



Plan of Operations
Environmental Authority EPML00383413
Mining Lease 4581
Bogside Mining Industries Pty Ltd
March 2019

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Document Information Sheet

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ML 4581 PLAN OF OPERATIONS

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1. INTRODUCTION

1.1. BACKGROUND

Bogside Mining Industries Pty Ltd (Bogside) is the holder and operator of Mining Lease (ML) 4581. Bogside purchased ML 4581 in 2010 with the primary purpose of rehabilitating the land to meet the final land use. The final land use has been designated as industry investigation in accordance with the Master Plan for the Swanbank Enterprise Park.

1.2. PURPOSE OF THIS PLAN OF OPERATIONS

The purpose of the Plan of Operations is to:

- describe all relevant activities that will take place on the site during the period of the plan
- provide an action program which demonstrates how the EA conditions will be complied with
- present a rehabilitation plan
- provide financial assurance for the period of the plan
- provide a compliance statement.

1.3. TERM OF THE PLAN OF OPERATIONS

The term of this Plan of Operations will be 5 years commencing 5 March 2019 and ending 5 March 2024.

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2. PROJECT DESCRIPTION

2.1. LOCATION

The subject tenement of this Plan of Operations is ML 4581. It is located 5.5 kilometres, south west of Ipswich. The tenement is located to the south west of the Cunningham Highway and Redbank Plains Road intersection on Gypsum Drive (off Newhill Drive). Access is via ML 4573 (refer to Figure 1).

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Figure 1 Location of ML4581

2.2. TENEMENT SPECIFICATIONS

Table 1 ML 4581 Tenement specifications

Specification	Details
Date of Grant	1 October 1975
Expiry Date	30 September 2016
Surface Area	30.6562 ha
Total area	31.8716 ha
Environmental Authority	EPML00383413
Targeted minerals	Clay-brick, clay
Parish	Goodna
Background Tenure	Lot 38 on RP22548 Lot 2 on SP221204 Lot 8 on RP22546 Road Reserve Patrick Street

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3. NATURE AND EXTENT OF SITE ACTIVITIES

Mining is limited to extraction of clay/shale encountered during the course of mine rehabilitation activities. Clay/shale may be recovered from the overburden stockpile if it is deemed suitable. The proposed methodology to recover this material will include:

- mechanical excavation of targeted minerals to a stockpile area using an excavator or loader and dump trucks.
- crushing (using portable impact crusher) and screening (if required)
- stockpiling using front end loader
- loading of trucks using a front end loader for removal offsite.
- Rehabilitation works, including filling and compacting of soft soils, re-profiling and revegetation works using standard earthmoving and landscaping plant and equipment.

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4. ACTION PROGRAM

EA Condition	Action Program
Schedule A - General	
<p>A1. The operator of this activity must provide a financial assurance in the amount and form required by the administering authority prior to the commencement of activities proposed under this environmental authority.</p> <p>NOTE: the calculation of financial assurance for condition A1 must be in accordance with 'Guideline 17-Calculating financial assurance for mining projects' and may include a performance discount. The amount is defined as the maximum total rehabilitation cost for complete rehabilitation of all disturbed areas, which may vary on an annual basis due to progressive rehabilitation. The amount required for the financial assurance must be the highest Total Rehabilitation Cost calculated for any year of the Plan of Operations and calculated using the formula (Financial Assurance = Highest Total Annual Rehabilitation Cost x Percentage Required)</p>	<p>A financial assurance amount has been calculated using the current version of the Financial Assurance Calculator downloaded from Queensland Government website</p>
<p>A2. The financial assurance is to remain in force until the administering authority is satisfied that no claim on the assurance is likely.</p> <p>NOTE: Where progressive rehabilitation is completed and acceptable to the administering authority, progressive reductions to the amount of financial assurance will be applicable.</p>	<p>A financial assurance amount has been calculated using the current version of the Financial Assurance Calculator downloaded from Queensland Government website</p>
<p>A3. In carrying out an activity to which this approval relates, all reasonable and practicable measures must be taken to prevent or to minimise the likelihood of environmental harm being caused.</p>	<p>BMI commit to environmental management on site which includes taking all reasonable and practical measures to minimise the likelihood of environmental harm being caused.</p>
<p>A4. The operator of an activity to which this approval relates must:</p> <ul style="list-style-type: none"> a) Install all measures, plant and equipment necessary to ensure compliance with the conditions of this approval; and b) Maintain such measures, plant and equipment in a proper and efficient condition; and c) Operate such measures, plant and equipment in a proper and efficient manner. 	<p>BMI commit to installing, operating and maintaining equipment in accordance with clause A4.</p>

<p>A5. At all times while the activity is operating, at least one person must be present who is responsible for the control and operation of the facility and whose duties must include but not be limited to:</p> <ul style="list-style-type: none"> a) Maintaining the facility; b) Controlling all employees working the facility; and c) Supervising all persons entering the facility. 	<p>At all times, whilst is in operation, a manager/supervisor will be in site directing operations, employees and visitors.</p>
<p>A6. Record, compile and keep all monitoring results required by this approval and present this information to the administering authority or an authorised person when requested.</p>	<p>All records are maintained on the BMI computer systems (S:drive).</p>
<p>A7. All records required by this approval must be kept for 5 years.</p>	<p>All records will be kept for 5 years.</p>
<p>A8. Measures must be taken to prevent unauthorised access to the site to which this approval relates.</p>	<p>The site is fenced and signed. Access is only available via ML 4573.</p>
<p>A9. Telephone the administering authority's Pollution Hotline or district office as soon as practicable after becoming aware of any release of contaminants not in accordance with the conditions of this approval or any environmental nuisance complaints received.</p>	<p>BMI record complaints through the complaints register and will contact EHP as soon as practical following receipt of a complaint.</p>
<p>A10. A written notice detailing the following information must be provided to the DERM within 14 days of any advice provided in accordance with condition A9:</p> <ul style="list-style-type: none"> a) The name of the operator, including their approval/registration number; b) The name and telephone number of a designated contact person; c) Quantity and substance released; d) Vehicle and registration details; e) Person/s involved (driver and any others); f) The location and time of the release; g) The suspected cause of the release; h) A description of the effects of the release; i) The results of any sampling performed in relation to the release; j) Actions taken to mitigate any environmental harm caused by the release; and k) Proposed actions to prevent a recurrence of the release. 	<p>BMI will comply with requirements in clause A10 advising EHP of complaints.</p>
<p>A11. The person undertaking the activity to which this approval relates must record the following details for all complaints received and provide this information to the administering authority or an authorised person on request:</p>	<p>BMI have a complaints register which captures all necessary information.</p>

<ul style="list-style-type: none"> a) Time, date, name and contact details of complainant; b) Reasons for the complaint; c) Any investigations undertaken; d) Conclusions formed; and e) Any actions taken. 	
A12. A suitably qualified person(s) must conduct any monitoring required by this approval.	BMI have engaged suitably qualified consultants to implement environmental monitoring onsite (air quality/water sampling/gas monitoring etc).
A13. All instruments, equipment and measuring devices used for measuring or monitoring in accordance with any condition of this approval must be calibrated, and appropriately operated and maintained.	All instruments will be calibrated in accordance with manufacturing specifications.
A14. All instruments, equipment and measuring devices used for measuring or monitoring in accordance with any condition of this approval must be readily available at any given time.	All instruments used by BMI onsite will be available for inspection at any time.
A15. An appropriate spill kit, personal protective equipment and relevant operator instructions/emergency procedure guides for the management of wastes and chemicals associated with the activity to which this approval relates must be kept at the site and accessible to all operators.	BMI provide spill kits, PPE and management plans which provide instruction for all aspects of site management including emergency response, waste management and management of chemicals onsite.
A16. Anyone operating under this approval must be trained in the use of the spill kit.	Employees in operational roles are trained in the use of spill kits.
Schedule B – Air	
B1. The release of noxious or offensive odours or any other noxious or offensive airborne contaminants resulting from the activity must not cause a nuisance at any nuisance sensitive or commercial place.	There are no odours resulting from the site activities. In the event that there was a complaint from a sensitive receiver with respect to odour, BMI commit to undertaking monitoring by a third party and commit to implementing any corrective actions/recommendations by the third party.
B2. The release of dust or particulate matter resulting from the activities must not cause an environmental nuisance at any nuisance sensitive or commercial place.	BMI commit to implementing the dust management plan which provides mitigation measures to minimise dust release from site.
B3. When requested by the administering authority, monitoring must be undertaken to investigate any environmental nuisance complaint caused by a release to the atmosphere from the approved site.	Air quality monitoring will be undertaken when/if requested by EHP.
B4. Subject to condition B5, the dust deposition rate and concentration of PM ₁₀ and PM _{2.5} must not exceed the limits specified in 'Table 1 – Dust deposition rate	Air quality monitoring will use criteria in clause B4 to determine compliance requirements.

and concentration of particulate matter limits' for the contaminant when measured from a nuisance sensitive or commercial place.	
<p>B5. The method of measurement and reporting of dust or particulate matter must comply with the most recent editions of the Queensland Government's Air Quality Sampling Manual or Australian Standards Measurement methods mentioned in condition B4 'Table 1 – Dust deposition rate and concentration of particulate matter limits'.</p> <p>Note: Any dust or particulate monitoring must also include an 'upwind' sample to determine the contribution of other dust and particulate sources in the area.</p>	All monitoring will be undertaken by a third party in accordance with the most recent edition of the Queensland Government's Air Quality Sampling Manual or Australian Standards Measurement methods mentioned in condition B4 'Table 1 – Dust deposition rate and concentration of particulate matter limits'.
B6. The results of monitoring undertaken in accordance with conditions B4 and B5 and a report which details an interpretation by a competent person of monitoring results must be submitted to the administering authority within 14 days after the monitoring has been completed.	The third party consultant will provide a monitoring report in accordance with condition B6.
<p>B7. If monitoring indicates exceedance of the relevant limits in 'Table 1 – Dust deposition rate and concentration of particulate matter limits', then the environmental authority holder must:</p> <ol style="list-style-type: none"> a) Address the complaint including the use of appropriate dispute resolution if required; or b) Immediately implement dust abatement measures so that emissions of dust from the activity do not result in further environmental nuisance. 	If third party monitoring report shows exceedance of dust deposition rates then BMI will implement the requirements of Clause B7.
<p>B8. Stockpiles must be maintained in such a manner as to prevent the release of wind blown dust and particulate matter to the atmosphere. Such measures may include but not be limited to:</p> <ol style="list-style-type: none"> a) Use of water spraying devices; b) Use of dust-suppressant shielding/wind breakers/screens; and c) Stockpiles located in bunkers. 	BMI have a dust management plan which provides appropriate dust mitigation measures including stockpile management.
B9. The only material that is permitted to be applied to exposed surface for the purpose of dust suppression is water either sourced from the external sources (e.g. water recycling plants) or from internal water sources (i.e. water collected from the open pit located within ML4581 & ML 4573)	BMI will utilise water from the open pit on ML 4573 for use in dust suppression.
B10. Trafficable areas must be maintained in such a manner as to prevent the release of wind blown dust or traffic generated dust to the atmosphere. Such measures may include but not be limited to:	Clause B10 is managed through the implementation of dust management plan.

<ul style="list-style-type: none"> a) Use of water spraying devices; b) Sealing any high trafficable areas; c) Adopting and adhering to speed limits; and d) Use of dust suppressant shielding/wind breakers/screens. 	
<p>B11. Measures must be implemented to prevent release of windblown dust and loss of material from trucks leaving the approved place. Such measures may include but not be limited to:</p> <ul style="list-style-type: none"> a) Wetting down the load prior to transport; b) The entire load covered appropriately such as tarpaulin prior to departure; c) Cleaning of any spillages on side rails, tail gates and draw bars of trucks prior to departure; and d) Driving over rumble drains prior to leaving the approved place. 	<p>Clause B11 is complied with through the implementation of the dust management plan.</p>
<p>Schedule C – Water</p>	
<p>C1. Contaminants must not be released from the site to any waters or to the bed or banks of any waters.</p>	<p>A site stormwater management plan provides strategies and management measures to reduce risk of contaminants leaving site.</p>
<p>C2. Suitable banks or diversion drains must be installed and maintained so that stormwater falling up gradient from any disturbed areas, including extraction and storage areas, is diverted away from entering any ponds or other structures used for the storage or treatment of contaminants or waste.</p>	<p>There is minimal storage of chemicals or waste on ML 4581. The only water body is the mining pit which is currently full of water and serves as an onsite sediment basin.</p>
<p>C3. All waters flowing over disturbed areas, including but not limited to the extraction area and stockpiling areas, must be subjected to an onsite sediment control system.</p>	<p>Site Specific Stormwater management plan addresses Clause C3.</p>
<p>C4. Minimum design specifications for onsite sediment control measures are as follows:</p> <ul style="list-style-type: none"> a) The minimum size of any sedimentation basin must be sufficient to contain the contaminated runoff expected from a 24 hour storm with an average recurrence interval of 1 in 10 years; b) Water retaining structures must be designed to prevent the influx of surface water form adjacent water courses from a 24 hour storm with an average recurrence interval of 1 in 10 years; c) Drainage structures must be sufficient to convey the runoff from a 24 hour storm with an average recurrence interval of 1 in 10 years; 	<p>The site erosion and sediment control plan addresses conditions within Clause C4.</p>

<ul style="list-style-type: none"> d) In the event of site flooding, flow paths must be designed to minimise re-suspension of fines or slimes; and e) All stormwater flow paths must be constructed in such a way as to prevent erosion and scouring. 	
<p>C5. Any sedimentation basins used for the storage of treatment of stormwater at the approved site must be maintained:</p> <ul style="list-style-type: none"> a) To ensure no release of contaminated water through the bed or banks of the basin to any waters (including groundwater); b) So that a freeboard of not less than 0.5 metres is maintained; and c) Ensure the stability of the basins' construction. 	<p>The mining pit is used as the onsite sediment basin.</p>
<p>C6. In the event of a discharge of contaminated water from the areas disturbed by the activity to the creek, the person undertaking the activity to which this approval relates must undertake monitoring of the quality characteristics, at the monitoring point locations described and at the frequency specified in 'Table 2 – Water monitoring program'.</p>	<p>BMI will comply with conditions through clause C6 through implementation of the stormwater management plan.</p>
<p>C7. Should the interpretation of the water monitoring results described in 'Table 2 – Water monitoring program' and conclusions by a suitably qualified and experienced person in the field of surface water indication environmental harm has occurred, or that there is an change of greater than 10% of the quality characteristics at the downstream monitoring point over the upstream monitoring point, then the person undertaking the activity to which this approval relates must undertake a Water Contaminant Investigation Program (WCIP) within 7 days of becoming aware of the discharge. The WCIP must incorporate but not be limited to the following:</p> <ul style="list-style-type: none"> a) Ensure all onsite stormwater diversion measures are intact; b) Ensure the integrity of any onsite bunding; c) Investigate possible points of discharge of stormwater from the area disturbed by the activity; d) Investigate the remaining capacity of sediment basin and determine if removal of sediment is necessary; e) Determine the reaming freeboard of the sediment basin; and f) Investigate stockpiles of material for release to stormwater. 	<p>BMI will comply with conditions through clause C7 through implementation of the stormwater management plan.</p>

<p>C8. A complete and final report addressing the items identified in condition C7 and the outcome and actions taken as a result of the WCIP must be supplied to the administering authority within 14 days of the investigation taking place.</p>	<p>BMI will comply with condition C8 when required.</p>
<p>C9. The environmental authority holder must implement a groundwater monitoring program to monitor the impacts on surrounding groundwater.</p>	<p>Groundwater sampling is undertaken by a third party consultant.</p>
<p>C10. The groundwater monitoring program required by condition C9 must:</p> <ul style="list-style-type: none"> a) Be designed by a person possessing appropriate qualifications and experience in groundwater hydrology and groundwater monitoring program design, and be able to competently analyse monitoring data and make recommendations about these matters. <ul style="list-style-type: none"> i. Monitor groundwater quality, by sampling water within the ML4581 open pit for the parameters and at the frequency described in Table 3 – Groundwater Characteristics to be monitored and monitoring frequency. b) Incorporate a desktop study to characterise site hydrogeological regime. This study should include sufficient details which can be used as the basis for groundwater impact assessment and monitoring when future activities on the site are defined. 	<p>Groundwater sampling program is undertaken by a third party consultant.</p>
<p>C11. The holder of the environmental authority must conduct monitoring and keep records of groundwater quality locations and maintain the groundwater monitoring program required by condition F11 using persons of suitable experience. All determinations of groundwater quality must be:</p> <ul style="list-style-type: none"> a) Followed by an annual assessment of whether there has been any change made in accordance with methods prescribed in the latest edition of the Administering Authority's Water Quality Sampling Manual; and b) Analysed at a laboratory that holds the appropriate accreditation from the National Association of Testing Authorities, 	<p>All monitoring is undertaken by suitably qualified third party and records kept by BMI.</p>
<p>C12. On any occasion that samples are obtained in accordance with condition C10 the standing water levels in ML 4581 open pit must be measured and recorded to an accuracy of 0.01 meters relative to Australian Height Datum (AHD).</p>	<p>BMI will survey the height of the water in the open pit on occasions when survey is required. Results will be recorded.</p>
<p>Schedule D – Noise and Vibration</p>	

<p>D1. Notwithstanding any other conditions of this environmental authority, noise from activities must not cause an environmental nuisance at any existing noise sensitive place or any commercial place.</p>	<p>BMI commit to not causing environmental nuisance at a sensitive/commercial place.</p>
<p>D2. When requested by the administering authority in writing, noise monitoring must be undertaken within a reasonable and practicable timeframe nominated by the administering authority to investigate any complaint (which is neither frivolous nor vexatious nor based on mistaken belief in the opinion of an authorised officer) of environmental nuisance at any sensitive place, and the results must be notified within 14 days to the administering authority following completion of the monitoring.</p>	<p>When requested BMI will engage a suitably qualified third party to undertake noise monitoring and complete a report. The report will be forwarded to EHP within 14 days following its completion.</p>
<p>D3. Noise Monitoring must include:</p> <ul style="list-style-type: none"> a) Background noise level; b) $L_{Amax, adj, 15mins}$ or where they can be justified as appropriate $L_{A 10, adj, 15mins}$ and $L_{A 1, adj, 15mins}$; c) The level and frequency of occurrence of impulsive or tonal noise; d) Atmospheric conditions including wind speed and direction; e) Effects due to extraneous factors such as traffic noise; and f) Location, date and time of recording. 	<p>Noise monitoring will be completed in accordance with Clause D3.</p>
<p>D4. In the event of a complaint about noise environmental nuisance that the administering authority considers is not frivolous or vexatious then a noise management plan is to be developed within one (1) month of the environmental authority holder being advised in writing of the complaint. The noise management plan must address at least, but not limited to, the following matters:</p> <ul style="list-style-type: none"> a) Identification of component noise sources and activities at the place(s) which impact on noise sensitive areas; b) The measured and/or predicted level of these noise sources and activities at noise sensitive places; c) The reasonable and practicable control or abatement measures that can be undertaken to reduce identified intrusive noise sources; d) The level of noise at noise sensitive places that would be achieved from implementing these measures; e) The handling of future noise complaints; f) Community liaison and consultation; and g) Training of staff in noise management practices. 	<p>Upon receiving a complaint from EHP (compliant with D4), BMI will engage a suitably qualified noise consultant to undertake noise monitoring and document a noise management plan in accordance with Clause D4.</p>

D5. Upon the completion of the noise management plan it must be submitted to the administering authority within 14 days for its review and comment.	BMI will submit the noise management plan (completed by suitably qualified third party) to EHP within 14 days of its completion.
D6. After the Administering Authority has provided comment on the noise management plan, the holder of this authority must implement the plan as soon as practicable.	BMI will commence implementation recommendations in the noise monitoring plan as soon as practicable.
D7. The method of measurement and reporting of noise levels must comply with the latest edition of the Administering Authority's 'Noise Measurement Manual'.	BMI will engage a suitably qualified noise consultant. Noise monitoring will comply with the latest edition of the Administering Authority's 'Noise Measurement Manual'.
D8. The use of explosives is not permitted to be undertaken as part of this activity.	No explosives are to be used on site.
Schedule E – Waste	
E1. Any loss or spillage of regulated wastes must be cleaned up immediately.	BMI commit to cleaning up the loss or spillage of regulated wastes immediately following the incident.
E2. Regulated waste must be handled and transferred in a proper and efficient manner to prevent any leakage or spillage of waste.	BMI will manage regulated waste in a manner to prevent leakage or spillage.
E3. Tyres stored onsite awaiting collection must be maintained in stockpiles less than 200 m ² in area and less than 3 meters high. These stockpiles must be and at least 10m from any other tyre storage areas.	There is no requirement to store tyres onsite. All used tyres are taken offsite.
E4. All reasonable and practicable fire prevention measures must be implemented, including removal of grass and other materials within a 10m radius of the scrap tyre storage area.	There is no scrap storage of tyres on site.
Schedule F – Land	
F1. All areas disturbed by mining activities must be rehabilitated to achieve a landform that is: <ul style="list-style-type: none"> a) Safe to humans and wildlife; b) Non-polluting; c) Self-sustaining; d) Stable; and e) Able to sustain the post-mining land use; 	BMI is rehabilitating land to achieve a landform that is in accordance with post mining land use.
F2. The holder of this environmental authority must take all reasonable and practicable measures to minimise the area of land, including spoil areas with post mine land slopes of greater than 17%.	BMI is taking all reasonable and practical measure to achieve slopes on final land forms that are greater than 17%.

<p>F3. Areas that are to be progressively rehabilitated to a native ecosystem as required by a condition of this environmental authority, must comply with the following outcomes:</p> <ul style="list-style-type: none"> (i) A self sustaining native ecosystem has been established and species composition and distribution is indicative of the endemic environment; and (ii) Landforms are stable with visible active rill and gully erosion no greater than undisturbed sites of similar soil and slope characteristics. 	<p>All areas that are designated to be rehabilitated to a native ecosystem will be in accordance with condition F3.</p>
<p>F4. Residual voids must not cause any serious environmental harm to land, surface waters or any recognised ground water aquifer, other than the environmental harm constituted by the existence of the residual void itself, and subject to any other condition within this environmental authority.</p>	<p>Residual voids will comply with Clause F4.</p>
<p>F5. Twelve months prior to the establishment of final void on the mining lease the holder of this environmental authority must complete an investigation into the residual void and submit a report to the administering authority proposing acceptance criteria, including:</p> <ul style="list-style-type: none"> (i) Proposed landform design criteria for the competent and incompetent slopes; (ii) The proposed surface area of the void; and (iii) Proposals to meet the requirements of condition. 	<p>BMI commit to complying with Clause F5.</p>
<p>F6. The holder of the environmental authority must ensure that any remaining areas that contain coal fines is covered by a final cover system which effectively minimises;</p> <ul style="list-style-type: none"> (i) Infiltration by water into the tailings deposition area; and (ii) The likelihood of any erosion occurring to the final cover system. 	<p>A final cover system has been documented and is being implemented through site rehabilitation.</p>
<p>F7. Should acid rock drainage be encountered during the operation of this activity measures must be implemented to prevent hazardous leachate being directly or indirectly released or likely to be released as a result of the activity to any ground water or the bed or banks of any waters.</p>	<p>There is no evidence of acid rock drainage on ML 4581.</p>
<p>F8. Land disturbed by mining must be rehabilitated in accordance with Table F1 – Rehabilitation requirements.</p>	<p>Land disturbed by mining is being rehabilitated in accordance with Table F1 – Rehabilitation requirements.</p>

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5. REHABILITATION

The land the subject of ML 4581 is located within the Swanbank Enterprise Master Plan which forms part of the Ipswich Council Planning Scheme. The land use zoning scheme within the Swanbank Enterprise Master Plan includes:

- Business Park
- Energy Infrastructures
- Special Uses (Local Government)
- Land Extensive Business Enterprises
- General Business and Industries
- Low Impact Business and Industries
- Regional Business and Industry Investigations
- Lake, Wetland and Other Features,
- Buffer Greenspace Precincts
- Recreational Greenspace Precinct
- Waste Recycling/Figure Rehabilitation Area, and
- Special Opportunities – low intensity land uses, including large lot residential.

Within the Swanbank Enterprise Master Plan, ML 4581 is zoned as Regional Interest and Business Investigation

(https://www.ipswichplanning.com.au/__data/assets/pdf_file/0017/2069/ips_implementation_guideline_25_1.pdf). The proposed land uses within the Regional Business and Industry Investigation Zone include:

- (a) Uses and works within the Regional Business and Industry Investigation Zone provide regional business enterprise and industry employment opportunities subject to resolution of applicable constraints such as potential amenity impacts on nearby residential areas, mining, flooding and availability of services.
- (b) Pleasant and safe working environments are created. There is a high standard of amenity in regionally significant business and industry areas and uses in these areas are generally compatible.
- (d) A land use pattern is created for each area where there is a transition from lower impact uses on the edge to higher impact activities towards the centre, with buffer areas on the periphery to separate incompatible or sensitive uses.
- (h) Where possible, the areas maintain or develop an overall greenspace setting, inclusive of active and passive recreation uses and pedestrian and cycle trails.
- (i) Uses and works are located and designed to minimise risks and nuisance to people and property.
- (j) Degraded or contaminated sites (including former mining sites and overburden stockpiles) are rehabilitated and used in an appropriate manner.
- (k) Buffers are created between incompatible uses to ensure that there are no discernible amenity or environmental impacts which affect adjacent sensitive land use

BMI are planning to rehabilitate ML 4581 for industrial use. This is consistent with the outcomes provided in the Swanbank Master Plan.

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Figure 2 Swanbank Enterprise Master Plan land use zoning

BMI is planning to rehabilitate ML 4581 for industrial use in accordance with Figure 3. To achieve this outcome, there are three land use areas that make up the majority of area on the mining lease including (refer to Figure 4):

- water filled mining void
- overburden stockpile
- area of spontaneous combustion.

5.1.1 Water Filled Mining Void

The mining void has a surface area of 4.529 ha and depth ranging from 25m on the eastern side down to approximately 40m on the western side. On average this is a void of approximately 1,471,925 m³. BMI will continue to fill the void to achieve the landform proposed in Figure 3. However, subject to economic constraints, BMI do not want to commit to the filling of the void for the purpose of the EA and Financial Assurance. The landowner has agreed to retain the water filled onsite (see attached landowner consent letter).

In accordance with the Guideline: Rehabilitation Requirements for Mining Resource, the principals of rehabilitation are to make the site safe to humans and wildlife, non-polluting, stable and able to support an agreed post mining land use. The agreed post mining land use for ML 4581 (industrial) can be supported with the water filled void remaining. Many industrial uses require a water source to support operations. This plan of operations and supporting financial assurance is based on the water in the void remaining.

In the context of the above, BMI will continue to fill as much of the void as deemed economically feasible to support rehabilitation of the land. By maximising the area of hardstand, both the final land use options increase along with the value of the land.

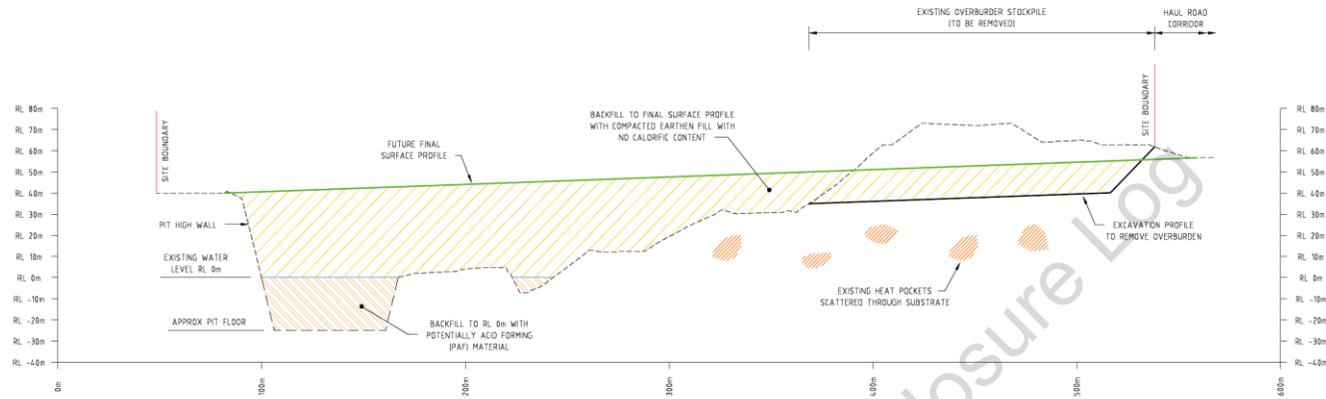
5.1.2 Overburden Stockpiles

The overburden stockpile is positioned on the eastern side of ML4581. In accordance with Guideline Rehabilitation Requirements for Mining Resource the principals of rehabilitation are to make the site safe to humans and wildlife, non-polluting, stable and able to support an agreed post mining land use. There is no requirement to remove the entire stockpile, nor is it economical to do so. BMI will continue to establish areas for industrial use with the goal of removing as much of the overburden stockpile as is economically feasible in accordance with Figure 3.

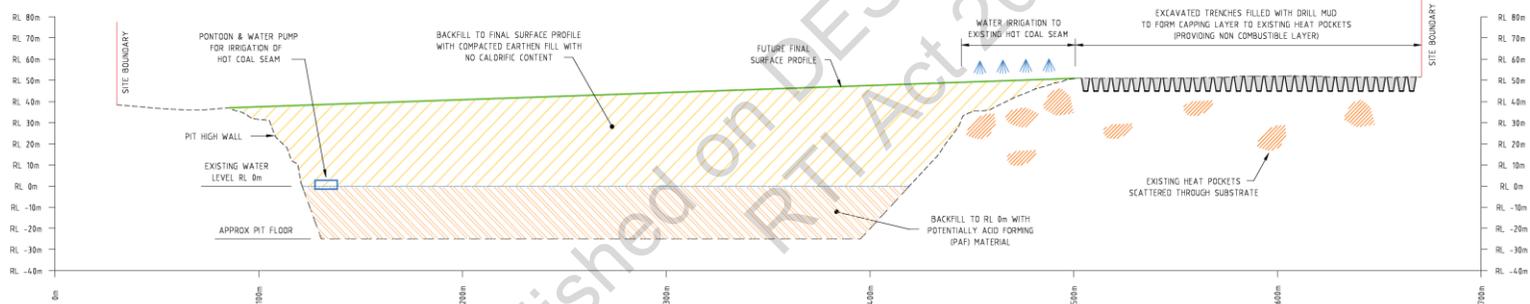
With respect to the EA and Rehabilitation plan, the rehabilitation will focus on the steep slopes that exceed the EA criteria for slopes, minimising erosion risk and establishing vegetation cover.

5.1.3 Areas of spontaneous combustion

Areas of spontaneous combustion are evident to the north of the water filled void. This land is unusable until the spontaneous combustion is extinguished and soil temperatures are reduced. BMI are actively remediating this area in accordance with a site specific spontaneous combustion management plan.



SECTION A BOGSIDE SECTION
SCALE 1:2000 (001) (WEST-EAST)



SECTION B BOGSIDE SECTION
SCALE 1:2000 (001) (SOUTH-NORTH)

REV	DESCRIPTION	DATE	BY/CHKD	<p>Allan Watson Associates Waste and Water Management Consultants ABN 24 081 272 406 PO Box 43 Alderley QLD 4051 PH (07) 3552 7222 FAX (07) 3856 5587</p>	DESIGNED	SCALE	CLIENT	<p>JOB NUMBER 0200-BEM-007</p> <p>Figure 3</p>
					DRAWN	1:2000	BMI GROUP	
					CHECKED		BOGSIDE SITE - COAL SEAM FIRE CAPPING CONCEPT	
					APPROVED	A3	SECTIONS	
					DATE	0200-BEM-007-004		
				DATE	OCT. 2011	REVIEW		

5.2. ENVIRONMENTAL AUTHORITY REQUIREMENTS

The rehabilitation outcomes for ML 4581 are provided in Table F1 of the EA. The table is presented below in Table 2.

Table 2 Table F1 – Rehabilitation requirements

Mine domain	Mine feature name	Rehabilitation objectives	Rehabilitation goal	Indicators	Completion criteria
Void	TBA	1. Safe	TBA	TBA	TBA
Roads/Tracks	TBA	2. Non-polluting	TBA	TBA	TBA
Infrastructure	TBA	3. Stable	TBA	TBA	TBA
Spoil Areas	TBA	4. Self-sustaining	TBA	TBA	TBA

TBA – to be consistent with the requirements of the Guideline EM1122: Rehabilitation requirements for mining resource activities (Version 2) and advised by the holder of the environmental authority to the administering authority by 31 August 2016.

BMI acknowledge that finalisation of the Table F1 is still to be agreed. The rehabilitation requirements are presented in this section and are consistent with the Guideline EM1122 Rehabilitation requirements for mining resource activities (Version 2).

5.3. REHABILITATION STATUS OF ML 4581

To support this Plan of Operations, a survey of existing land use was undertaken. Land use has been defined in categories as per Table 3.

Table 3 BMI Land use descriptions

Domain	Description
Active Areas	Areas within the Overburden stockpile that area suitable for recovering clay/shale. Active areas of fill (ongoing earthworks/rehabilitation). Laydown areas for storage of aggregate/product for use in rehabilitation works.
Degraded Areas	Areas that were actively disturbed during historic mining activities and require major earthworks in some areas to achieve safety, stability, non-polluting and self-sustaining outcomes.
Active Rehabilitation Areas	Area where landforms have vegetation cover and slopes are generally in accordance with the 17% EA criteria. Majority of area has at least 70 % vegetation cover. Areas are generally stable, non-polluting and self-sustaining. Ongoing maintenance required.
Rehabilitated Areas	These areas were avoided during historic mining activities and exhibit mature floral assemblages. Ongoing monitoring and maintenance requirements.
Spontaneous Combustion Areas	Areas exhibiting evidence of spontaneous combustion. Active management required.
Water Surface Area	Surface area of the water filled void

Table 4 provides a cross reference between land use descriptions used by BMI and the Mine Domain names referenced in Table F1 of the EA.

Table 4 Mine Domain and corresponding Land use reference

Mine Domain	BMI Land use reference	Land use reference ID
Void	Water surface area Surrounding banks	W1, D1, D2
Roads/Tracks	Roads and tracks	T1, T2, T3
Infrastructure	NA	NA
Spoil Areas	Active areas Degraded surface areas Active rehabilitation areas Rehabilitated areas	R1-R7, A1-A6, D1-D5, AA1-AA6.

The land uses are provided in Figure 4. Table 5 provides a description of the land uses and intended use through the term of this Plan of Operations (1 year).

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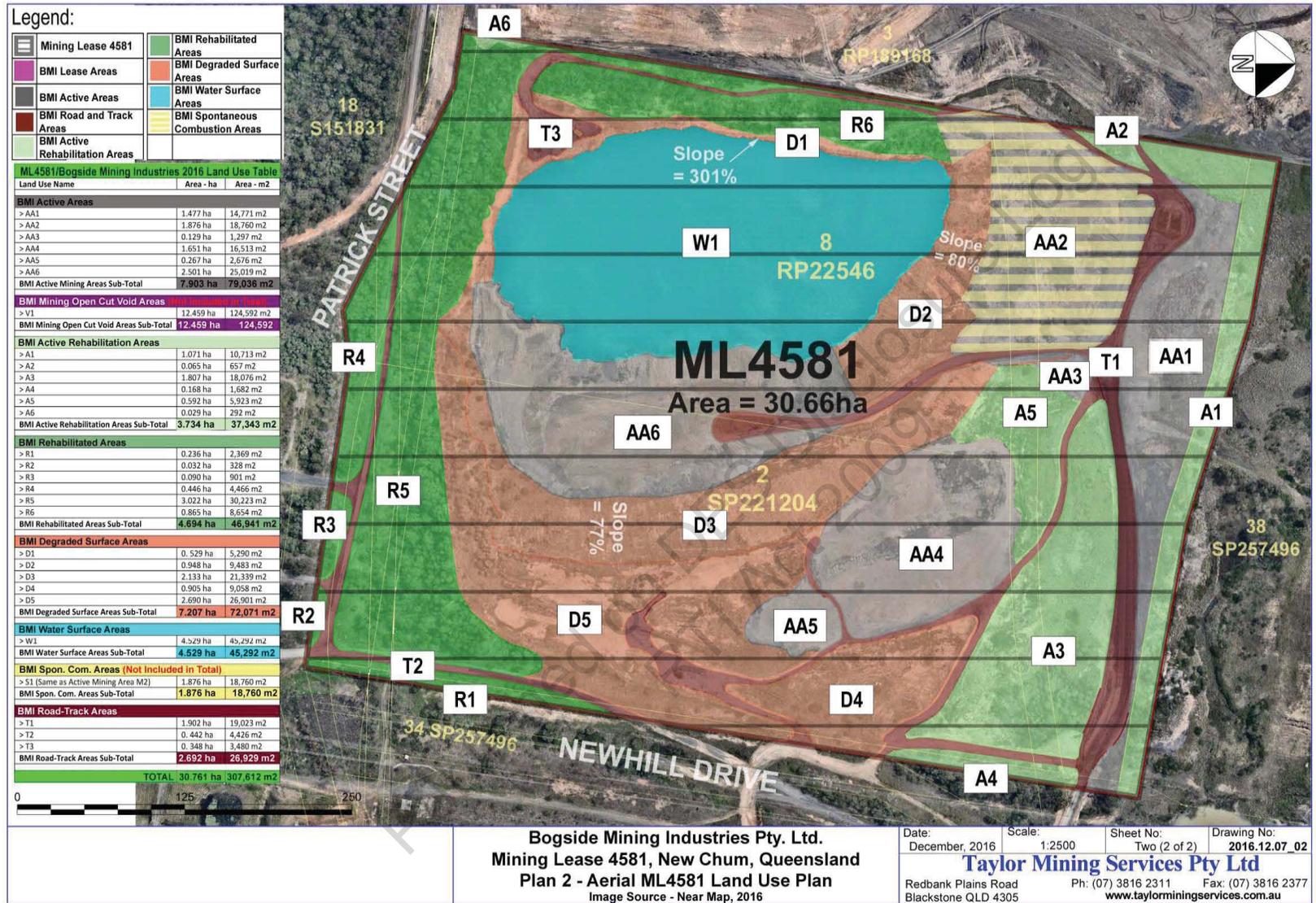


Figure 4 Land use parcels on ML 4581

Table 5 Description of land use on ML 4581

Land Use Reference No .(refer to Figure 4)	Land Use Description	Use during next 1 year
AA1	Stockpile area for storage of aggregates and other products.	Ongoing use
AA2	<p>Area disturbed by historic mining activities and exhibiting evidence of spontaneous combustion.</p> <p>Due to high ground surface temperatures and ongoing subsidence, the area is fenced off and deemed unusable.</p> <p>Rehabilitation of area includes the use of drill mud to extinguish underground fires and reduce heat.</p>	Ongoing rehabilitation through implementation of site spontaneous combustion management plan.
AA3	<p>Removal of overburden/stockpile, Aggregate storage area.</p> <p>Area being extracted to improve road access to M6.</p>	Ongoing use
AA4	<p>Flat pad.</p> <p>Removal of overburden/stockpile</p> <p>Temporary aggregate stockpile area</p>	Ongoing use
AA5	Active removal of overburden/ stockpile area	Ongoing use
AA6	<p>Active fill area to achieve final landform</p> <p>Filling of mining void</p>	Ongoing use
A1	Area is fenced. No access to mine vehicles.	<p>Rehabilitation is now naturally occurring in this area.</p> <p>Monitoring/maintenance through this plan of operations</p>
A2	Area is not used.	<p>Emergence of native grass is now occurring in this area.</p> <p>No works are planned in this area.</p>
A3	Established grasses with greater than 70% cover.	<p>Natural rehabilitation.</p> <p>No rehabilitation activities are planned in this area.</p>
A4	Established vegetation along property boundary	<p>Natural rehabilitation.</p> <p>No works are planned in this area.</p>
A5	Greater than 70% grass cover. Some slopes exceed EA criteria.	No rehabilitation activities are planned for this area.

A6	Small pocket of previously disturbed ground that is naturally rehabilitating	No rehabilitation activities are planned for this area.
R1, R2, R3, R4, R5, R6, R7	Established vegetation with mature trees.	No rehabilitation activities are planned for this area.
D1	Includes the highwall from historic mining activities. This area does not exhibit any vegetation and is generally unstable.	No rehabilitation activities are planned for this area.
D2	Formally an area of Spontaneous combustions and does not exhibit any evidence of vegetation. Slopes exceed EA criteria.	Ongoing rehabilitation in accordance with Spontaneous combustion management plan
D3	Western slope of the overburden stockpile from historic mining. Generally lacks vegetation, evidence of erosion that leads towards the mining void. Steep slopes and generally unstable.	No rehabilitation activities are planned in this area for the duration of this plan of operations.
D4	Eastern slope of overburden stockpile. Exhibits some evidence of steep slopes Naturally revegetation although inconsistent.	No rehabilitation activities are planned in this area for the duration of this plan of operations.
D5	Plateau of overburden stockpile. Generally degraded surface with sporadic vegetation and slope ranging between compliant and non-compliant.	No rehabilitation activities are planned in this area for the duration of this plan of operations.
W1	Water filled mining void. Void is being filled with clean fill from the eastern bank.	BMI will continue to fill the mining void with clean fill during this plan of operations.
T1, T2, T3	Internal, unsealed road network.	Internal roads will be utilised during this plan of operations.

5.4. REHABILITATION ACTIVITIES

5.4.1 Mine Void

The mine void is currently filled with water and is represented by land use ID W1, D1 and D2 (Figure 4 and Table 5). The mine void is approximately 4.429ha in surface area. A brief description includes:

- The southern and eastern areas of the void transition into natural ridgelines that were not disturbed by mining activities. These remain vegetated.
- BMI have commenced rehabilitation activities on the eastern side of the void. This has included raising land levels to establish flat areas of land and pushing clean fill material into the void.
- The area to the north of the void rises to approx RL 52. This area exhibits evidence of spontaneous combustion as shown on Table 5.

The mining void rehabilitation goals and objectives (in accordance with Table F1) are provided in Table 6.

Table 6 Mining Void Rehabilitation criteria

Rehabilitation Goal	Rehabilitation Objective	Indicators	Completion Criteria
Safety	Safe to humans and wildlife	Remaining high walls are deemed safe by a competent person.	Statement by RPEQ that all remaining highwalls are safe. Signs, fences and other appropriate safety measures are in place.
		Adequacy and predicted long term predictions of safety measures	A report from a suitably qualified person (REPQ) that a safety plan of the site has been appropriately implemented.
		Slopes (not including the highwall) are equal to or greater than 17%	Certification in rehabilitation report that slopes are safe and predictions about future safety by an REPQ
Non-polluting	No contaminants in water from void to be discharged offsite.	Ongoing testing of water.	Groundwater report to identify that there is no risk contamination to surrounding land from water within the mining void.
Stable	Very low probability of subsidence or rock falls with serious consequences	Geotechnical studies	Evidence in rehabilitation report that appropriate risk assessment has been undertaken and control measures are in place.
Self sustaining	Soil properties that support and will continue to support desired land use	Geotechnical Report.	Geotechnical report that shows soil properties are supportive of post land use.

Status of Mining Void

The mining void is currently full of water and will remain post mining. BMI is in the process of rehabilitating the eastern side of the void. Table 7 provides a measure against the criteria provided in Table 6.

Table 7 Status of Mining Void

Objective	Indicators	Existing condition	FA Requirements
Safe to humans and wildlife	Remaining high walls are deemed safe by a competent person.	Area is fenced and signed. Further assessment required by REPQ.	Refer to Section 5.6

	Adequacy and predicted long term predictions of safety measures	Require a safety report from an RPEQ	
	Slopes (not including the highwall) are equal to or greater than 17%.	Ongoing rehabilitation works to achieve slope criteria	
Very low probability of subsidence or rock falls with serious consequences	Geotechnical studies of existing structures, underground workings, high walls, voids	Highwalls are stable. RPEQ report is required.	
Non-polluting	Ongoing testing of water	Water testing is occurring.	
Soil properties suitable to support ongoing landuse.	Geotechnical Report	Area requires further remediation	

5.4.2 Roads/Tracks

BMI is utilising internal roads that were established during historic mining activities. Internal roads will remain to support the ongoing use of the land. The roads/tracks rehabilitation goals and objectives (in accordance with Table F1) are provided in Table 8.

Table 8 Rehabilitation goals and objectives for Roads/Tracks

Rehabilitation Goal	Rehabilitation Objective	Indicators	Completion Criteria
Safety	Safe to humans	Road suitable for ongoing use by heavy/light vehicles.	Safety report on suitability of road for ongoing use by REPQ.
Non-polluting	Low risk of groundwater /office site surface water overflow	Erosion and sediment controls in place to capture sediment prior to discharge from site	Certification that water diversion/containment structures to minimise quantities of polluted water and containing it on site are effective
Stable	Allow continued use of permanent infrastructure	Inspection of roads indicate stability.	Certification that road is stable by REPQ.
Self-sustaining	NA	NA	NA

Status of Roads and Tracks

Table 9 Status of roads and tracks

Objective	Indicators	Existing condition	FA Requirements
Safe to humans	Road suitable for ongoing use	Roads are traversed by mining vehicles and 4WD light vehicles	No FA required.

Low risk of groundwater /office site surface water overflow	Erosion and sediment controls in place to capture sediment prior to discharge from site	Ongoing monitoring and maintenance of sediment and erosion controls	
Allow continued use of permanent infrastructure	Inspection of roads indicate stability.	Roads are deemed stable for ongoing use	

5.4.3 Infrastructure

There is no fixed infrastructure on ML 4581. A sykes pump is position in proximity to the mining void for the use of extracting water for dust suppression activities. This is a mobile pump that can be removed at no cost. No further assessment of infrastructure is provided.

5.4.4 Spoil Areas

Spoil areas are defined as all areas excluding the water filled void and access tracks. The feature landform is the overburden stockpile which is to the east of the water fill mine void (refer to Figure 4).

The maximum height of the overburden stockpile is approximately RL 61. The western side of the stockpile slopes towards the mining void and includes slopes that are up to 1:1.3. There is evidence of erosion along this steep batter, leading down towards area AA6.

The eastern, southern and northern aspects of the stockpile have ranging slopes and have vegetation of that provides stability in places.

Active areas (represented by AA1, AA2, AA3) are used by BMI for laydown areas, storage of aggregates from mining processes and rehabilitation.

Table 10 Spoil Area Rehabilitation Goal

Rehabilitation Goal	Rehabilitation Objective	Indicators	Completion Criteria
Safety	Safe to humans and wildlife	Safety assessment of slopes that are greater than 17%	Certification in rehabilitation report that slopes are safe (RPEQ).
Non-polluting	Polluted water contained on site	Downstream surface/groundwater monitoring	Certification that monitoring data meets specified criteria relevant to potential contaminants (RPEQ) Certification that water diversion/containment structures to minimise quantities of polluted water and containing it on site are effective
Stable	Very low probability of subsidence or rock falls with serious consequences	Geotechnical, geochemical and hydrological studies outer batter slopes of waste rock dumps	Evidence in rehabilitation report that appropriate risk assessment has been undertaken and control measures are in place that will continue to meet agreed requirements
	Vegetation cover to minimise erosion	Foliage Cover	Rehabilitation report providing evidence of 70% cover on batters.

Rehabilitation Goal	Rehabilitation Objective	Indicators	Completion Criteria
Self sustaining	Soil properties that support and will continue to support desired land use	Soil properties suitable to support ongoing land use.	Geotechnical Engineering Report identifying final landform is suitable for ongoing use.

Status of rehabilitation of spoil areas

Table 11 provides an overview of the existing conditions of spoil areas against the criteria in Table 10. There are varying levels of rehabilitation achieved on site as provided in Table 3 and Figure 4.

Table 11 Status of Spoil

Objective	Indicators	Existing condition	FA Requirements
Safe to humans and wildlife	Safe to humans and wildlife	Safety assessment of slopes that are greater than 17%	Refer to Section 5.6
Polluted water contained on site	Downstream surface/groundwater monitoring	Ongoing monitoring	
Very low probability of subsidence or rock falls with serious consequences	Geotechnical, geochemical and hydrological studies outer batter slopes of waste rock dumps	Ongoing rehabilitation requirements to achieve stable slopes	
Vegetation cover to minimise erosion	Foliage Cover	Vegetation cover does not meet 70% cover on batters.	
Soil properties that support and will continue to support desired land use	Soil properties suitable to support ongoing land use.	Improved soil conditions required to support vegetation cover.	

5.5. FINANCIAL ASSURANCE

In accordance with the Financial Assurance Calculator (attached), the amount of financial assurance remaining for ML 4581 is \$815,773 (ex GST).

5.6. COMPLIANCE STATEMENT

I, Mark Dekker, being aware that it is an offence under section 480 of the Environmental Protection Act 1994 to provide false or misleading information state that:

- I am authorized to sign on behalf of the person holding the environmental authority;
- all information provide is true and complete
- this plan of operations complies with the conditions of the environmental authority
- the financial assurance for the environmental authority has been calculated in accordance with the guideline under section 295(3)(b) of the Environmental Protection Act 1994

sch4p4(6) Personal information

Mark Dekker

General Manager

5 March 2019

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Notice

Environmental Protection Act 1994

Decision on amount and form of financial assurance

This notice is issued by the administering authority¹, pursuant to section 296 of the Environmental Protection Act 1994 to advise the holder of an environmental authority of the decision on the amount and form of financial assurance imposed on the environmental authority.

To: Bogside Mining Industries Pty Ltd
42 Jordan Terrace
BOWEN HILLS QLD 4006

Cc: Department of Natural Resources, Mines and Energy
Mineral Assessment Hub
MineralHub@dnrme.qld.gov.au
My Mines Online
Mines_online@dnrme.qld.gov.au

Cc: PO Box 226
MORNINGSIDE QLD 4170

Email: Mark@bmigroup.com.au

Attention: Mr Mark Dekker

Your reference: EPML00383413
Our reference: 101/0007904

Re: Decision on the amount and form of financial assurance.

1. Application details

A replacement plan of operations, including a proposed amount of financial assurance for EPML00383413 was received by the administering authority on 13 March 2019.

2. Environmental authority details

Environmental authority number EPML00383413 effective 3 March 2016 issued to Bogside Mining Industries Pty Ltd.

Property/location description: ML4581.

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¹ The Department of Environment and Science is the administering authority under the *Environmental Protection Act 1994*.

Decision on amount and form of financial assurance

3. Decision

The administering authority has decided:

- That the total cost of rehabilitation is \$818,009.00.
- The total amount of financial assurance to be lodged is \$818,009.00 in the form of a bank guarantee.

The approved pro-forma template for a bank guarantee for financial assurance is available for download from the Business and Industry Portal at www.business.qld.gov.au. Please note that the bank guarantee must be from an approved security provider, as defined in the *Financial and Performance Management Standard 2009* (available online at www.legislation.qld.gov.au).

4. Grounds for the decision

Pursuant to section 295 (1) of the *Environmental Protection Act 1994* (EP Act), the administering authority has decided the amount and form of financial assurance (FA) for environmental authority EPML00383413 (the EA) is \$818,009.00 in the form of a bank guarantee, for the following reasons:

- On 13 March 2019, a replacement Plan of Operations (Plan) was submitted to the Department of Environment and Science (the department) by Bogside Mining Industries Pty Ltd (BMI) for the EA. The Plan proposed an FA amount of (\$818,009.00).
 - On 15 March 2019, the department advised BMI in a letter that the Plan met the content requirements of section 288 of the EP Act.
 - The department has reviewed the proposed FA calculation in accordance with the FA Guideline and has accepted BMI's proposed amount of FA for rehabilitation requirements.
 - The total amount of FA determined by the department is considered to represent the likely costs and expenses that may be incurred taking action to rehabilitate or restore and protect the environment because of environmental harm that may be caused by the mining activities.

5. Review and appeal rights

You may apply to the administering authority for a review of this decision within 10 business days after receiving this notice. You may also appeal against this decision to the Land Court. Information about your review and appeal rights is attached to this notice. This information is guidance only and you may have other legal rights and obligations.

6. Lodgement of financial assurance

The required financial assurance must be lodged with the Department of Natural Resources, Mines and Energy (DNRME) by 12 June **2019**. Please contact the Mining Registrar DNRME for assistance with lodgement of the financial assurance.

Financial assurance must be lodged in person at, or via registered post to, the following departmental regional office:

Department of Natural Resources, Mines and Energy
PO Box 15216, CITY EAST, QLD 4002
Ph. (07) 3199 8133
Email: mines_online@dnrme.qld.gov.au

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Decision on amount and form of financial assurance

IMPORTANT NOTE: Financial assurance must be lodged before activities are carried out, or allowed to be carried out, under the environmental authority, or by a new environmental authority holder. For an ongoing activity, any required adjustment to financial assurance should be made as soon as possible, and within 20 business days of receiving this decision notice. Failure to comply with this requirement may attract a fine or result in the cancellation or suspension of your environmental authority.

sch4p4(6) Personal information
Signature

15 / 5 / 19
Date

Dean Sharpe
Department of Environment and Science
Delegate of the Administering Authority
Environmental Protection Act 1994

Enquiries:
PO Box 7230, Cairns Qld 4870
Phone: (07) 4222 5391

Attachments

Information sheet: Internal review and appeal (ESR/2015/1742).

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