Goal | Rehabilitation Objectives | Indicators | Completion Criteria |
|---|---|---|---|---|---|---|
| Mine Infrastructure Area (MIA) and Infrastructure areas | Infrastructure, crushing equipment, screening equipment, ROM areas and roads. | Low-intensity Grazing | Sustainable land use | Establish specified self-sustaining grazing PMLU. | Presence of key species.<br>Species type and diversity.<br>Weeds. | Weed presence, as defined in the Biosecurity Act 2014, is a maximum of 10% of total vegetative groundcover confirmed by an AQP in annual monitoring. Weed management recommendations to be provided in annual reports.<br>Environmental Audit has been conducted by an AQP to grade success of:<br>a) Erosion mitigation program;<br>b) Vegetation program;<br>c) Water monitoring program; and<br>d) Weed management.<br>Documented usage of re-vegetation methods as per the Rehabilitation Management Plan |
| Mine Infrastructure Area (MIA) and Infrastructure areas | Infrastructure, crushing equipment, screening equipment, ROM areas and roads. | Low-intensity Grazing | Sustainable land use | Establish land use with comparable management requirements to similarly used non-mined land. | Low intensity grazing similar to grazing activities on surrounding unmined lands. | Land Suitability Class has been determined to be Land Class 4 or better*.<br>Environmental audit has been conducted by an AQP to:<br>• establish suitability of all areas for dryland grazing practices within 3 years of cessation of mining.<br>• ensure post-mining land is of a Suitability Class; (DSITI & DNRM 2015) similar to the pre-mining Class as determined by the baseline study – Soil, Land and Overburden Assessment prepared by SLR Consulting.<br>• There is long-term performance of safety barriers. |
| Water management infrastructure | Retained dams: MIA Sediment Dams 2 and 3, MIA Dam, | Stock watering | Long-term safety | Site is safe for humans and animals now and in the foreseeable future. | Presence and or absence of physical risk factors which could result in injury or death | Contaminated land assessment completed by a AQP indicates that no contamination unsuitable for the PMLU remains or is occurring. |

| Mine Domain | Mine Feature Name | Post-mining land use (PMLU) | Rehabilitation Goal | Rehabilitation Objectives | Indicators | Completion Criteria |
|---|---|---|---|---|---|---|
| | ROM Sump, ROM Sediment dam 1, | | Non-polluting | No contaminant material present within water management infrastructure. | Surface water monitoring. | Retained water storage water quality for quality characteristics to be below the trigger values for livestock drinking water defined in Environmental Protection (Water) Policy 2009 Mackenzie River Sub-basin Environmental Values and Water Quality Objectives Basin No. 130 (part), including all waters of the Mackenzie River Sub-basin, September 2011, or the most recent version. |
| | | | Stable | Landform design achieves appropriate erosion rates. | Slope angle and length. | All retained water storages achieve geotechnical safety and stability as assessed and approved by an AQP;<br>No evidence of erosion on the retained dam banks classified as 'moderate' or 'severe' as defined by Attachment 4 - Erosion classification framework. |
| | | | Self-sustaining land use | Establish land use with comparable management requirements to similarly used non-mined land. | Performance of water management infrastructure is similar to water management infrastructure on surrounding unmined lands. | Dams to remain for landholder use are safe for stock access and have vegetated banks |

** Land Suitability Class has been determined in accordance with Technical Guidelines for Environmental Management of Exploration and Mining Queensland (QDME 1995) as per the original EA application document '131106OT_CRL Bluff Project Combined Appendices (FINAL)', Appendix C 'Bluff Project Soils, Land and Overburden Assessment' (2013).*

**Attachment 3 – Erosion classification framework***

| Erosion classification | Minor | Moderate | Severe |
|---|---|---|---|
| Sheet erosion | Shallow soil deposits downslope | Partial exposure of roots; moderate soil deposits downslope | Loss of surface horizons, root exposure; moderate substantial soil deposits downslope |
| Rill erosion | <0.3m deep<br>Occasional rills | <0.3m deep<br>Common rills | >0.3m deep<br>Numerous rills forming corrugated ground surface |
| Gully erosion | >0.3m deep<br>Gullies are isolated, linear, discontinuous, and restricted to primary or minor drainage lines | >0.3m deep<br>Gullies are linear, continuous, and restricted to primary or minor drainage lines | >0.3m deep<br>Gullies are continuous or discontinuous, and either tend to branch away from primary drainage lines and on to foot slopes, or have multiple branches within drainage lines |
| Tunnel erosion | Absent | Absent | Present |
| Mass movement | Absent | Absent | Present |

**the erosion classification framework is based on the 'Australian Soil and Land Survey Field Handbook' Third Edition. by the National Committee on Soil and Terrain (2009)*

**END OF PERMIT**