

# Permit

Environmental Protection Act 1994

## Environmental authority EPML00870113

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

**Environmental authority number: EPML00870113**

**Environmental authority takes effect on 27 July 2017**

### Environmental authority holder(s)

Name(s)	Registered address
PACGOLD LIMITED	Level 4 360 Collins St MELBOURNE VIC 3000 Australia

### Environmentally relevant activity and location details

Environmentally relevant activity/activities	Location(s)
Schedule 3 16: Mining gold ore	ML2907
Schedule 3 16: Mining gold ore	ML3010
Schedule 3 16: Mining gold ore	ML2902
Schedule 3 16: Mining gold ore	ML2901
Schedule 3 16: Mining gold ore	ML2958
Schedule 3 16: Mining gold ore	ML2957
Schedule 3 16: Mining gold ore	ML2908
Schedule 3 16: Mining gold ore	ML3011

### 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.

## Environmental authority

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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](http://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 Sustainable Planning Act 2009 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.

## Environmental authority

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Department of Environment and Science  
Delegate of the administering authority  
Environmental Protection Act 1994

**Date issued: 25 January 2021**

**Enquiries:**  
Minerals Business Centre  
Department of Environment and Science  
Phone: 07 4222 5352  
Email: ESCairns@des.qld.gov.au

## Environmental authority

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### 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)



# Permit

## 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 Natural Resources and Mines (to clear vegetation), and the Department of Agriculture and Fisheries (to clear marine plants or to obtain a quarry material allocation).

## Obligations under the *Mining and Quarrying Safety and Health Act 1999*

If you are operating a quarry, other than a sand and gravel quarry where there is no crushing capability, you will be required to comply with the *Mining and Quarrying Safety and Health Act 1999*. For more information on your obligations under this legislation contact Mine Safety and Health at [www.dnrm.qld.gov.au](http://www.dnrm.qld.gov.au), or phone 13 QGOV ( 13 74 68 ) or your local Mines Inspectorate Office.

## Conditions of environmental authority

This **environmental authority** incorporates the following schedules:

- |              |   |                     |
|--------------|---|---------------------|
| • Schedule A | - | General             |
| • Schedule B | - | Air                 |
| • Schedule C | - | Water               |
| • Schedule D | - | Noise and Vibration |
| • Schedule E | - | Waste               |
| • Schedule F | - | Land                |
| • Schedule G | - | Community           |
| • Schedule H | - | Definitions         |
| • Schedule I | - | Maps/plans          |

### Schedule A – General

- (A1-1) 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.
- (A1-2) Contaminants with the potential to cause environmental harm must not be released directly or indirectly to the receiving environment, except as permitted under the conditions of this environmental authority.
- (A1-3) In carrying out the activities the environmental authority holder must comply with Schedule A - Table A1 (Authorised Activities and Locations), depicted in Schedule I – Figure 1 and Schedule I – Figure 2 (Authorised activities and Locations).

**Schedule A - Table A1 (Authorised Activities and Locations)**

Mine Domain	Mine Feature Name	Tenure Type and Number	Location (GDA94 - Zone 54)		Maximum disturbance area (ha)
			Central Peg Coordinates		
			Easting	Northing	
Infrastructure	Plant area	ML3010	744975	8292649	2.0
	Roads and tracks	ML2901, ML3010, ML2907, ML2957, ML2958, ML2908, ML2902	Refer to Schedule I – Figure 1 and Schedule I – Figure 2(Authorised activities and locations)		2.0
Tailings	Tailings dam	ML3010	744790	8292737	3.0
Overburden & Waste	Mullock dumps	ML3010	745011	8292562	0.5
	ROM pad	ML3010	745124	8292649	1.1
Pits	Mine pit	ML2901	745251	8292542	2.0
	Borrow pits/costeans	ML 2908, ML 2902, ML 2958	746385 746300	8290225 8290420	0.6
Exploration	Exploration Areas	ML 3010, ML 2908, ML 2902, ML 2958	746260 746370 745046	8290500 8290240 8292855	13.33
	Drill holes	ML2901, ML3010, ML2907, ML2957, ML2958, ML2908, ML2902	Authorised drill hole locations include those provided in the current plan of operations.		3.0

(A1-4) The environmental authority holder must:

- a) Install all measures, plant and equipment necessary to ensure compliance with the conditions of this environmental authority; 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; and
- d) Ensure all instruments and devices used for the measurement or monitoring of any parameter under any condition of this environmental authority are properly calibrated.

#### **Monitoring**

- (A1-5) Except where specified otherwise in another condition of this environmental authority, all monitoring records or reports required by this environmental authority must be kept for a period of not less than five years.
- (A1-6) The date and time when the sample was taken must be recorded in relation to all monitoring required under a condition of this environmental authority.
  - a) The date and time when the sample was taken;
  - b) The location where the sample was taken.
- (A1-7) All monitoring data, records and reports required by this environmental authority or related to environmental management of the activities must be carried out by an appropriately qualified person, periodically reviewed and updated as required to reflect operational or environmental changes.
- (A1-8) All monitoring data, records, plans and reports required by this environmental authority or related to environmental management of the activities must be provided to the administering authority in the specified format within 10 business days of a request.

#### **Financial Assurance**

- (A2-1) Financial assurance must be lodged in the amount and form and within the time required by the administering authority.  
*Note: financial assurance must be re-calculated with every amendment or replacement plan of operations*

#### **Risk management**

- (A3-1) The holder of this environmental authority must develop and implement a risk management system for mining activities which mirrors the content requirement of the Standard for Risk Management (ISO31000:2009), or the latest edition of an Australian standard for risk management, to the extent relevant to environmental management, by 26 July 2018.

#### **Notification of emergencies, incidents and exceptions**

- (A4-1) The holder of this environmental authority must notify the administering authority by telephone or email notification within 24 hours, after becoming aware of any event, emergency or incident which results in the release of contaminants not in accordance, or reasonably expected to be not in accordance with, the conditions of this environmental authority.
- (A4-2) Within 10 business days following the initial notification of an emergency, event or incident, or receipt of monitoring results, whichever is the latter, further written advice must be provided to the administering authority, including the following:
  - a) Results and interpretation of any samples taken and analysed;
  - b) Outcomes of actions taken at the time to prevent or minimise unlawful environmental harm; and
  - c) Proposed actions to prevent a recurrence of the emergency or incident.



### Complaints

- (A5-1) The holder of this environmental authority must record all environmental complaints received about the activities including:
- a) Name, address and contact number of the complainant;
  - b) Time and date of complaint;
  - c) Reasons for the complaint;
  - d) Investigations undertaken;
  - e) Conclusions formed;
  - f) Actions taken to resolve the complaint;
  - g) Any abatement measures implemented; and
  - h) Person responsible for resolving the complaint.
- (A5-2) The holder of this environmental authority must, when requested by the administering authority, undertake relevant specified monitoring within a reasonable timeframe nominated or agreed to by the administering authority to investigate any complaint of 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 10 business days of completion of the investigation, or no later than 10 business days after the end of the timeframe nominated by the administering authority to undertake the investigation.

### Third-party reporting

- (A6-1) The holder of this environmental authority must:
- a) By 26 July 2018, obtain from an appropriately qualified person a report on compliance with the conditions of this environmental authority;
  - b) Obtain further such reports at regular intervals, not exceeding three (3) yearly intervals, from the completion of the report referred to above; and
  - c) Provide each report to the administering authority within 90 days of its completion.
- (A6-2) Where a condition of this environmental authority requires compliance with a standard, policy or guideline published externally to this environmental authority and the standard is amended or changed subsequent to the issue of this environmental authority, the holder of this environmental authority must:
- a) Comply with the amended or changed standard, policy or guideline within two years of the amendment or change being made, unless a different period is specified in the amended standard or relevant legislation.
  - b) Until compliance with the amended or changed standard, policy or guideline is achieved, continue to remain in compliance with the corresponding provision that was current immediately prior to the relevant amendment or change.

### Plan of Operations

- (A7-1) The Plan of Operations must include a Management Plan which provides for the protection of (*Holthuisana (Austrothelphusa) tigrina*) the 'Tiger Crab'. The Management Plan must include but not be limited to:-
- (a) information about the current, pre-mining population of the Tiger Crab, including abundance and distribution; and
  - (b) information about the status of the population during operation of the mine, including:

- (i) progressive monitoring of the Tiger crab's abundance and distribution; and
- (ii) a timetable for monitoring the population, taking into account any diurnal or seasonal variation; and
- (iii) contemporaneous monitoring of the water quality within One Mile Creek, in accordance with the requirements set out in Schedule C; and
- (iv) procedures for notification to the administering authority in the event that any decline in the population of the Tiger Crab, that is, or may be attributable to the mining activity, is detected; and
- (v) contingency plans in the event that any decline in the population of the Tiger Crab, that is, or may be attributable to the mining activity, is detected.

**Disturbance to One Mile Creek**

- (A8-1) The holder of the environmental authority must not carry out works which may physically disturb the bed and / or banks, or riparian vegetation of One Mile Creek.

**Exploration**

- (A9-1) All exploration activities carried out on the relevant mining tenure must comply with each of the standard environmental conditions contained in the most recent version of the *Eligibility criteria and standard conditions for exploration and mineral development projects*.

**END OF CONDITIONS FOR SCHEDULE**

**Schedule B – Air**

- (B1-1) Subject to conditions (B1-2) and (B1-3) the release of dust or particulate matter or both resulting from the mining activity must not cause an environmental nuisance, at any sensitive place.
- (B1-2) When requested by the administering authority, dust and particulate 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 the authorized officer) of environmental nuisance at any sensitive place, and the results must be notified within 14 days to the administering authority following completion of monitoring.
- (B1-3) If the environmental authority holder can provide evidence through monitoring that the following limits are not being exceeded then the holder is not in breach of (B1-1):
- (a) dust deposition of 120 milligrams per square metre per day, averaged over one month, when monitored in accordance with AS 3580.10.1 Methods for sampling and analysis of ambient air - Determination of particulates - Deposited matter - Gravimetric method of 1991; and
  - (b) a concentration of particulate matter with an aerodynamic diameter of less than 10 micrometre ( $\mu\text{m}$ ) (PM10) suspended in the atmosphere of 50 micrograms per cubic metre over a 24 hour averaging time, at a sensitive place downwind of the operational land, when monitored in accordance with:
    - (i) particulate matter - Determination of suspended particulate PM10 high-volume sampler with size-selective inlet - Gravimetric method, when monitored in accordance with AS 3580.9.6 Methods for sampling and analysis of ambient air - Determination of suspended particulate matter - PM (sub) 10 high volume sampler with size-selective inlet - Gravimetric method of 1990; or
    - (ii) any alternative method of monitoring PM10 which may be permitted by the 'Air Quality Sampling Manual' as published from time to time by the administering authority.

NOTE: The proponent must decide which monitoring method is appropriate in accordance with condition (B1-3) (a) or (b) or both.
- (B1-4) If monitoring indicates exceedence of the relevant limits in condition (B1-3), then the environmental authority holder must:
- (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.

**END OF CONDITIONS FOR SCHEDULE B**

## Schedule C - Water

### Release to Waters

- (C1-1) Receiving waters affected by the release of process water, tailings dam overflows or storm water contaminated by the mining activities must be monitored at the locations and frequencies defined in Schedule C - Table 1 (Receiving Water Monitoring Locations and Frequency) and Schedule I – Figure 1 (Authorised activities and locations) and comply with the contaminant limits defined in Schedule C - Table 2 (Receiving Water Contaminant Limits).

**Schedule C - Table 1 (Receiving Water Monitoring Locations and Frequency)**

Monitoring point	Easting (GDA94 - Zone 54)	Northing (GDA94 - Zone 54)	Monitoring frequency
<b>W1:-</b> Within One Mile Creek, at least 300m upstream of the open pit, and at a site unaffected by this activity.	745236	8292166	Monthly; and Weekly when there is a discharge from the tailings dam, voids or processing area, to any surface waters.
<b>W2:-</b> Within One Mile Creek, approximately 70m downstream of the open pit. (W2 must also be located between the open pit and the waste rock dump).	744969	8292292	Monthly; and Weekly when there is a discharge from the tailings dam, voids or processing area, to any surface waters.
<b>W3:-</b> Within One Mile Creek, approximately 80m downstream of the waste rock dump	744672	8292418	Monthly; and Weekly when there is a discharge from the tailings dam, voids or processing area, to any surface waters.
<b>W4:-</b> Within One Mile Creek, approximately 300m downstream of the tailings dam	744345	8292575	Monthly; and Weekly when there is a discharge from the tailings dam, voids or processing area, to any surface waters.

**Schedule C - Table 2 (Receiving Water Contaminant Limits)**

Parameter	Units	Minimum	Maximum
pH	pH units	Background <sup>1</sup> –0.5 pH units or 6.0 whichever is the lower	Background <sup>1</sup> +0.5 pH units or 7.5 whichever is the higher
Dissolved Oxygen	% saturation	90	120
Turbidity	NTU	N/A	Background <sup>1</sup> +10% or 15 whichever is the higher
EC	µS/cm	N/A	250
Sulfate	mg/L	N/A	1000
Arsenic (As III)	µg/L	N/A	24
Arsenic (As V)	µg/L	N/A	13
Antimony	µg/L	N/A	Background <sup>1</sup> +10%
Copper	µg/L	N/A	1.4
Zinc	µg/L	N/A	8
Lead	µg/L	N/A	3.4
Cyanide total	µg/L	N/A	7

NOTE: This does not apply to tailings dams

<sup>1</sup> 'Background' refers to the values obtained at sample location W1 – At least 300m upstream of the open pit within One Mile Creek.

- (C1-2) End of pipe release limits for process water, tailings dam overflow or storm water contaminated by mining activities must be monitored at the locations and frequencies defined in Schedule C - Table 3 (End of Pipe Monitoring Locations and Frequency) and Schedule I – Figure 1 (Authorised activities and locations).

**Schedule C - Table 3 (End of Pipe Monitoring Locations and Frequency)**

Monitoring point	Easting (GDA94 - Zone 54)	Northing (GDA94 - Zone 54)	Monitoring frequency
Release Point TD <sub>release</sub>	744703	8292478	Water quality within the tailings dam must be monitored prior to any release, then monitored weekly during the release period

- (C1-3) In the event that tailings dam water quality does not comply with the contaminant limits defined in Schedule C - Table 4 (Tailings Dam Water Quality Limits), the holder of this environmental authority must implement measures to prevent access by all livestock and minimise access by native fauna.

**Schedule C - Table 4 (Tailings Dam Water Quality Limits)**

Monitoring point	Parameter	Units	Contaminant limit	Monitoring frequency
Tailings Dam	Cyanide -Total	mg/L	0.08	Weekly
Tailings Dam	Arsenic	mg/L	0.5	Monthly
Tailings Dam	Sulfate	mg/L	1000	Monthly
Tailings Dam	Copper	mg/L	1	Monthly
Tailings Dam	Zinc	mg/L	20	Monthly
Tailings Dam	Lead	mg/L	0.1	Monthly

### **Tailings and Process Water Dams**

- (C2-1) The design storage allowance on 1<sup>st</sup> November of each year for any tailings dam or process water dam with high or significant hazard rating constructed within the operational land must be equivalent to the run-off from the critical wet season period in Schedule C - Table 5 (Storage Design).

**Schedule C - Table 5 (Storage Design)**

Storage type	Storage Critical Wet Period	Spillway Critical Design Storm*	Mandatory Reporting Level
Process Water Dam**	1:100 Year ARI -2 month wet season	1:1,000 Year ARI	1:100 year ARI***
Tailings Dam	1:100 Year ARI-2 month wet season	1:1,000 Year ARI	1:100 year ARI***

\* the critical storm has a duration that produces the peak discharge for the catchment.

\*\* applies to dams with contents with significant or high hazard only.

\*\*\* refers to ARI - 72 hour storm or the ARI wave allowance whichever is lower.

- (C2-2) The spillway for any tailings dam or process water dam with high or significant hazard constructed within the operational land must be designed to withstand the peak flow from the critical design storm in Schedule C - Table 5 (Storage Design).
- (C2-3) The holder of the environmental authority must notify the administering authority when the level of the tailings dam and/or process water dam reaches the mandatory reporting level defined in Schedule C – Table 5 (Storage Design).

### **Erosion and Sediment Control**

- (C3-1) All reasonable and practicable erosion protection measures and sediment control measures must be implemented and maintained to minimise erosion and the release of sediment.

### **Stream Sediment Contaminant Levels**

- (C3-2) The bed of the receiving waters, affected by the release of process water, tailings dam overflow and storm water contaminated by the mining activities must be monitored at the locations and frequencies defined in Schedule C - Table 6 (Receiving Stream Sediment Monitoring Locations and Frequency) and Schedule I – Figure 1 (Authorised activities and locations).

**Schedule C - Table 6 (Receiving Stream Sediment Monitoring Locations and Frequency)**

Monitoring point	Easting (GDA94 - Zone 54)	Northing (GDA94 - Zone 54)	Monitoring frequency
<b>S1:-</b> Within One Mile Creek, approximately 300m upstream of the open pit, at a site unaffected by this activity.	745236	8292166	At least once every 6 months.  Sampling is to be conducted during the months of February to April and August to October, and must be representative of the in-stream sediment quality for the period towards the end of the dry and wet seasons.
<b>S2:-</b> Within One Mile Creek, approximately 300m downstream of the tailings dam.	744345	8292575	At least once every 6 months.  Sampling is to be conducted during the months of February to April and August to October, and must be representative of the in-stream sediment quality for the period towards the end of the dry and wet seasons.

- (C3-3) Subject to condition (C3-2), if the stream sediment contaminant trigger levels defined in Schedule C - Table 7 (Receiving Stream Sediment Contaminant Trigger Levels) are exceeded then the environmental authority holder must notify the administering authority of the exceedance within 48 hours of receiving the result and complete an investigation into the potential for environmental harm. The results of the investigation must be notified to the administering authority within 3 months of the exceedance.

**Schedule C - Table 7 (Receiving Stream Sediment Contaminant Trigger Levels)**

Parameter	Units	Contaminant trigger levels
Arsenic	mg/kg dry weight	Background X 2 X 80% or 20 whichever is the lower
Cyanide	mg/kg dry weight	Background X 2 X 80%
Antimony	mg/kg dry weight	Background X 2 X 80% or 2 whichever is the lower
Copper	mg/kg dry weight	Background X 2 X 80% or 65 whichever is the lower
Lead	mg/kg dry weight	Background X 2 X 80% or 50 whichever is the lower
Zinc	mg/kg dry weight	Background X 2 X 80% or 200 whichever is the lower

- (C3-4) Subject to condition (C3-2), stream sediment contaminant limits must not exceed the contaminant limits defined in Schedule C -Table 8 (Receiving Stream Sediment Contaminant Limits).

**Schedule C - Table 8 (Receiving Stream Sediment Contaminant Limits)**

Parameter	Units	Contaminant limits
Arsenic	mg/kg dry weight	Background X 2 or 70 whichever is the lower
Cyanide	mg/kg dry weight	Background X 2
Antimony	mg/kg weight	Background X 2 or 25 whichever is the lower
Copper	mg/kg weight	Background X 2 or 270 whichever is the lower
Lead	mg/kg weight	Background X 2 or 220 whichever is the lower
Zinc	mg/kg weight	Background X 2 or 410 whichever is the lower

(C3-5) All stream sediment sampling must be undertaken in compliance with AS 5667.1 Guidance on Sampling of Bottom Sediments of 1998.

**Ground Water**

(C5-1) Groundwater, affected by the mining activities must be monitored at the locations and frequencies defined in Schedule C - Table 9 (Groundwater Monitoring Locations and Frequency) and Schedule I – Figure 1 (Authorised activities and locations).



**Schedule C - Table 9 (Groundwater Monitoring Locations and Frequency)**

<b>Monitoring point</b>	<b>Easting (GDA94 - Zone 54)</b>	<b>Northing (GDA94 - Zone 54)</b>	<b>Surface RL (m)</b>	<b>Groundwater top RL (m)</b>	<b>Monitoring frequency</b>
<b>GW1:-</b> Between the Tailings dam and One Mile Creek	To be provided by the holder of the environmental authority by 30 November 2017.	To be provided by the holder of the environmental authority by 30 November 2017.	To be provided by the holder of the environmental authority by 30 November 2017.	To be provided by the holder of the environmental authority by 30 November 2017.	Quarterly
<b>GW2:-</b> Between the Tailings dam and One Mile Creek	To be provided by the holder of the environmental authority by 30 November 2017.	To be provided by the holder of the environmental authority by 30 November 2017.	To be provided by the holder of the environmental authority by 30 November 2017.	To be provided by the holder of the environmental authority by 30 November 2017.	Quarterly
<b>GW3:-</b> Groundwater quality upstream (at an unaffected analogue site)	To be provided by the holder of the environmental authority by 30 November 2017.	To be provided by the holder of the environmental authority by 30 November 2017.	To be provided by the holder of the environmental authority by 30 November 2017.	To be provided by the holder of the environmental authority by 30 November 2017.	Quarterly

**Schedule C - Table 10 (Groundwater Contaminant Trigger Levels)**

Parameter	Units	Minimum	Contaminant trigger levels (maximum)
pH	pH units	Background <sup>1</sup> –0.5 pH units or 6.0 whichever is the lower	Background <sup>1</sup> +0.5 pH units or 7.5 whichever is the higher
EC	µS/cm	N/A	250
Sulfate	mg/L	N/A	1000
Arsenic (As III)	µg/L	N/A	24
Arsenic (As V)	µg/L	N/A	13
Antimony	µg/L	N/A	Background <sup>1</sup> +10%
Copper	µg/L	N/A	1.4
Zinc	µg/L	N/A	8
Lead	µg/L	N/A	3.4
Cyanide total	µg/L	N/A	7

<sup>1</sup> Background is defined as waters from GW3.

- (C5-2) Subject to condition (C5-1), if the groundwater contaminant trigger levels defined in Schedule C - Table 10 (Groundwater Contaminant Trigger Levels) are exceeded, then the environmental authority holder must notify the administering authority of the exceedance within 48 hours of receiving the result, and complete an investigation into the potential for environmental harm. The results of the investigation must be notified to the administering authority within 3 months of the exceedance.
- (C5-4) Subject to condition (C5-1), groundwater levels must be monitored and groundwater draw down fluctuations in excess of 2m per year, not resulting from the pumping of licensed bores, must be notified within 14 days to the administering authority following completion of monitoring.
- (C5-5) The method of sampling of groundwater must comply with that set out in the latest edition of the administering authority's Water Quality Sampling Manual.

**END OF CONDITIONS FOR SCHEDULE C**

## Schedule D – Noise and Vibration

### Noise limits

- (D1-1) Noise or vibration generated by mining activities must not cause environmental harm to any sensitive place or commercial place.
- (D1-2) The environmental authority holder must ensure that noise generated by the mining activities does not cause the criteria in Schedule D - Table D1 (Noise limits) to be exceeded at a sensitive place or commercial place.

**Schedule D - Table D1 (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
<b>LAeq, adj, 15 mins</b>	CV = 50 AV = 5	CV = 45 AV = 5	CV = 40 AV = 0	CV = 45 AV = 5	CV = 40 AV = 5	CV = 35 AV = 0
<b>LA1, adj, 15 mins</b>	CV = 55 AV = 10	CV = 50 AV = 10	CV = 45 AV = 5	CV = 50 AV = 10	CV = 45 AV = 10	CV = 40 AV = 5
Commercial place						
Noise level dB(A) measured as:	Monday to Saturday			Sundays and public holidays		
	7am to 6pm	6pm to 10pm	10pm to 7am	7am to 6pm	6pm to 10pm	10pm to 7am
<b>Laeq, adj, 15 mins</b>	CV = 55 AV = 10	CV = 50 AV = 10	CV = 45 AV = 5	CV = 50 AV = 10	CV = 45 AV = 10	CV = 40 AV = 5

**Notes:**

- CV = Critical Value and AV = Adjustment Value
- To calculate noise limits in Table D1:
  - If  $bg \leq (CV - AV)$ , then Noise limit =  $bg + AV$
  - If  $(CV - AV) < bg \leq CV$ , then Noise limit = CV
  - If  $bg > CV$ , then Noise limit =  $bg + 0$
- In the event that measured bg (**LA90, adj, 15 mins**) is less than 30 dB(A), then 30 dB(A) can be substituted for the measured background level
- bg = background noise level (**LA90, adj, 15 mins**) measured over 3-5 days at the nearest sensitive receptor
- If the project is unable to meet the noise limits as calculated above alternative limits may be calculated using the processes outlined in the "Planning for Noise Control" guideline.

### Airblast overpressure

- (D2-1) The environmental authority holder must ensure that blasting does not cause the limits for peak particle velocity and air blast overpressure in Schedule D - Table D2 (Blasting noise limits) to be exceeded at a sensitive place or commercial place.

**Schedule D - Table D2 (Blasting noise limits)**

Blasting noise limits	Sensitive or commercial blasting noise limits place limits	
	7am to 6pm	6pm to 7am
<b>Airblast overpressure</b>	115 dB (Linear) Peak for 9 out of 10 consecutive blasts initiated and not greater than 120 dB (Linear) Peak at any time	Blasting not permitted
<b>Ground vibration peak particle velocity</b>	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	

- (D2-2) Noise monitoring and recording must include the following descriptor characteristics and matters:
- a) LAN,T (where N equals the statistical levels of 1, 10 and 90 and T = 15 mins);
  - b) background noise LA90;
  - c) the level and frequency of occurrence of impulsive or tonal noise and any adjustment and penalties to statistical levels;
  - d) atmospheric conditions including temperature, relative humidity and wind speed and directions;
  - e) effects due to any extraneous factors such as traffic noise;
  - f) location, date and time of monitoring;
  - g) if the complaint concerns low frequency noise, Max LpLIN,T and one third octave band measurements in dB(LIN) for centre frequencies in the 10 – 200 Hz range.

**END OF CONDITIONS FOR SCHEDULE D**

## Schedule E - Waste

### Off Site Movement of Regulated Wastes

- (E1-1) Where regulated waste is removed from the licensed place (other than by a release as permitted under another schedule of this environmental authority), the holder of this environmental authority must ensure that:
- (a) the removal and transport of such wastes, where it constitutes an environmentally relevant activity under the *Environmental Protection Regulation 2008*, is carried out by a person licensed for carrying out this activity under the *Environmental Protection Act 1994*; and
  - (b) records are kept of the following:
    - (i) the date, quantity and type of waste removed; and
    - (ii) name of the regulated waste transporter that removed the waste; and
    - (iii) the intended treatment/disposal destination of the waste.

Note: Records of documents maintained in compliance with a waste tracking system established under the *Environmental Protection Act 1994* or any other law for regulated waste will be deemed to satisfy this environmental authority condition.

### Tailings Management

- (E2-1) The management of tailings disposal must be in accordance with the following:
- (a) all tailings material must be progressively characterized during disposal for acid producing potential and the following metals:- arsenic, antimony, lead, zinc, cadmium, copper; and
  - (b) records must be kept of the tailings disposal to indicate relative locations and characteristics of tailings stored within the tailings storage facility.

### Waste Rock

- (E3-1) The management of waste rock disposal must be in accordance with the following:
- (a) waste rock must be progressively characterized during disposal for acid producing potential and the following metals: arsenic, antimony, lead, zinc, cadmium, copper; and
  - (b) records must be kept of the waste rock disposal to indicate relative locations and characteristic of waste rock stored within the waste rock dumps.

### END OF CONDITIONS FOR SCHEDULE E

## Schedule F - Land Management

### Rehabilitation Landform Criteria

- (F1-1) All areas significantly disturbed by mining activities must be rehabilitated to the final land description as defined in Schedule F – Table 1 (Final Land Use and Rehabilitation Approval Schedule) and compared to an analogue site in an adjacent undisturbed area with similar grazing management practices.

**Schedule F - Table 1 (Final Land Use and Rehabilitation Approval Schedule)**

Disturbance type	Disturbance <sup>1</sup> area (ha.)	Pre-mine land description	Post-mine land description	Pre-mine land capability classification	Post mine land capability classification	Analogue site identification
Mine pit	2.0	Low intensity grazing	Stock water point	VII	VII	AS1 and AS2
Mullock dumps	0.5	Low intensity grazing	Low intensity grazing	VII	VII	AS1 and AS2
Borrow pits/costeans	0.6	Low intensity grazing	Low intensity grazing	VII	VII	AS1 and AS2
Tailings dam	3.0	Low intensity grazing	Low intensity grazing	VII	VII	AS1 and AS2
ROM pad	1.1	Low intensity grazing	Low intensity grazing	VII	VII	AS1 and AS2
Plant area	2.0	Low intensity grazing	Low intensity grazing	VII	VII	AS1 and AS2
Roads and tracks	2.0	Low intensity grazing	Low intensity grazing	VII	VII	AS1 and AS2
Exploration Areas	13.33	Low intensity grazing	Low intensity grazing	VII	VII	AS1 and AS2
Exploration	3.0	In accordance with condition A9-1				

- (F1-2) Progressive rehabilitation must commence when areas become available within the operational land.

### Grazing Pasture Outcome

- (F2-1) Areas which are to be rehabilitated / progressively rehabilitated to grazing pasture must comply with the following outcomes;
- (a) generate a self sustaining vegetation with projective cover, species composition and species distribution comparable to analogue sites at two locations (E 744882, N 8292570 adjacent to processing area and E745297, N 8292349 adjacent to airstrip) identified as AS1 and AS2 on Schedule I – Figure 1 - Authorised activities and locations.; and
  - (b) all areas disturbed by mining activities must be rehabilitated to the landform design criteria defined in Schedule F - Table 3 (Landform design); and
  - (c) landforms are stable with rates of erosion comparable to analogue sites ; and
  - (d) a measure of productivity (e.g. sustainable dry matter production, stock live weight gain) are comparable to analogue sites at two locations (E 744882, N 8292570 adjacent to processing area and E 745297, N 8292349 adjacent to airstrip) identified as AS1 and AS2 on Schedule I – Figure 1 - Authorised activities and locations..
- (F2-2) Complete an investigation into rehabilitation of disturbed areas and submit a report to the administering authority proposing acceptance criteria to meet the outcomes in (F2-1) and landform design criteria in Schedule F - Table 3 (Landform design) by 26 July 2018.

### Residual Void Outcome

- (F4-1) Residual voids must comply with the following outcomes;
- (a) 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; and
  - (b) residual voids must comply with Schedule F - Table 2 (Residual void design).
- (F4-2) Complete an investigation into residual voids and submit a report to the administering authority proposing acceptance criteria to meet the outcomes in (F4-1) and landform design criteria in Schedule F – Table 2 (Residual void design) by 26 July 2018.

**Schedule F - Table 2 (Residual void design)**

Void identification	Void wall – competent rock slope (%)	Void wall – incompetent rock slope (%)	Void maximum surface area (ha)
Alice Queen Pit	Angle of mining	Angle of mining	2

(a)

**Schedule F - Table 3 (Landform design)**

Identification	Slope range (%)	Projective surface area (ha)
Waste rock dump/s	1 (V) : 3 (H)	1

### Acid Rock Drainage Management

- (F5-1) Subject to the release limits defined in Schedule - C, all reasonable and practicable 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 water course.

### Infrastructure

- (F6-1) All infrastructure, constructed by or for the environmental authority holder during the mining activities including water storage structures, must be removed from the site prior to mining lease surrender, except where agreed in writing by the post mining land owner / holder.

**END OF CONDITIONS FOR SCHEDULE F**

**Schedule G – Community****Complaint Response**

- (G1-1) All complaints received must be recorded including details of complainant, reasons for the complaint investigations undertaken, conclusions formed and actions taken. This information must be made available for inspection by the administering authority on request.

**END OF CONDITIONS FOR SCHEDULE G**



## Schedule H – Definitions

Key terms and/or phrases used in this document are defined in this section. Where a term is not defined, the definition in the *Environmental Protection Act 1994*, its regulations or environmental protection policies must be used. If a word remains undefined it has its ordinary meaning.

### Word definitions

**"acceptance criteria"** means the measures by which the actions implemented to rehabilitate the land are deemed to be complete (same as completion criteria).

**'administering authority'** is the agency that administers the environmental authority provisions under the *Environmental Protection Act 1994*.

**"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).

**"appropriately qualified person"** means any person who conforms to the EPA operational policy for an 'appropriately qualified person (analyst) in accordance with Section 490(7) of the *Environmental Protection Act 1994*.

**"authority"** means environmental authority (mining activities) under the *Environmental Protection Act 1994*.

**"blasting"** means the use of explosive materials to fracture-

- rock, coal and other minerals for later recovery; or
- structural components or other items to facilitate removal from a site or for reuse.

**'contaminants'** means any prescribed water contaminants listed under Schedule 9 of the *Environmental Protection Regulations 2008*.

**"commercial place"** means a place used as an office or for business or commercial purposes, other than a place within the boundaries of the operational land.

**'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 mining activities have ceased;
- 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.

**"environmental authority holder"** means the holder of this environmental authority.

**"land"** in the 'land schedule' of this document means land excluding waters and the atmosphere.

**"land capability"** as defined in the DME 1995 Technical Guidelines for the Environmental Management of Exploration and Mining in Queensland.

**"land suitability"** as defined in the DME 1995 Technical Guidelines for the Environmental Management of Exploration and Mining in Queensland.

**"land use"** term to describe the selected post mining use of the land, which is planned to occur after the cessation of mining operations.

**"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.

**"noxious"** means harmful or injurious to health or physical well being, other than trivial harm.

**"offensive"** means causing reasonable offence or displeasure; is disagreeable to the sense; disgusting, nauseous or repulsive, other than trivial harm.

**"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 (mms)

**"protected area"** means

- a protected area under the Nature Conservation Act 1992; or
- a marine park under the Marine Parks Act 1992; or
- a World Heritage Area.

**"progressive rehabilitation"** means rehabilitation (defined below) undertaken progressively OR a staged approach to rehabilitation as mining operations are ongoing.

**"rehabilitation"** the process of reshaping and revegetating land to restore it to a stable landform and in accordance with the acceptance criteria set out in this environmental authority and, where relevant, includes remediation of contaminated land.

**"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.

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

**"self sustaining"** means an area of land which has been rehabilitated and has maintained the required acceptance criteria without human intervention for a period nominated by the administering authority.

**"sensitive place"** means:

- a dwelling, residential allotment, mobile home or caravan park, residential marina or other residential premises; or
- an educational institution; or
- a medical centre or hospital; or
- a protected area under the *Nature Conservation Act 1992*, the *Marine Parks Act 1992* or a World Heritage Area; or
- a public park or gardens; or
- a place used as a workplace, 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.

**"stable"** means geotechnical stability of the rehabilitated landform where instability related to the excessive settlement and subsidence caused by consolidation / settlement of the wastes deposited, and sliding / slumping instability has ceased.

**'vibration'** is the oscillating or periodic motion of a particle, group of particles, or solid object about its equilibrium position.

**'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.

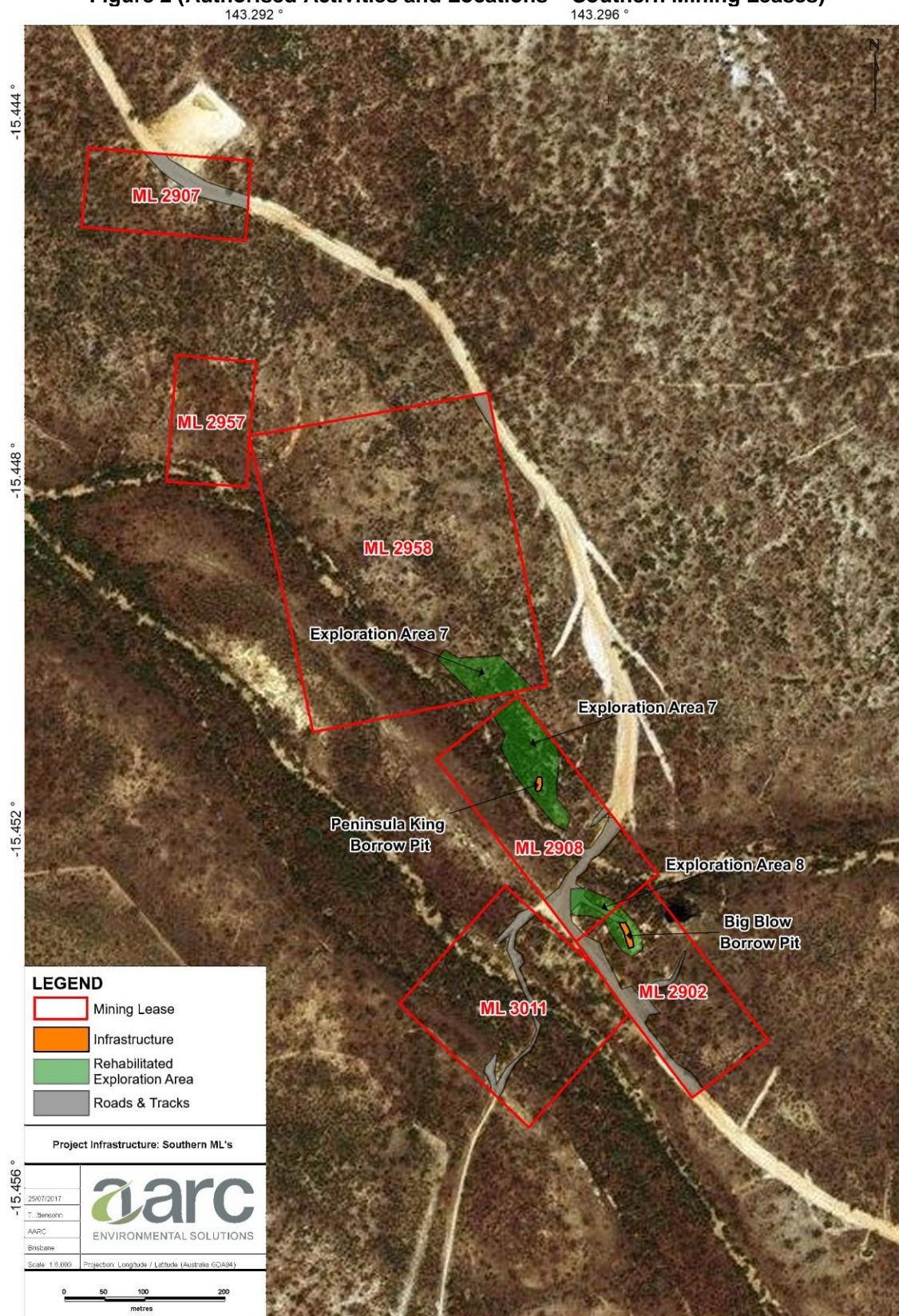
**END OF DEFINITIONS FOR SCHEDULE H**

Schedule I – Site Maps and Plans

Figure 1 (Authorised Activities and Locations – Northern Mining Leases)





**Figure 2 (Authorised Activities and Locations – Southern Mining Leases)****END OF ENVIRONMENTAL AUTHORITY**