# Permit

***Environmental Protection Act 1994***

## Environmental authority EPML00941713

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

### Environmental authority number: EPML00941713

**Environmental authority takes effect on** 19 December 2019**.**

The anniversary date of this environmental authority is 23 May each year.

### Environmental authority holder(s)

| Name(s) | Registered address |
|---|---|
| TRUE NORTH COPPER PTY LTD | 111 Melvista Avenue<br>NEDLANDS WA 6009 |

### Environmentally relevant activity and location details

| Environmentally relevant activity/activities | Location(s) |
|---|---|
| Schedule 3 - 16 - Mining gold ore | ML100077 |
| Schedule 3 - 17 - Mining copper ore | ML100077 |
| Ancillary 63 - Sewage Treatment - 1(a-i) - Operating sewage treatment works, other than no-release works, with a total daily peak design capacity of 21 to 100EP - if treated effluent is discharged from the works to an infiltration trench or through an irrigation scheme | ML100077 |
| Ancillary 08 - Chemical Storage - 3 - Storing more than 500 cubic metres of chemicals of class C1 or C2 combustible liquids under AS 1940 or dangerous goods class 3 under subsection (1)(c) | ML100077 |
| Ancillary 33 - Crushing, milling, grinding or screening - Crushing, grinding, milling or screening more than 5000t of material in a year | ML100077 |



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| Environmentally relevant activity/activities | Location(s) |
|---|---|
| Ancillary 15 - Fuel burning - Using fuel burning equipment that is capable of burning at least 500kg of fuel in an hour | ML100077 |
| Ancillary 31 - Mineral processing - 2(b) - Processing, in a year, the following quantities of mineral products, other than coke - more than 100,000t | ML100077 |
| Ancillary 08 - Chemical Storage - 3 - Storing more than 500 cubic metres of chemicals of class C1 or C2 combustible liquids under AS 1940 or dangerous goods class 3 under subsection (1)(c) | ML100111 |
| Ancillary 15 - Fuel burning - Using fuel burning equipment that is capable of burning at least 500kg of fuel in an hour | ML100111 |
| Schedule 3 - 16 - Mining gold ore | ML100111 |
| Ancillary 33 - Crushing, milling, grinding or screening - Crushing, grinding, milling or screening more than 5000t of material in a year | ML100111 |
| Ancillary 63 - Sewage Treatment - 1(a-i) - Operating sewage treatment works, other than no-release works, with a total daily peak design capacity of 21 to 100EP - if treated effluent is discharged from the works to an infiltration trench or through an irrigation scheme | ML100111 |
| Ancillary 63 - Sewage Treatment - 1(a-i) - Operating sewage treatment works, other than no-release works, with a total daily peak design capacity of 21 to 100EP - if treated effluent is discharged from the works to an infiltration trench or through an irrigation scheme | ML90236 |
| Schedule 3 - 17 - Mining copper ore | ML90236 |
| Ancillary 15 - Fuel burning - Using fuel burning equipment that is capable of burning at least 500kg of fuel in an hour | ML90236 |
| Ancillary 08 - Chemical Storage - 3 - Storing more than 500 cubic metres of chemicals of class C1 or C2 combustible liquids under AS 1940 or dangerous goods class 3 under subsection (1)(c) | ML90236 |

| Environmentally relevant activity/activities | Location(s) |
|---|---|
| Ancillary 31 - Mineral processing - 2(b) - Processing, in a year, the following quantities of mineral products, other than coke - more than 100,000t | ML90236 |
| Ancillary 33 - Crushing, milling, grinding or screening - Crushing, grinding, milling or screening more than 5000t of material in a year | ML90236 |
| Schedule 3 - 16 - Mining gold ore | ML90236 |

**Additional information for applicants**

Environmentally relevant activities

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

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

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

Contaminated land

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

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

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

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

Take effect

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

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

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

c) otherwise on the day the authority is issued.

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

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

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

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

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

**Privacy statement**

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

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

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

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

**Other permits required**

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

# Legislative Requirements and Conditions of Environmental Authority

## Schedule A - General

A1 This environmental authority authorises environmental harm referred to in the conditions. Where there is no condition or this environmental authority is silent on a matter, the lack of a condition or silence does not authorise environmental harm.

A2 Contaminants must not be released to the receiving environment, unless permitted under the conditions of this environmental authority.

A3 The environmental authority holder must ensure that the activity is carried out in accordance with Table A1.

**Table A1 – Authorised Activities and Locations ('Table A1')**

| Mine Domain[1] | Mine Feature Name | Location (MGA94, Zone 54) Central Peg Coordinates | | Maximum Disturbance Area (Hectares) |
|---|---|---|---|---|
| **ML90236** | | | | |
| Mining Area | Open Pit | 474600 | 7696000 | 6 |
| Waste | Waste Rock Dump | 474100 | 7696200 | 12.6 |
| Processing | ROM Pad | 474300 | 7696300 | 1.36 |
| Water Infrastructure | Dam | 474400 | 7696100 | 1.18 |
| | Basin | 474120 | 7695910 | 0.4 |
| | Drains | 474400 | 7696150 | 0.85 |
| Stockpiles | Topsoil | 474600 | 7696220 | 1.6 |
| Ancillary Infrastructure | Compound (Workshop / Laydown) | 474600 | 7696350 | 3.8 |
| | Roads | 474250 | 7695950 | 5 |
| Exploration | Exploration | 475500 | 7696900 | 15 |
| **ML100077** | | | | |
| Mining Area | Open Pits | 474630 | 7694445 | 11.5 |
| Waste | Waste Rock Dump | 475000 | 7694250 | 14 |
| Processing | ROM and Crusher | 474720 | 7693750 | 15.6 |
| | Workshop, Offices, Irrigation Area and Laydown | 474450 | 7693530 | 13.5 |
| | Heap Leach Pad | 474860 | 7693300 | 21.7 |
| | Processing and Stormwater Ponds | 474500 | 7693900 | 5 |
| Water Infrastructure | Stream Diversion | 474750 | 7694500 | 3 |
| | Levees | 474500 | 7694500 | 0.7 |
| | Drains | Refer to Figure 2 Project Infrastructure and Layout – ML100077 | | 6.5 |
| Stockpiles | Topsoil stockpiles | 475158 | 7693704 | 10 |
| Ancillary Infrastructure | Internal Roads | Refer to Figure 2 Project Infrastructure and Layout – ML100077 | | 8.6 |
| | Access Road | Refer to Figure 2 Project Infrastructure and Layout – ML100077 | | 8.5 |
| | Turkeys Nest (3) | 474753<br>474818<br>475097 | 7694483<br>7694131<br>7693991 | 0.8 |
| Exploration | Exploration | Various | | 15 |
| **ML100111** | | | | |
| Mining area | Pit 1 | 473197 | 7704309 | 1.3 |
| | Pit 2 | 473263 | 7704619 | 2.6 |

| | | | | |
|---|---|---|---|---|
| | Pit 4/5 | 473809 | 7704904 | 3.4 |
| | Pit 6 | 473494 | 7704854 | 0.4 |
| Processing | ROM | 473308 | 7704158 | 7.1 |
| Waste | Waste Rock Dump | 473859 | 7704434 | 26.4 |
| Water Infrastructure | Water pond | 473503 | 7704706 | 0.3 |
| | Stormwater diversion bunds | Refer to Figure 3 Project Infrastructure and Layout – ML100111 | | 2.3 |
| Stockpile | Topsoil stockpile | 473665 | 7704050 | 2.7 |
| Ancilliary Infrastructure | Workshop | 473263 | 7703980 | 2.4 |
| | Administration and Irrigation Area | 473261 | 7703859 | 2.6 |
| | Haul road | 473415 | 7704585 | 4.2 |
| | Site access road | Refer to Figure 3 Project Infrastructure and Layout – ML100111 | | 1.2 |
| Exploration | Exploration | Various | | 10 |

[1]*Depicted in Schedule J – Figure 1 Project Infrastructure and Layout - ML90236, Schedule J - Figure 2 Project Infrastructure and Layout – ML100077 and Schedule J - Figure 3 Project infrastructure and layout ML100111.*

A4 The holder of this environmental authority must:

a) Install all measures, plant and equipment necessary to ensure compliance with the conditions of this environmental authority;
b) Maintain such measures, plant and equipment in proper and efficient condition;
c) Operate such measures, plant and equipment in a proper and efficient manner;
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**

A5 All monitoring, records and reports required by this environmental authority or related to environmental management of the activities must be:

a) Carried out by an appropriately qualified person, periodically reviewed and updated as required to reflect operational or environmental changes;
b) Kept for a period of not less than five years;
c) Provided to the administering authority in the specified format within 10 business days of a request; and
d) Undertaken in accordance with the most recent version of any applicable standard or guideline for the activity.

A6 The following information 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; and
c) Any other pertinent details of relevance to interpreting the sampling results (i.e. stream flow, wind conditions or any unusual observations such as odour or colouration).

A7 The environmental authority holder must implement all reasonable measures necessary to conduct monitoring required under a condition of this environmental authority.

**Estimated Rehabilitation Cost**

A8 The holder of this environmental authority must ensure that:

a) an estimated rehabilitation cost decision is in effect for the activity; and
b) a contribution has been paid to the scheme fund in the amount and form required; or
c) a surety has been given for the authority in the amount and form required .

A9 Where a change in activities will, or is likely to, increase the maximum amount of disturbance caused by the activity, or the estimated rehabilitation cost for the activity, the holder must re-apply for an estimated rehabilitation cost decision.

**Risk Management**

A10 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 29 September 2017.

**Notification of emergencies, incidents and exceptions**

A11 The environmental authority holder must notify the administering authority within 24 hours of becoming aware of any emergency, incident, sample result or event which does or may contravene a condition of this environmental authority.

A12 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
c) Proposed actions to prevent a recurrence of the emergency or incident.

**Complaints**

A13 The holder of this environmental authority must record all environmental complaints received about the mining activities including:

a) Name, address and contact number for 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
h) Person responsible for resolving the complaint.

A14 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. 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**

A15 The holder of this environmental authority must:

a) By 29 June 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-yearly intervals, from the completion of the report referred to above
c) Provide each report to the administering authority within 90 days of its completion.

A16 Where a condition of this environmental authority requires compliance with a relevant 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, or where the amendment or change relates specifically to regulated structures referred to in condition H1, the time specified in that condition.
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.

**Exploration**

A17 All exploration activities carried out on the mining leases 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. To the extent that any Standard Environmental Condition is inconsistent with a provision of this authority, the provision of this authority will prevail.

**END OF CONDITIONS FOR SCHEDULE A**

## Schedule B – Air

**Dust and Particulate Matter Monitoring**

B1 The release of noxious or offensive odour, dust or any other airborne contaminant resulting from the activities must not cause environmental harm.

B2 The holder of this environmental authority must implement and maintain dust control procedures that incorporate a program for the management of dust resulting from the mining activities.

B3 The environmental authority holder shall ensure that avoidance and mitigation measures are employed so that the dust and particulate matter emissions generated by the activities do not cause exceedances of the following levels when measured at any sensitive or commercial place:

a) Dust deposition of 120 milligrams per square metre per day, averaged over one month, when monitored in accordance with the most recent version of Australian Standard AS3580.10.1 Methods for sampling and analysis of ambient air—Determination of particulate matter—Deposited matter – Gravimetric method.

b) A concentration of particulate matter with an aerodynamic diameter of less than 10 micrometres (PM10) suspended in the atmosphere of 50 micrograms per cubic metre over a 24-hour averaging time, for no more than five exceedances recorded each year, when monitored in accordance with the most recent version of either:

1. Australian Standard AS3580.9.6 Methods for sampling and analysis of ambient air—Determination of suspended particulate matter—PM10 high volume sampler with size-selective inlet – Gravimetric method, or
2. Australian Standard AS3580.9.9 Methods for sampling and analysis of ambient air—Determination of suspended particulate matter—PM10 low volume sampler—Gravimetric method.

c) A concentration of particulate matter with an aerodynamic diameter of less than 2.5 micrometres (PM2.5) suspended in the atmosphere of 25 micrograms per cubic metre over a 24-hour averaging time, when monitored in accordance with the most recent version of AS/NZS3580.9.10 Methods for sampling and analysis of ambient air—Determination of suspended particulate matter—PM (sub)2.5(/sub) low volume sampler—Gravimetric method.

d) A concentration of particulate matter suspended in the atmosphere of 90 micrograms per cubic metre over a 1 year averaging time, when monitored in accordance with the most recent version of AS/NZS3580.9.3:2003 Methods for sampling and analysis of ambient air—Determination of suspended particulate matter—Total suspended particulate matter (TSP)—High volume sampler gravimetric method.

B4 If monitoring indicates the levels in condition B3 have been exceeded, the holder of this environmental authority must promptly implement dust abatement measures so that emissions of dust generated by the mining activities cease to exceed the levels in condition B3.

**Transportation**

B5 The holder of this environmental authority must ensure that vehicles used for transporting bulk materials from mining lease(s), leave the mining lease(s) with appropriate load preparation to prevent the spillage and/or loss of particulate matter and/or windblown dust during transport.

**Background Dust and Particulate Matter Monitoring**

B6 The holder of this environmental authority must monitor Background Dust and Particulate at the monitoring points and frequency specified in Table B1.

B7 The holder of this environmental authority must develop and implement a background dust deposition monitoring program to monitor compliance with Table B1 by 1 September 2020.

B8 The background dust deposition monitoring program must be able to detect a significant change to dust deposition to sensitive place due to the mining activity.

**Table B1** - Background Dust and Particulate Matter Monitoring ('Table B1')

| Monitoring Point | Site ID | Location (MGA94, Zone 54) | | Frequency |
|---|---|---|---|---|
| | | Easting | Northing | |
| South | WYNDG01 | 472601 | 7702043 | Monthly |
| Homestead | WYNDG02 | 474052 | 7702372 | |
| North | WYNDG03 | 474456 | 7706244 | |

**END OF CONDITIONS FOR SCHEDULE B**

## Schedule C - Waste Management

**Waste Management**

C1 All waste generated must be disposed of in a lawful manner at an off-site facility, with the exception of waste rock and tailings, which must be characterised, handled and disposed of in accordance with condition C3.

C2 The only waste authorised to be burnt on site is packaging boxes from explosive and sodium cyanide, so long as the burning does not cause environmental harm.

C3 All waste rock and tailings must be:

a) Characterised and disposed of in a manner that minimises the potential generation and/or release of contaminants to the receiving environment;
b) Where the characteristics of waste rock in regards to acid producing potential, or saline or neutral mine drainage potential is uncertain, this material must be treated as potentially acid forming, or saline or neutral mine drainage forming until demonstrated otherwise; and
c) Details pertaining to meeting the requirements of this condition must be recorded and retained until this environmental authority is surrendered.

C4 A Waste Rock Management Plan must be developed, implemented and include where relevant, at least:

a) Effective characterisation of the waste rock and spoil to predict under the proposed placement and disposal strategy the quality of runoff and seepage generated concerning potentially environmentally significant effects including salinity, acidity, alkalinity and dissolved metals, metalloids and non-metallic inorganic substances.
b) A program of progressive sampling and characterization to identify dispersive and non-dispersive spoil and salinity, acid, and alkali producing potential and metals concentrations of waste rock.
c) A material balance and disposal plan demonstrating how potentially acid forming and acid forming waste rock will be selectively placed and/or encapsulated to minimise potential generation of acid mine drainage.
d) Where relevant, a sampling program to verify encapsulation and/or placement of potentially acid forming and acid forming waste rock.
e) How often the performance of the plan will be assessed
f) The indicators or other criteria of which the performance of the plan will be assessed
g) Rehabilitation strategy

**END OF CONDITIONS FOR SCHEDULE C**

## Schedule D - Acoustic

D1 The holder of this environmental authority must ensure that noise generated by the mining activities does not cause the criteria in Table D1 to be exceeded at a sensitive place.

**Table D1 – Noise Limits ('Table D1')**

| Sensitive place | | | | | | |
|---|---|---|---|---|---|---|
| **Noise Level d(B)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 |
| **LAeq, adj, 15 mins** | 35 | 35 | 30 | 35 | 35 | 30 |
| **LA1, adj, 15 mins** | 40 | 40 | 35 | 40 | 40 | 35 |

**Airblast Overpressure Nuisance**

D2 The holder of this environmental authority must ensure that blasting does not cause the limits for peak particle velocity and air blast overpressure in Table D2 to be exceeded at a sensitive place.

**Table D2 – Blasting Noise Limits ('Table D2')**

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

**Monitoring and Reporting**

D3 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 a complaint made under A13 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.

D4 The holder of this environmental authority must develop and implement a noise monitoring program to monitor compliance with Table D1 and Table D2 by 1 February 2020.

**END OF CONDITIONS FOR SCHEDULE D**

## Schedule E - Water

### Contaminant Release

E1 Contaminants must not be released to any waters, unless permitted under the conditions of this environmental authority.

E2 The release of contaminants to waters must only take place in accordance with the criteria for discharge specified in Table E2 and from a release point(s) specified in Table E1.

E3 During the release of contaminants to waters from release point(s) specified in Table E1, the environmental authority holder must measure and record the volume of:

a) The contaminant release in cubic metres per second (m3/sec) at the release point; and
b) Receiving waters background flow at the frequency and location/s specified in Table E2.

**Table E1 – Authorised contaminant release point ('Table E1')**

| Release Point (RP) | Location (GDA94 – Zone 54) | | Release source | Monitoring point | Receiving waters description |
|---|---|---|---|---|---|
| | Easting | Northing | | | |
| RP1 on ML90236 | TBD[1] | TBD[1] | Wallace North WRD Sediment Basin | Wallace North basin spillway | Elder Creek |
| RP2 on ML90236 | TBD[1] | TBD[1] | Wallace North overflow from WNSD and pit water | Pit | Elder Creek |
| RP3 on ML100077 | 474677 | 7694707 | Wallace South overflow from North Pit | North Pit | Unnamed drainage feature of Weatherly Creek |
| RP4 on ML100111 | 473165 | 7704548 | Pit 2; Project western section | Pit 2 | Unnamed tributary of Turpentine Creek |
| RP5 on ML100111 | 473466 | 7704829 | Pit 6; Project eastern section | Pit 6 | |

*Notes: [1] To be determined prior to construction of the 'release source' structure.*

**Table E2 – Criteria for discharge during natural flow events ('Table E2')**

| Receiving waters description | Release Point (RP) | Gauging station location | | | Recording Frequency | Criteria for discharge |
|---|---|---|---|---|---|---|
| | | Description | Easting (GDA94, Zone 54) | Northing (GDA94, Zone 54) | | |
| Unnamed drainage feature of Weatherly Creek | RP3 | WSSW1 | 473817 | 7693874 | Daily during release | Natural flow (upstream of the release point) must be at least twenty (20) times the volume of the release |
| Elder Creek | RP1 | WNSW7 | 473729 | 7696551 | | |
| Elder Creek | RP2 | | | | | |
| Unnamed tributary of Turpentine Creek | RP 4 | WBSW1 | 472321 | 7703991 | | |
| | RP5 | | | | | |

E4 The release of contaminants to waters in accordance with condition E2 from release point(s) specified in Table E1 must not exceed any contaminant release limits specified in Table E3.

E5 The release of contaminants to waters from release point(s) must be monitored at the locations specified in Table E1 for each contaminant and at the frequency specified in Table E3.

E6 Releases to waters must be undertaken so as to not cause erosion of the bed and banks of the receiving waters, or cause a material build-up of sediment in such waters.

**Table E3 – Contaminant release limits ('Table E3')**

| Contaminant (mg/L unless specified otherwise)[1] | Release Limits | Monitoring Frequency |
|---|---|---|
| Electrical conductivity (µS/cm) | 1500 or 20 x 80$^{th}$ percentile of applicable reference value site value, whichever is higher. | Daily during release (the first sample must be taken within 2 hours of commencement of release) |
| pH (pH Unit) | 6.0 or 20$^{th}$ percentile of applicable reference site value, whichever is lower.<br>7.5 or 80$^{th}$ percentile of applicable reference site value, whichever is higher. | |
| Turbidity (NTU) | 20 x 80$^{th}$ percentile of applicable reference site value. | |
| Sulfate as $SO_4^{2-}$ | 20 x 80$^{th}$ percentile of applicable reference site concentration[3] | |
| Aluminium | 1.1[2] or<br>20 x 80$^{th}$ percentile of applicable reference site concentration[3] whichever is higher | |
| Arsenic (AsV) | 0.26[2] or<br>20 x 80$^{th}$ percentile of applicable reference site concentration[3] whichever is higher | |
| Boron | 7.4[2] or<br>20 x 80$^{th}$ percentile of applicable reference site concentration[3] whichever is higher | |
| Cadmium | 0.04[2] or<br>20 x 80$^{th}$ percentile of applicable reference site concentration[3] whichever is higher | |
| Cobalt | 20 x 80$^{th}$ percentile of applicable reference site concentration[3] | |
| Copper | 0.028[2] or<br>20 x 80$^{th}$ percentile of applicable reference site concentration[3] whichever is higher | |
| Lead | 0.068[2] or<br>20 x 80$^{th}$ percentile of applicable reference site concentration[3] whichever is higher | |
| Manganese | 38[2] or<br>20 x 80$^{th}$ percentile of applicable reference site concentration[3] whichever is higher | |
| Nickel | 0.22[2] or<br>20 x 80$^{th}$ percentile of applicable reference site concentration[3] whichever is higher | |
| Zinc | 0.16[2] or<br>20 x 80$^{th}$ percentile of applicable reference site concentration[3] whichever is higher | |
| Cyanide (free) (as un-ionised HCN; measured as (CN)) | 0.14[2] | |
| Cyanide (total) | 1.6[4] | |

*Notes:*

1. *All metals and metalloids must be measured and reported as both total (unfiltered) and dissolved (field filtered) levels;*
2. *Twenty (20) times contaminant trigger level based on ANZECC (2000), Table 3.4.1, 95% aquatic species protection level for slightly to moderately disturbed ecosystem.*
3. *Reference site concentration determined from reference site specified in* **Table E4** *at time of release.*
4. *Twenty (20) times Australian Drinking Water Guidelines, version 3.3 (2011), Table 10.6*

**Notification of Release Event**

E7 The environmental authority holder must notify the administering authority as soon as practicable and no later than 24 hours after commencing a release of contaminated water to the receiving environment. Notification must include the submission of written advice to the administering authority of the following information:

a) Release commencement date/time
b) Details regarding the compliance of the release with the conditions of Department Interest: Water of this environmental authority (that is, contaminant limits, natural flow, discharge volume)
c) Release point/s
d) Release rate
e) Release salinity
f) Receiving water/s including the natural flow rate.

E8 The environmental authority holder must notify the administering authority as soon as practicable and no later than 24 hours after cessation of a release event of the cessation of a release notified under Condition E7 and within 28 days provide the following information in writing:

a) Release cessation date/time
b) Natural flow rate in receiving water
c) Volume of water released
d) Details regarding the compliance of the release with the conditions of Department Interest;
e) Water of this environmental authority (i.e. contaminant limits, natural flow, discharge volume)
f) All in-situ water quality monitoring results
g) Any other matters pertinent to the water release event.

*Note: Successive or intermittent releases occurring within 24 hours of the cessation of any individual release can be considered part of a single release event and do not require individual notification for the purpose of compliance with conditions E7 and E8, provided the relevant details of the release are included within the notification provided in accordance with conditions E7 and E8.*

**Notification of Release Event Exceedance**

E9 The environmental authority holder must, within 28 days of a release that is not compliant with the conditions of this environmental authority, provide a report to the administering authority detailing:

a) The reason for the release
b) The location of the release
c) The total volume of the release and which (if any) part of this volume was non-compliant
d) The total duration of the release and which (if any) part of this period was non-compliant
e) All water quality monitoring results (including all laboratory analyses)
f) Identification of any environmental harm as a result of the non compliance
g) All calculations
h) Any other matters pertinent to the water release event.

**Surface waters and sediments**

E10 The quality of receiving waters and sediment must be monitored at the monitoring sites specified in Table E4.

E11 The quality of receiving waters and sediment must be monitored for the contaminants and at the frequencies stated in Table E5 and Table E6.

E12 The contaminant concentrations measured in receiving waters must not exceed any water quality objective specified in Table E5.

**Table E4 – Receiving waters and sediment reference and compliance monitoring sites ('Table E4')**

| Monitoring sites* | Monitoring site description and purpose | Location (GDA94 – Zone 54) | |
|---|---|---|---|
| | | Easting | Northing |
| **Reference sites[1]** | | | |
| **Wallace North (ML90236)** | | | |
| WNSW7 | Tributary that joins Elder Creek 900 m upstream of RP1 | 473729 | 7696551 |
| WNSW8 | Intersection of Toole and Elder Creek 700 m upstream of RP1 | 473782 | 7695570 |
| **Wallace South (ML100077)** | | | |
| WSSW1 | Drainage feature of Weatherly creek western boundary of lease 1100 m upstream of RP3 | 473817 | 7693874 |
| WSSW5 | Drainage feature of Weatherly creek near southern boundary of lease | 475831 | 7692828 |
| **Wynberg (ML100111)** | | | |
| WBSW1 | Ephemeral drainage line. Upstream of all release points in the unnamed Turpentine Creek. | 472321 | 7703991 |
| WBSW3 | Upstream of WBSW4 prior to confluence of unnamed tributary of Turpentine Creek. | 474350 | 7706371 |
| **Compliance sites** | | | |
| **Wallace North (ML90236)** | | | |
| WNSW3 | Elder Creek 400 metres upstream, west of RP1/RP2 | 474257 | 7695634 |
| WNSW4 | Elder Creek 650 metres upstream, west of RP1/RP2 | 474032 | 7695625 |
| WNSW0 | Elder Creek 1,500 metres downstream of RP1/RP2 | 475895 | 7696549 |
| WNSW1 | Elder Creek 200 metres downstream of RP1/RP2 | 474824 | 7695955 |
| WNSW5 | Elder Creek /-- GREATER THAN --/ 3,000 metres downstream of RP1/RP2 | 478531 | 7698114 |
| **Wallace South (ML100077)** | | | |
| WSSW2 | Drainage feature of Weatherly Creek 500 metres downstream of RP3 | 475286 | 7694851 |
| WSSW3 | Drainage feature of Weatherly Creek 1500 metres downstream of RP3 | 476124 | 7695167 |
| WSSW4 | Drainage feature of Weatherly Creek 3 kilometres downstream of RP3 | 478932 | 7696986 |
| **Wynberg (ML100111)** | | | |
| WBSW2 | Downstream of RP4 and RP5 in unnamed Turpentine Creek tributary. | 474264 | 7705653 |
| WBSW4 | Furthest downstream monitoring point from RP4 and RP5 in unnamed tributary of Turpentine Creek. | 474596 | 7706374 |

*Notes:*

** Monitoring locations depicted in Schedule J, Figure 4 Surface Waters and Groundwater Monitoring Locations and Figure 5* Groundwater and Surface Water Monitoring Sites ML100111.

*1. Reference sites must:*

*(a) be from the same bio-geographic and climatic region; and*

*(b) have similar geology, soil types and topography; and*

*(c) contain a range of habitats similar to those at the test sites; and*

*(d) have a similar flow regime; and*

*(e) not be so close to the test sites that any disturbance at the test site also results in a change at the reference site*

**Table E5 – Receiving waters quality objectives ('Table E5')**

| Contaminant[1] | Unit | Water quality objectives[6] (total) | Water quality objectives[6] (dissolved) | Monitoring Frequency |
|---|---|---|---|---|
| Electrical conductivity | µS/cm | 500[2] | | Within 24 hours of a release.<br><br>Weekly during natural flow event. |
| pH | pH Unit | 6 -7.5[8] | | |
| Turbidity | NTU | 15[5] | | |
| Sulfate ($SO_4^{2-}$) | mg/L | 250[3] | | |
| Aluminum | mg/L | 0.2[3] | 0.055[4] | |
| Arsenic | mg/L | 0.01[3] | 0.013[4] | |
| Cadmium | mg/L | 0.002[3] | 0.0002[4] | |
| Copper | mg/L | 2[3] | 0.0014[4] | |
| Lead | mg/L | 0.01[3] | 0.0034[4] | |
| Molybdenum | mg/L | 0.05[3] | 0.034[7] | |
| Manganese | mg/L | 0.5[3] | 1.9[4] | |
| Nickel | mg/L | 0.02[3] | 0.011[4] | |
| Selenium | mg/L | 0.01[3] | 0.011[4] | |
| Zinc | mg/L | 3[3] | 0.008[4] | |
| Cyanide (free) (as un-ionised HCN, measured as [CN]) | mg/L | 0.007[4] | | |
| Cyanide (total) | mg/L | 0.08[3] | | |
| Nitrate (Total N) | mg/L | 0.7[4] | | |
| Major ions | mg/L | For interpretation purposes | | |
| Hardness | mg/L | | | |

*Notes:*

1. *All metals and metalloids must be measured as both 'total' (from analysis of an unfiltered sample) and 'dissolved' (from analysis of a field filtered sample)*
2. *Based off Queensland Water Quality Guideline (2013), electrical conductivity 75th percentile in the Gulf –Appendix G, Table G.1*
3. *Australian Drinking Water Guidelines, version 3.3 (2011), Table 10.6, measured as 'total' metals*
4. *Based off ANZECC (2000) value for 95% species protection, Table 3.4.1, measured as 'dissolved' metals*
5. *Based off ANZECC (2000) Table 3.3.4*
6. *Where a water quality objective is exceeded at a compliance site and the applicable reference site also exceeds this concentration during the release/flow event, the value of the reference site applies as the water quality objective for the duration of the release/flow event.*
7. *Based off ANZECC (2000) low reliability metals and metalloids, Section 8.3.7.1*
8. *Based off ANZECC (2000) Table 3.3.5*

E13 The contaminant concentrations of sediments measured at the monitoring sites specified in Table E4 must not exceed any sediment quality objective specified in Table E6.

**Table E6 – Sediment trigger levels ('Table E6')**

| Contaminant[1] | Sediment quality (mg/kg)[1, 2] | | |
|---|---|---|---|
| | Trigger levels (mg/kg)[3] | Sediment quality objectives (mg/kg)[4] | Monitoring Frequency |
| Aluminium | 80th percentile of applicable reference site concentration | 2 x 80th percentile of applicable reference site concentration | Twice a year (once at the end of the wet season and once at the end of the dry season) |
| Arsenic | 20 or 80th percentile of applicable reference site concentration, whichever is higher | 70 or 2 x 80th percentile of applicable reference site concentration, whichever is higher | |
| Boron | 80th percentile of applicable reference site concentration | 2 x 80th percentile of applicable reference site concentration | |
| Cadmium | 1.5 or 80th percentile of applicable reference site concentration, whichever is higher | 10 or 2 x 80th percentile of applicable reference site concentration, whichever is higher | |
| Cobalt | 80th percentile of applicable reference site concentration | 2 x 80th percentile of applicable reference site concentration | |
| Copper | 65 or 80th percentile of applicable reference site concentration, whichever is higher | 270 or 2 x 80th percentile of applicable reference site concentration, whichever is higher | |

| | | | |
|---|---|---|---|
| Lead | 50 or 80th percentile of applicable reference site concentration, whichever is higher | 220 or 2 x 80th percentile of applicable reference site concentration, whichever is higher | |
| Manganese | 80th percentile of applicable reference site concentration | 2 x 80th percentile of applicable reference site concentration | |
| Mercury | 0.15 | 1 | |
| Nickel | 21 or 80th percentile of applicable reference site concentration, whichever is higher | 52 or 2 x 80th percentile of applicable reference site concentration, whichever is higher | |
| Zinc | 200 or 80th percentile of applicable reference site concentration, whichever is higher | 410 or 2 x 80th percentile of applicable reference site concentration, whichever is higher | |

*Notes:*

1. *Analysis for metals/metalloids concentrations in sediment must be conducted on the /-- LESS THAN --/2mm fraction of the sample and measured as a dilute acid extractable concentration in a manner consistent with the Revision of the ANZECC/ARMCANZ Sediment Quality Guidelines, CSIRO (May 2013)*
2. *For sediment quality, compliance site monitoring results are to be compared:*
    1. *Directly to the guideline values from the Revision of the ANZECC/ARMCANZ Sediment Quality Guidelines, CSIRO (May 2013), if insufficient reference site monitoring data is available; or*
    2. *The relevant reference site monitoring data, which must be normalised to account for any difference in particle size distribution (i.e. conduct a fractionated sediment analysis based on comparing the metals concentrations of the /-- LESS THAN --/63µm sediment fraction or the /-- GREATER THAN --/63µm to /-- LESS THAN --/2mm sediment fraction)*
3. *ANZECC (2000) Interim Sediment Quality Guidelines – low values based on total sediments*
4. *ANZECC (2000) Interim Sediment Quality Guidelines – high values based on total sediments*

E14 If a contaminant concentration measured at a compliance site specified in Table E4 exceeds any trigger level specified in Table E6 during a monitoring event required under condition E10 and E11, the environmental authority holder must compare this result to the applicable reference site and:

a) If the contaminant concentration measured at the compliance site is equal to or less than the contaminant concentration measured at the applicable reference site, no further action is required; or

b) If the contaminant concentration measured at the compliance site is greater than the contaminant concentration measured at the applicable reference site complete an investigation into the potential for environmental harm and provide a written report to the administering authority in accordance with condition A12, outlining

    i. details of the investigations carried out

    ii. actions taken to prevent environmental harm.

*Note: Where a contaminant trigger level exceedance has occurred and is under investigation in accordance with E14, no further reporting is required for subsequent exceedance events of that contaminant during the course of the investigation.*

**Groundwater**

E15 The holder of this environmental authority must not release contaminants to groundwater.

E16 The extraction of groundwater must not cause environmental harm to any groundwater dependant ecosystems.

E17 Groundwater quality and standing water levels must be monitored:

a) At the locations specified in Table E8; and

b) At the frequencies specified in Table E8; and

c) For the quality characteristics identified in Table E9.

**Table E8 – Groundwater Monitoring Locations and Frequency ('Table E8')**

| Monitoring Point* | Decimal Degree (GDA94) Zone 54 | | Surface RL[1] (m) | Depth RL[1] (m) | Screened interval RL[1] (m) | Monitoring Frequency | |
|---|---|---|---|---|---|---|---|
| | Easting | Northing | | | | SWL | Groundwater quality |
| **Wallace North (ML90236)** | | | | | | | |
| WNWMB01 | 473994 | 7696155 | 189.16 | 153.16 | 165.16 – 153.16 | Monthly[2] | Quarterly[2] |
| WNWMB02 | 474739 | 76950686 | 188.99 | 152.99 | 164.99 – 152.99 | Monthly[2] | Quarterly[2] |
| WNWMB03 | 474698 | 7696128 | 186.49 | 150.40 | 162.49 – 150.49 | Monthly[2] | Quarterly[2] |
| WNWMB04 | TBD[3] | TBD[3] | TBD[3] | TBD[3] | TBD[3] | Monthly[2] | Quarterly[2] |
| WEWMB01 | 476778 | 7696128 | 190.58 | 108.58 | 160.58 – 109.58 | Monthly[2] | Quarterly[2] |
| **Wallace South (ML100077)** | | | | | | | |
| WSWMB05 | 475411 | 7693024 | 193.90 | 111.9 | 172.9 – 111.9 | monthly | Quarterly |
| WSWMB01 | 474433 | 7695041 | 196.78 | 114.78 | 144.78 – 114.78 | monthly | Quarterly |
| WSWMB02 | 474206 | 7694144 | 190.69 | 108.69 | 162.69 – 108.69 | monthly | Quarterly |
| WSWMB03 | 475080 | 7694450 | 194.45 | 112.45 | 172.45 – 112.45 | monthly | Quarterly |
| WSWMB04 | 475764 | 7694862 | 185.87 | 103.87 | 149.87 – 103.87 | monthly | Quarterly |
| **Wynberg (ML100111)** | | | | | | | |
| WYNGWMB01 | 474072 | 7705284 | 176.9 | 111.9 | 123.9-111.9 | monthly | Quarterly |
| WYNGWMB02 | 472256 | 7703302 | 191.36 | 126.36 | 138.36-126.36 | monthly | Quarterly |
| WYNGWMB03 | 473006 | 7704922 | 179.65 | 114.65 | 126.65-114.65 | monthly | Quarterly |
| WYNGWMB04A | 473697 | 7704255 | 189.8 | 124.8 | 136.8 – 124.8 | monthly | Quarterly |
| WYNGWMB05 | 473161 | 7703271 | 194.66 | 129.66 | 141.66-129.66 | monthly | Quarterly |
| PHIPSY BORE | 474439 | 7706433 | 176.8 | 154.4 | 136.4-154.4 | monthly | Quarterly |

*Notes:*

** Monitoring locations depicted in Schedule J, Figure 4 Surface Waters and Groundwater Monitoring Locations and Figure 5 Groundwater and Surface Water Monitoring Sites ML100111*

*1. RL measurement to be taken from top of bore casing to the nearest 5 centimetres*

*2. Monitoring may be conducted 6 monthly until commencement of construction of the Wallace North Pit.*

*3. To be provided to the administering authority 3 months prior to the activity being carried out at Wallace North (ML90236).*

**Table E9 – Groundwater Quality Limits ('Table E9')**

| Contaminant[1] | Units | Limit type | Bores(s) | Limit A[2] | Limit B[3] |
|---|---|---|---|---|---|
| Standing Water Level **(**m) | | | All Bores | For interpretation only | |
| Major Cations and Anions | | | All Bores | For interpretation only | |
| Total hardness | | | All Bores | For interpretation only | |
| **Wallace North (ML90236)** | | | | | |
| pH | pH | Range | WNWMB01, WNWMB02, WNWMB03, WNWMB04, NEWMB01 | - | 6 – 8.5[4] |
| EC | µS/cm | Maximum | WNWMB01, WNWMB02, WNWMB03, WNWMB04 | 1170 | 1573 |
| | | | WEWMB01 | 2924 | 4134 |
| Sulfate | mg/L | Maximum | WNWMB01, WNWMB02, WNWMB03, WNWMB04 | 73 | 80 |
| | | | WEWMB01 | 213 | 673 |
| Aluminium | mg/L | Maximum | WNWMB01, WNWMB02, WNWMB03, WNWMB04, NEWMB01 | - | 0.055[4] |
| Arsenic | mg/L | Maximum | WNWMB01, WNWMB02, WNWMB03, WNWMB04, NEWMB01 | 0.013 | 0.014 |
| Boron | mg/L | Maximum | WNWMB01, WNWMB02, WNWMB03, WNWMB04, NEWMB01 | - | 0.37[4] |
| Cadmium | mg/L | Maximum | WNWMB01, WNWMB02, WNWMB03, WNWMB04, NEWMB01 | - | 0.0002[4] |
| Chromium | mg/L | Maximum | WNWMB01, WNWMB02, WNWMB03, WNWMB04, NEWMB01 | - | 0.001[4] |
| Cobalt | mg/L | Maximum | WNWMB01, WNWMB02, WNWMB03, WNWMB04, NEWMB01 | 0.0014 | 0.002 |
| Copper | mg/L | Maximum | WNWMB01, WNWMB02, WNWMB03, WNWMB04, NEWMB01 | 0.006 | 0.01 |
| Lead | mg/L | Maximum | WNWMB01, WNWMB02, WNWMB03, WNWMB04, NEWMB01 | - | 0.0034[4] |
| Manganese | mg/L | Maximum | WNWMB01, WNWMB02, WNWMB03, WNWMB04, NEWMB01 | - | 1.9[4] |
| Mercury | mg/L | Maximum | WNWMB01, WNWMB02, WNWMB03, WNWMB04, NEWMB01 | - | 0.0006[4] |
| Nickel | mg/L | Maximum | WNWMB01, WNWMB02, WNWMB03, WNWMB04, NEWMB01 | - | 0.011[4] |
| Selenium | mg/L | Maximum | WNWMB01, WNWMB02, WNWMB03, WNWMB04, NEWMB01 | - | 0.011 |
| Vanadium | mg/L | Maximum | WNWMB01, WNWMB02, WNWMB03, WNWMB04, NEWMB01 | 0.05 | 0.054 |
| Zinc | mg/L | Maximum | WNWMB01, WNWMB02, WNWMB03, WNWMB04, NEWMB01 | 0.033 | 0.055 |
| **Wallace South (ML100077)** | | | | | |
| pH | pH | Range | WSWMB01, WSWMB02, WSWMB03, WSWMB04, WSWMB05 | - | 6 – 8.5[4] |
| EC | µS/cm | Maximum | WSWMB01, WSWMB05 | 1440 | 1473 |
| | | | WSWMB02 | 1950 | 1985 |

| | | | | | |
|---|---|---|---|---|---|
| | | | WSWMB03 | 3578 | 3764 |
| | | | WSWMB04 | 2460 | 2525 |
| Sulfate | mg/L | Maximum | WSWMB01, WSWMB05 | 116 | 121 |
| | | | WSWMB02 | 137 | 142 |
| | | | WSWMB03 | 824 | 911 |
| | | | WSWMB04 | 235 | 244 |
| Aluminium | mg/L | Maximum | WSWMB01, WSWMB02, WSWMB03, WSWMB04, WSWMB05 | - | 0.055[4] |
| Arsenic | mg/L | Maximum | WSWMB01, WSWMB02, WSWMB04, WSWMB05 | 0.032 | 0.039 |
| | | | WSWMB03 | 0.11 | 0.14 |
| Boron | mg/L | Maximum | WSWMB01, WSWMB02, WSWMB04, WSWMB05 | - | 0.37[4] |
| Cadmium | mg/L | Maximum | WSWMB01, WSWMB02, WSWMB04, WSWMB05 | - | 0.0002[4] |
| Chromium | mg/L | Maximum | WSWMB01, WSWMB02, WSWMB04, WSWMB05 | - | 0.001[4] |
| Cobalt | mg/L | Maximum | WSWMB01, WSWMB02, WSWMB04, WSWMB05 | 0.0014 | 0.002 |
| Copper | mg/L | Maximum | WSWMB01, WSWMB02, WSWMB04, WSWMB05 | 0.006 | 0.01 |
| Lead | mg/L | Maximum | WSWMB01, WSWMB02, WSWMB04, WSWMB05 | - | 0.0034[4] |
| Manganese | mg/L | Maximum | WSWMB01, WSWMB02, WSWMB04, WSWMB05 | - | 1.9[4] |
| Mercury | mg/L | Maximum | WSWMB01, WSWMB02, WSWMB04, WSWMB05 | - | 0.0006[4] |
| Nickel | mg/L | Maximum | WSWMB01, WSWMB02, WSWMB04, WSWMB05 | - | 0.011[4] |
| Selenium | mg/L | Maximum | WSWMB01, WSWMB02, WSWMB04, WSWMB05 | - | 0.011 |
| Vanadium | mg/L | Maximum | WSWMB01, WSWMB02, WSWMB04, WSWMB05 | 0.05 | 0.054 |
| Zinc | mg/L | Maximum | WSWMB01, WSWMB02, WSWMB04, WSWMB05 | 0.033 | 0.055 |
| **Wynberg (ML100111)** | | | | | |
| pH | pH | Range | WYNGMB01, WYNGMB02, WYNGMB03, WYNGMB04A, WYNGMB05, PHIPSY BORE | - | 6 – 8.5[4] |
| EC | µS/cm | Maximum | WYNGMB01, WYNGMB02, WYNGMB03, PHIPSY BORE | 1310 | 1440 |
| | | | WYNGMB04A, WYNGMB05 | 2350 | 2376 |
| Sulfate | mg/L | Maximum | WYNGMB01, WYNGMB02, WYNGMB03, WYNGMB05, PHIPSY BORE | 130 | 140 |
| | | | WYNGMB04A | 465 | 500 |
| Aluminium | mg/L | Maximum | WYNGMB01, WYNGMB02, WYNGMB03, WYNGMB04A, WYNGMB05, PHIPSY BORE | - | 0.055[4] |
| Arsenic | mg/L | Maximum | WYNGMB01, WYNGMB02, WYNGMB04A, WYNGMB05, PHIPSY BORE | 0.052 | 0.067 |
| | | | WYNGMB03 | 0.155 | 0.211 |
| Boron | mg/L | Maximum | WYNGMB01, WYNGMB02, WYNGMB03, WYNGMB04A, WYNGMB05, PHIPSY BORE | - | 0.37[4] |

| | | | | | |
|---|---|---|---|---|---|
| Cadmium | mg/L | Maximum | WYNGMB01, WYNGMB02, WYNGMB03, WYNGMB04A, WYNGMB05, PHIPSY BORE | - | 0.0002[4] |
| Chromium | mg/L | Maximum | WYNGMB01, WYNGMB02, WYNGMB03, WYNGMB04A, WYNGMB05, PHIPSY BORE | - | 0.001[4] |
| Cobalt | mg/L | Maximum | WYNGMB01, WYNGMB02, WYNGMB03, WYNGMB04A, WYNGMB05, PHIPSY BORE | 0.0014 | 0.002 |
| Copper | mg/L | Maximum | WYNGMB01, WYNGMB02, WYNGMB03, WYNGMB04A, WYNGMB05, PHIPSY BORE | 0.006 | 0.01 |
| Lead | mg/L | Maximum | WYNGMB01, WYNGMB02, WYNGMB03, WYNGMB04A, WYNGMB05, PHIPSY BORE | - | 0.0034[4] |
| Manganese | mg/L | Maximum | WYNGMB01, WYNGMB02, WYNGMB03, WYNGMB04A, WYNGMB05, PHIPSY BORE | - | 1.9[4] |
| Mercury | mg/L | Maximum | WYNGMB01, WYNGMB02, WYNGMB03, WYNGMB04A, WYNGMB05, PHIPSY BORE | - | 0.0006[4] |
| Nickel | mg/L | Maximum | WYNGMB01, WYNGMB02, WYNGMB03, WYNGMB04A, WYNGMB05, PHIPSY BORE | - | 0.011[4] |
| Selenium | mg/L | Maximum | WYNGMB01, WYNGMB02, WYNGMB03, WYNGMB04A, WYNGMB05, PHIPSY BORE | - | 0.011 |
| Vanadium | mg/L | Maximum | WYNGMB01, WYNGMB02, WYNGMB03, WYNGMB04A, WYNGMB05, PHIPSY BORE | - | 0.01 |
| Zinc | mg/L | Maximum | WYNGMB01, WYNGMB02, WYNGMB04A, WYNGMB05, PHIPSY BORE | 0.043 | 0.074 |
| | | | WYNGMB03 | 0.61 | 0.70 |

*Notes:*

1. All metals and metalloids must be measured as 'dissolved' (from analysis of a field filtered sample)
2. Derived from site-specific values, based off dissolved concentration of metals (80th percentiles).
3. Derived from site-specific values, based off dissolved concentration of metals (95th percentiles).
4. Contaminant limit based on ANZG (2018), 95% aquatic species protection level for slightly to moderately disturbed ecosystem.

E18 Groundwater measured from any compliance bore specified in **Table E8** must not exceed the corresponding Limit A specified in **Table E9** on any five consecutive sampling occasions**.**

E19 Groundwater measured from any compliance bore specified in **Table E8** must not exceed the corresponding Limit B specified in **Table E9** on any three consecutive sampling occasions**.**

E20 If groundwater measured from any compliance bore specified in **Table E8** exceeds the corresponding Limit B specified in **Table E9** on any one sampling occasion the environmental authority holder must resample the groundwater within the compliance bore for all exceeding parameters within ten business days of receipt of results.

**Shallow Groundwater Monitoring**

E21 The contaminant concentrations measured at any compliance bore specified in Table E10 must not exceed any of the water quality objectives specified in Table E11.

**Table E10 - Shallow Groundwater Monitoring Locations and Frequency ('Table E10')**

| Monitoring Point | Decimal Degree (GDA94) Zone 54 | | Surface RL[1] (m) | Depth RL[1] (m) | Screened interval RL[1] (m) | Monitoring Frequency |
|---|---|---|---|---|---|---|
| | Easting | Northing | | | | |
| **Reference Bore[1]** | | | | | | |
| **Wallace South (ML100077)** | | | | | | |
| TBD[2] | TBD[2] | TBD[2] | TBD[2] | TBD[2] | TBD[2] | monthly |
| **Compliance Bores** | | | | | | |
| **Wallace South (ML100077)** | | | | | | |
| TBD[2] | TBD[2] | TBD[2] | TBD[2] | TBD[2] | TBD[2] | monthly |
| TBD[2] | TBD[2] | TBD[2] | TBD[2] | TBD[2] | TBD[2] | monthly |
| TBD[2] | TBD[2] | TBD[2] | TBD[2] | TBD[2] | TBD[2] | monthly |
| TBD[2] | TBD[2] | TBD[2] | TBD[2] | TBD[2] | TBD[2] | monthly |
| TBD[2] | TBD[2] | TBD[2] | TBD[2] | TBD[2] | TBD[2] | monthly |
| **Leak Detection Bores** | | | | | | |
| **Wallace South (ML100077)** | | | | | | |
| Leak Detection 1 (LD1) | TBD[2] | TBD[2] | TBD[2] | TBD[2] | TBD[2] | monthly |
| Leak Detection 2 (LD2) | TBD[2] | TBD[2] | TBD[2] | TBD[2] | TBD[2] | monthly |
| Leak Detection 3 (LD3) | TBD[2] | TBD[2] | TBD[2] | TBD[2] | TBD[2] | monthly |
| Leak Detection 4 (LD4) | TBD[2] | TBD[2] | TBD[2] | TBD[2] | TBD[2] | monthly |
| Leak Detection 5 (LD5) | TBD[2] | TBD[2] | TBD[2] | TBD[2] | TBD[2] | monthly |
| Leak Detection 6 (LD6) | TBD[2] | TBD[2] | TBD[2] | TBD[2] | TBD[2] | monthly |

*Note –*

*[1] Reference sites must:*

*(a) have a similar flow regime*

*(b) be from the same bio-geographic and climatic region*

*(c) have similar geology, soil types and topography*

*(d) not be so close to the test sites that any disturbance at the test site also results in a change at the reference site.*

*[2] Bores must be installed prior to the construction of the Heap Leach Pad on ML100077*

**Table E11 – Shallow Groundwater Triggers Levels and Water Quality Objectives ('Table E11')**

| Contaminant[1] | Units | Trigger Level | Water Quality Objectives |
|---|---|---|---|
| pH | pH | 6-7.5[4] | TBD[8] |
| EC | µS/cm | 500[2] | TBD[8] |
| Sulfate | mg/L | 250[7] | TBD[8] |
| Aluminium | mg/L | 0.055[3] | TBD[8] |
| Arsenic | mg/L | 0.013[3] | TBD[8] |
| Boron | mg/L | 0.37[3] | TBD[8] |
| Cadmium | mg/L | 0.0002[3] | TBD[8] |
| Chromium | mg/L | 0.001[3] | TBD[8] |
| Cobalt | mg/L | 0.03[6] | TBD[8] |
| Copper | mg/L | 0.0014[3] | TBD[8] |
| Lead | mg/L | 0.0034[3] | TBD[8] |
| Manganese | mg/L | 1.9[3] | TBD[8] |

| | | | |
|---|---|---|---|
| Mercury | mg/L | 0.0006[3] | TBD[8] |
| Nickel | mg/L | 0.011[3] | TBD[8] |
| Vanadium | mg/L | 0.006[6] | TBD[8] |
| Zinc | mg/L | 0.008[3] | TBD[8] |
| Cyanide (free) (as un-ionised HCN, measured as [CN]) | mg/L | 0.007[3] | TBD[8] |
| Cyanide (WAD) | mg/L | 0.5[5] | TBD[8] |
| Cyanide (Total) | mg/L | 0.08[7] | TBD[8] |

*Notes:*

1. *All metals and metalloids must be measured as both 'total' (from analysis of an unfiltered sample) and 'dissolved' (from analysis of a field filtered sample)*
2. *Based off Queensland Water Quality Guideline (2013), electrical conductivity 75$^{th}$ percentile in the Gulf –Appendix G, Table G.1*
3. *Based off ANZECC (2000) value for 95% species protection, Table 3.4.1, measured as 'dissolved' metals*
4. *Based off ANZECC (2000) Table 3.3.5*
5. *The International Cyanide Management Code (2009), Section 4.5*
6. *Based off ANZECC (2000) low reliability metals and metalloids, Section 8.3.7.1*
7. *Australian Drinking Water Guidelines, version 3.3 (2011), Table 10.6, measured as 'total' metals*
8. *To be determined and provided to the administering authority prior to the construction of the Heap Leach Pad on ML100077*

**Exceedance Investigation**

E22 If a contaminant concentration of groundwater measured at a compliance bore specified in Table E10 exceeds any limits specified in Table E11, the holder of this environmental authority must compare this result to the applicable reference bore and:

a) If the contaminant concentration measured at the compliance bore is equal to or less than the contaminant concentration measured from the applicable reference site, no further action is required; or

b) If the contaminant concentration measured at the compliance bore is greater than the contaminant concentration measured at the applicable reference bore complete an investigation into the potential for environmental harm and provide a written report to the administering authority in accordance with condition A12, outlining

i. details of the investigations carried out

ii. actions taken to prevent environmental harm.

**Leak Detection Exceedance Investigation**

E23 If the concentration of a contaminant measured in groundwater at a leak detection bore specified in Table E10 exceeds any trigger level specified in Table E11 the holder of this environmental authority must:

a) notify the administering authority within 24 hours; and

b) determine the cause of the exceedance; and

c) if the exceedance is due to the mining activities, take immediate action to prevent environmental harm.

**Bore construction and maintenance and decommissioning**

E24 The construction, maintenance and decommissioning of groundwater monitoring bores must be undertaken in a manner that:

(a) prevents contaminants entering the groundwater; and

(b) ensures the integrity of the bores to obtain representative groundwater samples from the target aquifer; and

(c) maintains the hydrogeological environment within the aquifer.

E25 A bore drill log must be kept for each reference, compliance and observation groundwater monitoring bore which includes:

(a) bore identification reference and geographic coordinate location;

(b) specific construction information including but not limited to depth of bore, depth and length of casing, depth and length of screening and bore sealing details;

(c) standing groundwater level and water quality parameters including physical parameters and results of laboratory analysis for the possible trigger parameters;

(d) lithological data and stratigraphic interpretation by an appropriately qualified person to identify important features associated with groundwater monitoring; and

(e) target aquifer formation of the bore.

**Watercourse Diversions**

E26 Permanent watercourse diversions, or the re-establishment of a pre-existing watercourse where a temporary watercourse diversion is being replaced, must be designed and constructed to:

a) Maintain the pre-existing hydrologic characteristics of surface water and groundwater systems for the area in which the watercourse diversion is located
b) Maintain the hydraulic characteristics of the permanent watercourse diversion that are equivalent to other local watercourses and are suitable for the area in which the diversion is located without using artificial structures that require on-going maintenance
c) Maintain sediment transport and water quality regimes that allow the diversion to be self-sustaining, while minimising any impacts to upstream and downstream water quality, geomorphology or vegetation.
d) Maintain equilibrium and functionality in all substrate conditions at the location of the diversion.

**Temporary Interference with Waterways**

E27 Destroying native vegetation, excavating, or placing fill in a watercourse, lake or spring necessary for and associated with mining operations must be undertaken in accordance with Department of Natural Resources and Mines (or its successor) Guideline – Activities in a Watercourse, Lake or Spring associated with Mining Activities.

**Design Plan**

E28 A certified Design Plan that achieves condition E26 for permanent watercourse diversions must be submitted to the administering authority at least 10 business days before commencing construction of the diversion.

E29 The certified design plan for any temporary or permanent watercourse diversion must be consistent with the functional design/s that formed a part of the application documents for this authority.

**Construction and operation**

E30 A certified set of ‘as constructed’ drawings and specifications must be submitted to the administering authority within 60 business days from the completion of construction of the temporary or permanent watercourse diversion, or re-establishment of the pre-existing watercourse. These drawings and specifications must state:

a) That the 'as constructed' drawings and specifications meet the original intent of the design plan for the watercourse diversion
b) Construction of the watercourse diversion is in accordance with the design plan.

**Register**

E31 The details of watercourse diversions planned and constructed under an environmental authority must be accurately recorded on the Register of Watercourse Diversions kept by the holder of the authority. An electronic copy must be provided to the administering authority on request.

**Receiving environment monitoring program**

E32 The environmental authority holder must develop and implement a Receiving Environment Monitoring Program (REMP) to monitor, identify and describe any adverse impacts to surface water environmental values, quality and flows due to the authorised mining activity. This must include monitoring the effects of the mine on the receiving environment periodically (under natural flow conditions) and while contaminated water is being discharged from the site. For the purposes of the REMP, the receiving environment is all underlying groundwaters and the waters of Elder Creek, Turpentine Creek and Weatherly Creek and connected or surrounding waterways within 6km downstream of the release. The REMP should encompass any sensitive receiving waters or environmental values downstream of the authorised mining activity that will potentially be directly affected by an authorised release of contaminated water.

E33 A REMP Design Document that addresses the requirements of the REMP must be prepared and made available to the administering authority upon request.

E34 A report outlining the findings of the REMP, including all monitoring results and interpretations must be prepared annually and made available on request to the administering authority. This must include an assessment of background reference water quality, the condition of downstream water quality compared against water quality objectives, and the suitability of current discharge limits to protect downstream environmental values.

**Water Management Plan**

E35 A Water Management Plan must be developed by an appropriately qualified person, documented and implemented for all stages of the mining activity by 1 February 2020.

E36 The holder of this environmental authority must ensure proper and effective measures are taken to avoid or otherwise minimise the generation and/or release of saline, acid and/or metalliferous mine drainage.

E37 Any contaminated surface runoff or subsurface seepage from the Waste Rock Dump must be captured and directed to the Wallace North Storage Dam or Wallace North Pit.

**Groundwater Management Program**

E38 By 1 May 2020, a Groundwater Management Program must be developed, documented and implemented by appropriately qualified persons.

E39 The Groundwater Management Program required by Condition E38 must:

(a) identify potential sources of contamination to groundwater from the activity; and
(b) ensure that all potential groundwater impacts due to the activity are identified, monitored and mitigated; and
(c) document sampling and monitoring methodology; and
(d) ensure that adequate groundwater monitoring and data analysis is undertaken to achieve the following objectives:
    i. detect any impacts to groundwater levels due to the activity;
    ii. detect any impacts to groundwater quality due to the activity;
    iii. determine compliance with conditions E18 and E19; and

iv. determine trends in groundwater quality; and

(e) include an appropriate quality assurance and quality control program; and
(f) include a conceptual groundwater model; and
(g) include a review process to identify improvements to the program that addresses any comments provided by the administering authority.

E40 From 1 May 2020, the Groundwater Management Program must be reviewed on an annual basis by an appropriately qualified person to determine if it continues to meet the requirements stated in condition E39.

**Monitoring and sampling**

E41 Monitoring and sampling must be carried out in accordance with written procedures and must address the requirements of the latest version of the following documents unless otherwise approved by the administering authority:

(a) for waters and aquatic environments, the Queensland Government's Monitoring and Sampling Manual – Environmental Protection (Water) Policy; and

(b) for groundwater, Groundwater Sampling and Analysis – A Field Guide (2009:27 GeoCat#6890.1) and Australian Standard AS/NZS 5667.11:1998 Water Quality – Sampling – Guidance on sampling of groundwaters.

**END OF CONDITIONS FOR SCHEDULE E**

## Schedule F - Sewage Treatment

F1 The only contaminant permitted to be released to land is treated sewage effluent in compliance with the release limits stated in Table F1

F2 Treated sewage effluent may only be released to land in accordance with the conditions of this approval at the following locations:

a) Within the nominated area(s) identified in Table A1 (irrigation area)
b) Other land for the purpose of dust suppression and/or fire fighting.

**Table F1 – Contaminant release limits to land ('Table F1')**

| Contaminant | Unit | Release Limit | Limit type | Frequency |
|---|---|---|---|---|
| 5 day Biochemical Oxygen Demand ($BOD_5$) | mg/L | 20 | Maximum | Monthly |
| Total suspended solids | mg/L | 30 | Maximum | Monthly |
| Nitrogen | mg/L | 30 | Maximum | Monthly |
| Phosphorus | mg/L | 15 | Maximum | Monthly |
| E-coli | Organism/100ml | 1000 | Maximum | Monthly |
| pH | pH units | 6.0 – 9.0 | Range | Monthly |

F3 The application of treated effluent to land must be carried out in a manner such that:

a) Vegetation is not damaged
b) There is no surface ponding of effluent
c) There is no run-off of effluent.

F4 If areas irrigated with effluent are accessible to employees or the general public, prominent signage must be provided advising that effluent is present and care should be taken to avoid consuming or otherwise coming into unprotected contact with the effluent.

F5 All sewage effluent released to land must be monitored at the frequency and for the parameters specified in Table F1.

F6 The daily volume of effluent release to land must be measured and records kept of the volumes of effluent released.

F7 When circumstances prevent the irrigation or beneficial reuse of treated sewage effluent such as during or following rain events, waters must be directed to a wet weather storage or alternative measures must be taken to store/lawfully dispose of effluent.

F8 A minimum area of 0.5 ha of land, excluding any necessary buffer zones, must be utilised for the irrigation and/or beneficial reuse of treated sewage effluent.

F9 Treated sewage effluent must only be supplied to another person or organisation that has a written plan detailing how the user of the treated sewage effluent will comply with their general environmental duty, under section 319 of the Act, whilst using the treated sewage effluent.

**END OF CONDITIONS FOR SCHEDULE F**

## Schedule G - Land and Rehabilitation

G1 The environmental authority holder must rehabilitate all land disturbed by the mining activities in a manner that ensures rehabilitated areas achieve the following rehabilitation objectives:

a) Safe for humans and wildlife;
b) Non-polluting;
c) Stable;
d) Able to sustain an agreed post-mining land-use;
e) In accordance with the requirements of Table G1;
f) Revegetated with species endemic to the area with no declared pest species; and
g) Compliant with all conditions of this environmental authority.

G2 A Land Use Management Document that describes how the rehabilitation objectives in condition G1 will be achieved must be developed, documented and implemented for all stages of the mining activity by 1 September 2020. The Land Use Management Document must at minimum include:

a) Schematic representation of the proposed final land form inclusive of site drainage features;
b) Details of proposed slope design and erosion and sediment controls;
c) Proposed cover designs for encapsulation of waste material, including performance criteria;
d) Proposed re-vegetation methods inclusive of plant species selection, propagation methods and establishment of suitable plant growth medium (i.e. top soil);
e) Materials balance for all rehabilitation requirements including available top soil and material suitable for encapsulating waste in accordance with the proposed encapsulation methodology;
f) Geotechnical, geochemical and hydrological studies necessary to demonstrate likely success of proposed rehabilitation methodology to achieve the required rehabilitation outcomes;
g) An investigation of proposed residual voids including potential for generation/mobilisation of contaminants, potential pathways for release of contaminants to waters (including groundwater) and a long-term void water balance model; and
h) A rehabilitation monitoring program sufficient to identify if required rehabilitation outcomes have been achieved.

G3 Rehabilitation in accordance with condition G2 must commence progressively.

G4 Minimise the potential for contamination of land by hazardous contaminants.

**Table G1 – Rehabilitation Requirements (Table G1)**

| Mine Domain | Mine Feature Names | Rehabilitation Goal | Rehabilitation Objective | Indicators | Completion Criteria |
|---|---|---|---|---|---|
| Voids | Open Pits | Safe | Site safe for humans and animals | Engineered structures and signage to preclude humans and animals (e.g., safety bund wall and fencing, signage at entrance and access roads blocked off) | Rehabilitation report: that all safety precautions have been taken in accordance with the relevant legislation – Signs comply with AS 1319:1994 – Safety Signs for the Occupational Environment. |
| | | | | Safety assessment of final landform by an appropriately qualified person (i.e geotechnical assessment) | Rehabilitation report: geotechnical assessment to determine suitable extent of safety bund wall. |
| | | Non-polluting | Hazardous and contaminated material adequately managed. | Contamination assessment of final landforms by an appropriately qualified person (i.e grade control and waste rock management) | Rehabilitation report: certification of assessment and any remedial work. |
| | | | | Monitoring (void water quality, surface water, groundwater and stream sediment) to meet site specific WQO and limits. | Rehabilitation report: assessment and certification of analytical results within applicable guideline values. |
| | | Stable | Minimal probability of wall failure or rock falls that will cause significant environmental harm. | Geotechnical assessment of risk on final voids with photographic evidence. | Rehabilitation report: geotechnical assessment on risk of wall failure. |
| | | | | Residual risk assessment of final landforms | Rehabilitation report: residual risk assessment and control measures. |
| Waste Rock Dumps | Waste rock dumps and | Safe | Site safe for humans and animals | Safety assessment of final landform by an appropriately qualified person | Rehabilitation report: certification structurally safe for post mine land use. |
| | | | | Contamination assessment of final landforms by an appropriately qualified person (i.e grade control and waste rock management) | Rehabilitation report: post closure monitoring shows the final landform is compliant with established and applicable limits. |
| | | Non-polluting | Hazardous and contaminated material adequately managed. | Contamination assessment of final landforms by an appropriately qualified person (i.e grade control , waste rock management and cover design) | Rehabilitation report: certification that the waste rock dumps have an adequate landform design and construction to prevent any release or seepage of hazardous or contaminated material. |
| | | | | Rehabilitation monitoring plan in place to monitor receiving | Rehabilitation report: monitoring data demonstrates the |

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| | | | | environment (i.e. downstream surface water /ground water) | landform is benign and functioning to prevent release or seepage of hazardous or contaminated material to the receiving environment. |
| | | Stable | Minimal probability of subsidence or rock falls that will cause significant environmental harm | Geotechnical assessment of final landforms | Rehabilitation report: geotechnical assessment to determine landform stability. |
| | | | | Residual risk assessment of final landforms | Rehabilitation report: appropriate risk assessment and control measures. |
| | | | Vegetation cover to minimise erosion | Vegetation cover assessment | Rehabilitation report: Equal or greater than 60% of comparable species to the analogue site. |
| | | Self-sustaining | Reinstate natural vegetation (Land Class VIII – not suitable for agriculture) | Vegetation assessment percentage of cover | Rehabilitation report: Equal or greater than 60% of comparable species to the analogue site. |
| | | | | | Rehabilitation report: Weeds not to exceed 10% more than percentage cover of analogue site |
| Heap Leach Facility | Heap Leach Facility | Safe | Site safe for humans and animals | Safety assessment of final landform by an appropriately qualified person | Rehabilitation report: certification structurally safe for post mine land use. |
| | | | | Contamination assessment of final landforms by an appropriately qualified person (i.e grade control and waste rock management) | Rehabilitation report: post closure monitoring shows the final landform is compliant with established and applicable limits. |
| | | Non-polluting | Hazardous and contaminated material adequately managed. | Contamination assessment of final landforms by an appropriately qualified person (i.e grade control , ore management and cover design) | Rehabilitation report: certification that the heap landform has an adequate landform design and construction to prevent any release or seepage of hazardous or contaminated material. |
| | | | | Rehabilitation monitoring plan in place to monitor receiving environment (i.e. downstream surface water /ground water) | Rehabilitation report: monitoring data demonstrates the landform is benign and functioning to prevent release or seepage of hazardous or contaminated material to the receiving environment. |
| | | Stable | Minimal probability of subsidence | Geotechnical assessment of final landforms | Rehabilitation report: geotechnical assessment to |

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| | | | that will cause significant environmental harm | | determine landform stability. |
| | | | | Residual risk assessment of final landforms | Rehabilitation report: appropriate risk assessment and control measures. |
| | | | Vegetation cover to minimise erosion | Vegetation cover assessment | Rehabilitation report: Equal or greater than 60% of comparable species to the analogue site. |
| Process Plant | Adsorption Plant, Sodium Cyanide and Reagent storage and mixing. | Safe | Site safe for humans and animals | Safety assessment of final landform by an appropriately qualified person | Rehabilitation report: Certification structurally sound and safe. |
| | | Stable | Landform achieves appropriate erosion rates | Engineers assessment of design and construction of structures to control water flow | Rehabilitation report: Engineer certification that infrastructure sites (both remaining and decommissioned) have the required structures to control water flow and runoff. |
| | | Non-polluting | Hazardous and contaminated material adequately managed | Contaminated land assessment | Evidence of remediated landform in a contaminated land assessment report. |
| | | Self-Sustaining | Reinstate natural vegetation for Land Class VI –-low intensity grazing | Vegetation assessment percentage of cover | Rehabilitation report: Equal or greater than 60% of comparable species to the analogue site. |
| | | | | | Rehabilitation report: Weeds not to exceed 10% more than percentage cover of analogue site |
| Ancillary Infrastructure, Roads and Exploration Areas | ROM Pad, ore stockpiles and loading areas, workshop, ablutions, fuel storage area, power facility, office) internal access and haul roads. | Safe | Site safe for humans and animals | Safety assessment of final landform by an appropriately qualified person | Rehabilitation report: Certification structurally sound and safe. |
| | | Non-polluting | Hazardous and contaminated material adequately managed | Contaminated land assessment | Evidence of remediated landform in a contaminated land assessment report. |
| | | | Runoff and seepage of good quality water that is not likely to affect known environmental values | Rehabilitation monitoring plan in place to monitor downstream surface/groundwater | Rehabilitation report: monitoring data meets specified contaminant and trigger levels that ensure environmental values are not being compromised. |
| | | Stable | Landform achieves appropriate erosion rates | Engineers assessment of design and construction of structures to control water flow | Rehabilitation report: Engineer certification that infrastructure sites (both remaining and decommissioned) have the required structures to control water flow |

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| | | | | | and runoff. |
| | | | Vegetation cover to minimise erosion | Vegetation assessment percentage of cover | Rehabilitation report: Equal or greater than 60% of comparable species to the analogue site. |
| | | Self-sustaining | Reinstate natural vegetation for low intensity grazing | Vegetation assessment percentage of cover | Rehabilitation report: Equal or greater than 60% of comparable species to the analogue site. |
| | | | | | Rehabilitation report: Weeds not to exceed 10% more than percentage cover of analogue site |
| Water Infrastructure | Process ponds, W drains, water storage dams and sediment basins | Safe | Site safe for humans and animals | Safety assessment of final landform by an appropriately qualified person.<br>Safety barriers and signage. | Rehabilitation report: Certification structurally sound and safe, all precautions implemented. |
| | | Non-polluting | Dams to remain on closure will not contribute contaminants to the environment. | Rehabilitation monitoring plan in place to monitor water in the dam and downstream surface/groundwater | Rehabilitation report: post closure monitoring (water quality) is compliant with established and applicable limits. |
| | | Stable | Minimal probability or subsidence that will cause significant environmental harm | Geotechnical studies of final landforms | Rehabilitation report: geotechnical studies to determine whether final landform is stable. |
| | | | | Risk assessment of final landform | Rehabilitation report: appropriate risk assessment and control measures have been undertaken |
| | | Self-sustaining | Reinstate natural vegetation for low intensity grazing | Vegetation assessment percentage of cover | Rehabilitation report: Equal or greater than 60% of comparable species to the analogue site. |
| | | | | | Rehabilitation report: Weeds not to exceed 10% more than percentage cover of analogue site |
| | Drains/ diversions/ levees / bunds | Non-polluting | Discharge will be of good quality water that is not likely to affect known environmental values | Rehabilitation monitoring plan in place to monitor downstream surface water | Rehabilitation report: monitoring data meets specified contaminant and trigger levels that ensure environmental values are not being compromised. |
| | | Stable | Minimal probability or subsidence that will cause significant environmental harm | Geotechnical studies of final landforms | Rehabilitation report: geotechnical studies to determine whether final landform is stable. |
| | | Self-sustaining | Reinstate | Vegetation assessment | Rehabilitation report: |

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| | | | natural vegetation for low intensity grazing | percentage of cover | Equal or greater than 60% of comparable species to the analogue site. |
| | | | | | Rehabilitation report: Weeds not to exceed 10% more than percentage cover of analogue site |

**Contaminated Land**

G5 Before applying for surrender of a mining lease, the holder must (if applicable) provide to the administering authority a site investigation report under the Act, in relation to any part of the mining lease which has been used for notifiable activities or which the holder is aware is likely to be contaminated land, and also carry out any further work that is required as a result of that report to ensure that the land is suitable for its final land use.

G6 Before applying for progressive rehabilitation certification for an area, the holder must (if applicable) provide the administering authority a site investigation report under the Act, in relation to any part of the area the subject of the application which has been used for notifiable activities or which the holder is aware is likely to be contaminated land, and also carry out any further work that is required as a result of the report to ensure that the land is suitable for its final land use under condition G1.

**Chemicals and flammable or combustible liquids**

G7 All explosives, hazardous chemicals, corrosive substances, toxic substances, gases and dangerous goods should be stored and handled in accordance with the current Australian standard where such is applicable.

G8 Flammable and combustible liquids, including petroleum products, should be stored and handled in accordance with the latest edition of AS1940—The storage and handling of flammable and combustible liquids.

G9 Where no relevant Australian standard exists store such materials within an effective on-site containment system.

**Biodiversity and Environmental offsets**

G10 The holder of this environmental authority must provide an offset for impacts on applicable state significant biodiversity values on ML90236, in accordance with Queensland Biodiversity Offset Policy. The biodiversity offset must be consistent with the requirements for an offset as identified in the Biodiversity Offset Strategy (as per condition G11) and must be provided:

a) prior to impacting on state significant biodiversity values; or
b) where a land based offset is to be provided, within 12 months of the later of either of the following:
    1) the date of issue of this environmental authority; or
    2) the relevant stage identified in the Biodiversity Offset Strategy submitted under condition G11; or
c) where an offset payment is to be provided, within 4 months of the later of either of the following:
    1) the date of issue of this environmental authority; or
    2) 2) the relevant stage identified in the Biodiversity Offset Strategy submitted under conditions G11.

G11 A Biodiversity Offset Strategy must be developed and submitted to the administering authority within either 30 days, or a lesser period agreed to by the administering authority, prior to impacting on the applicable state significant biodiversity values.

G12 Significant residual impacts to prescribed environmental matters are not authorised under this environmental authority or the Environmental Offsets Act 2014.

G13 Records demonstrating that each impact to a prescribed environmental matter did not, or is not likely to, result in a significant residual impact to that matter must be:

a) completed by an appropriately qualified person; and
b) kept for the life of the environmental authority.

**Topsoil Management**

G14 A topsoil management plan must be developed, documented and implemented for all stages of the mining activity by 1 February 2020.

**END OF CONDITIONS FOR SCHEDULE**

## Schedule H - Regulated structures

**Assessment of Consequence Category**

H1 The consequence category of any structure must be assessed by a suitably qualified and experienced person in accordance with the Manual for Assessing Consequence Categories and Hydraulic Performance of Structures (ESR/2016/1933) at the following times:

a) Prior to the design and construction of the structure, if it is not an existing structure; or
b) Prior to any change in its purpose or the nature of its stored contents.

H2 A consequence assessment report and certification must be prepared for each structure assessed and the report may include a consequence assessment for more than one structure.

H3 Certification must be provided by the suitably qualified and experienced person who undertook the assessment, in the form set out in the Manual for Assessing Consequence Categories and Hydraulic Performance of Structures (ESR/2016/1933).

**Design and Construction of a Regulated Structure**

H4 All regulated structures must be designed by, and constructed under the supervision of, a suitably qualified and experienced person in accordance with the requirements of the Manual for Assessing Consequence Categories and Hydraulic Performance of Structures (ESR/2016/1933).

H5 Construction of a regulated structure is prohibited unless:

a) The holder has submitted a consequence category assessment report and
b) Certification to the administering authority has been certified by a suitably qualified and experienced person for the design and design plan and the associated operating procedures in compliance with the relevant condition of this authority.

H6 Certification must be provided by the suitably qualified and experienced person who oversees the preparation of the design plan in the form set out in the Manual for Assessing Consequence Categories and Hydraulic Performance of Structures (ESR/2016/1933), and must be recorded in the Register of Regulated Structures.

H7 Regulated structures must:

a) Be designed and constructed in accordance with and conform to the requirements of the Manual for Assessing Consequence Categories and Hydraulic Performance of Structures (ESR/2016/1933);
b) Be designed and constructed with due consideration given to ensuring that the design integrity would not be compromised on account of:
c) Floodwaters from entering the regulated dam from any watercourse or drainage line; and
d) Wall failure due to erosion by floodwaters arising from any watercourse or drainage line.

H8 Certification by the suitably qualified and experienced person who supervises the construction must be submitted to the administering authority on the completion of construction of the regulated structure, and state that:

a) The 'as constructed' drawings and specifications meet the original intent of the design plan for that regulated structure;

b) Construction of the regulated structure is in accordance with the design plan.

**Operation of a Regulated Structure**

H9 Operation of a regulated structure, except for an existing structure, is prohibited unless the holder has submitted to the administering authority:

a) One paper copy and one electronic copy of the design plan and certification of the 'design plan' in accordance with condition H6, and
b) A set of 'as constructed' drawings and specifications, and
c) Certification of those 'as constructed drawings and specifications' in accordance with condition H8, and
d) Where the regulated structure is to be managed as part of an integrated containment system for the purpose of sharing the DSA volume across the system, a copy of the certified system design plan.
e) The requirements of this authority relating to the construction of the regulated structure have been met;
f) The holder has entered the details required under this authority, into a Register of Regulated Structures; and
g) There is a current operational plan for the regulated structures.

H10 Each regulated structure must be maintained and operated, for the duration of its operational life until decommissioned and rehabilitated, in a manner that is consistent with the current operational plan and, if applicable, the current design plan and associated certified 'as constructed' drawings.

**Mandatory Reporting Level**

H11 The Mandatory Reporting Level (the MRL) must be marked on a regulated dam in such a way that during routine inspections of that dam, it is clearly observable.

H12 The holder must, as soon as practical and within forty-eight (48) hours of becoming aware, notify the administering authority when the level of the contents of a regulated dam reaches the MRL.

H13 The holder must, immediately on becoming aware that the MRL has been reached, act to prevent the occurrence of any unauthorised discharge from the regulated dam.

H14 The holder must record any changes to the MRL in the Register of Regulated Structures.

**Design Storage Allowance**

H15 The holder must assess the performance of each regulated dam or linked containment system over the preceding November to May period based on actual observations of the available storage in each regulated dam or linked containment system taken prior to 1 July of each year.

H16 By 1 November of each year, storage capacity must be available in each regulated dam (or network of linked containment systems with a shared DSA volume), to meet the Design Storage Allowance (DSA) volume for the dam (or network of linked containment systems).

H17 The holder must, as soon as possible and within forty-eight (48) hours of becoming aware that the regulated dam (or network of linked containment systems) will not have the available storage to meet the DSA volume on 1 November of any year, notify the administering authority.

H18 The holder must, immediately on becoming aware that a regulated dam (or network of linked containment systems) will not have the available storage to meet the DSA volume on 1 November of

any year, act to prevent the occurrence of any unauthorised discharge from the regulated dam or linked containment systems.

**Annual Inspection Report**

H19 Each regulated structure must be inspected each calendar year by a suitably qualified and experienced person.

H20 At each annual inspection, the condition and adequacy of all components of the regulated structure must be assessed and a suitably qualified and experienced person must prepare an annual inspection report containing details of the assessment and include recommended actions to ensure the integrity of the regulated structure.

H21 The suitably qualified and experienced person who prepared the annual inspection report must certify the report in accordance with the Manual for Assessing Consequence Categories and Hydraulic Performance of Structures (ESR/2016/1933).

H22 The holder must within 20 business days of receipt of the annual inspection report, provide to the administering authority:

a) The recommendations section of the annual inspection report; and
b) If applicable, any actions being taken in response to those recommendations; and
c) If, following receipt of the recommendations and (if applicable) actions, the administering authority requests a full copy of the annual inspection report from the holder, provide this to the administering authority within 10 business days of receipt of the request.

**Transfer Arrangements**

H23 The holder of this environmental authority must provide a copy of any reports, documentation and certifications prepared under this authority, including but not limited to any Register of Regulated Structures, consequence assessment, design plan and other supporting documentation, to a new holder on transfer of this authority.

**Decommissioning and Rehabilitation**

H24 Regulated structures must not be abandoned but be either:

a) decommissioned and rehabilitated to achieve compliance with condition H25; or
b) be left in-situ for a beneficial use(s) provided that:
    i. it no longer contains contaminants that will migrate into the environment; and
    ii. it contains water of a quality that is demonstrated to be suitable for its intended beneficial use(s); and
c) the holder of the environmental authority and the landholder agree in writing that the:
    i. dam will be used by the landholder following the cessation of the environmentally relevant activity(ies); and
    ii. Landholder is responsible for the dam, on and from an agreed date.

H25 Before surrendering this environmental authority the site must be rehabilitated to achieve a safe, stable, non-polluting landform and final land use of low intensity grazing.

**Register of Regulated Dams**

H26 A Register of Regulated Dams must be established and maintained by the holder for each regulated dam.

H27 The holder must provisionally enter the required information in the Register of Regulated Dams when a design plan for a regulated dam is submitted to the administering authority.

H28 The holder must make a final entry of the required information in the Register of Regulated Dams once compliance with condition H9 has been achieved.

H29 The holder must ensure that the information contained in the Register of Regulated Dams is current and complete on any given day.

H30 All entries in the Register of Regulated Dams must be approved by the chief executive officer for the holder of this authority, or their delegate, as being accurate and correct.

H31 The holder must, at the same time as providing the annual return, supply to the administering authority a copy of the records contained in the Register of Regulated Dams, in the electronic format required by the administering authority.

**Hydraulic Performance of Regulated Structures**

H32 All regulated structures must be specified in Table H1.

H33 Each regulated structure authorised by this environmental authority as specified in Table A1, must meet the hydraulic performance criteria listed in Table H1 for that structure.

**Table H1 – Hydraulic Performance Criteria ('Table H1')**

| Name of Regulated Structure | Spillway Capacity | | Design Storage Allowance (DSA) | | Mandatory Reporting Level (MRL) | | Purpose of structure |
|---|---|---|---|---|---|---|---|
| | Design Criteria | mAHD | Design Criteria | mAHD | Design Criteria | mAHD | |
| Wallace North Storage Dam (WNSD) | 1: 20 Year AEP | TBA* | 1: 100 Year ARI 3 month wet season plus process inputs for the 3 month wet season | TBA* | 1:10 AEP 72 hours duration | TBA* | Contain mine affected water |
| Wallace North Pit | 1: 20 Year AEP | TBA* | 1: 100 Year ARI 3 month wet season plus process inputs for the 3 month wet season | TBA* | 1:10 AEP 72 hours duration | TBA* | Contain overflow from WNSD |
| Wallace North Pit Flood Bund/Levee | TBA* | TBA* | 1:1,000 AEP | TBA* | TBA* | TBA* | Flood Protection |
| Wallace South Process Ponds | 1: 100 Year AEP | TBA* | 1: 100 Year ARI 3 month wet season plus process inputs for the 3 month wet season | TBA* | TBA* | TBA* | Contains leachate solution |
| Wallace South Stormwater Pond | 1: 100 Year AEP | TBA* | 1: 100 Year ARI 3 month wet season plus process inputs for the 3 month wet season | TBA* | TBA* | TBA* | Contain overflow from Process Ponds |
| Wallace South Watercourse Diversion Levee | TBA* | TBA* | 1: 1,000 AEP | TBA* | TBA* | TBA* | Flood Protection |

** TBA – to be determined prior to construction of the structure*

H34 The hydraulic performance criteria specified in Table H1 are the minimum mandatory performance requirements; regulated structures must be managed in a manner that ensures compliance with all conditions of this environmental authority.

**END OF CONDITIONS FOR SCHEDULE G**

## Definition

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

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

a) against recommendations contained in previous annual inspections reports;
b) against recognised dam safety deficiency indicators;
c) for changes in circumstances potentially leading to a change in consequence category;
d) for conformance with the conditions of this authority;
e) for conformance with the 'as constructed' drawings;
f) for the adequacy of the available storage in each regulated dam, based on an actual observation or observations taken after 31 May each year but prior to 1 November of that year, of accumulated sediment, state of the containment barrier and the level of liquids in the dam (or network of linked containment systems);
g) for evidence of conformance with the current operational plan.

**'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 (dBL).

**'applicable reference site'** means a reference site or reference bore located on the same mining lease as the compliance bore or compliance site.

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

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

a) exactly what has been assessed and the precise nature of that determination;
b) the relevant legislative, regulatory and technical criteria on which the assessment has been based;
c) the relevant data and facts on which the assessment has been based, the source of that material, and the efforts made to obtain all relevant data and facts; and
d) the reasoning on which the assessment has been based using the relevant data and facts, and the relevant criteria.

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

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

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

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

**'certification'** means assessment and approval must be undertaken by a suitably qualified and experienced person in relation to any assessment or documentation required by this Manual, including design plans, 'as constructed' drawings and specifications, construction, operation or an annual report regarding regulated

structures, undertaken in accordance with the Board of Professional Engineers of Queensland Policy Certification by RPEQs (ID: 1.4 (2A)).

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

**'chemical'** means:

a) an agricultural chemical product or veterinary chemical product within the meaning of the Agricultural and Veterinary Chemicals Code Act 1994 (Commonwealth), or
b) a dangerous good under the Australian Code for the Transport of Dangerous Goods by Road and Rail approved by the Australian Transport Council, or
c) a lead hazardous substance within the meaning of the Workplace Health and Safety Regulation 1997, or
d) a drug or poison in the Standard for the Uniform Scheduling of Drugs and Poisons prepared by the
e) Australian Health Ministers' Advisory Council and published by the Commonwealth, or
f) any substance used as, or intended for use as:
    i. a pesticide, insecticide, fungicide, herbicide, rodenticide, nematocide, miticide, fumigant or related product, or
    ii. a surface active agent, including, for example, soap or related detergent, or
    iii. a paint solvent, pigment, dye, printing ink, industrial polish, adhesive, sealant, food additive, bleach, sanitiser, disinfectant, or biocide, or
    iv. a fertiliser for agricultural, horticultural or garden use, or
    v. a substance used for, or intended for use for mineral processing or treatment of metal, pulp and paper, textile, timber, water or wastewater, or
    vi. manufacture of plastic or synthetic rubber.

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

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

**'construction' or 'constructed'**, in relation to watercourse diversions, is the process of building, or modifying an existing diversion, but does not include investigations and testing necessary for the purpose of preparing a design plan.

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

**'consequence category'** means a category, either low, significant or high, into which a dam is assessed as a result of the application of tables and other criteria in the Manual for assessing consequence categories and hydraulic performance of structures (ESR/2016/1933).

**'contaminated land'** means land contaminated by a hazardous contaminant.

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

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

**'design plan'** is a document that contains the design, operation, monitoring and revegetation criteria of a watercourse diversion that addresses the outcomes stated in conditions on the environmental authority relating to the diversion. The document should include, but not be limited to:

a) required information under a functional design
b) the location, function and description of geomorphic and riparian vegetation features within the proposed watercourse diversion
c) results from hydrologic, hydraulic and sediment transportation modelling used in the design of the diversion
d) a revegetation and vegetation management plan (a revegetation plan) for the diversion
e) engineering drawings depicting the physical attributes and dimensions of the diversion
f) (if relevant) the staged development of a permanent watercourse diversion including the proposed use of temporary watercourse diversions with identified lifespans
g) all investigation and other reports relied on by the design
h) plans and specifications sufficient to complete construction and revegetation in accordance with the design.

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

**'design storage allowance'** or DSA means an available volume, estimated in accordance with the Manual for assessing consequence categories and hydraulic performance of structures (ESR/2016/1933) published by the administering authority, must be provided in a dam as at 1 November each year in order to prevent a discharge from that dam to an annual exceedance probability (AEP) specified in that Manual.

**'disturbance'** of land includes:
a) compacting, removing, covering, exposing or stockpiling of earth;
b) removal or destruction of vegetation or topsoil or both to an extent where the land has been made susceptible to erosion;
c) carrying out mining within a watercourse, waterway, wetland or lake;
d) the submersion of areas by tailings or hazardous contaminant storage and dam/structure walls;
e) temporary infrastructure, including any infrastructure (roads, tracks, bridges, culverts, dam/structures, bores, buildings, fixed machinery, hardstand areas, airstrips, helipads etc) which is to be removed after the mining activity has ceased; or
f) releasing of contaminants into the soil, or underlying geological strata.

However, the following areas are not included when calculating areas of 'disturbance':
a) areas off lease (e.g. roads or tracks which provide access to the mining lease);
b) areas previously disturbed which have achieved the rehabilitation outcomes;
c) by agreement with the administering authority, areas previously disturbed which have not achieved the rehabilitation objective(s) due to circumstances beyond the control of the mine operator (such as climatic conditions);
d) areas under permanent infrastructure. Permanent infrastructure includes any infrastructure (roads, tracks, bridges, culverts, dam/structures, bores, buildings, fixed machinery, hardstand areas, airstrips, helipads, etc.) which is to be left by agreement with the landowner.
e) disturbance that pre-existed the grant of the tenure.

**'EC'** means electrical conductivity.

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

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

**'environmental offset'** has the meaning in section 7 of the Environmental Offsets Act 2014.

**'environmental value'** means (a) a quality or physical characteristic of the environment that is conducive to ecological health or public amenity or safety; or, (b) another quality of the environment identified and declared to be an environmental value under an environmental protection policy or regulation.
**'equilibrium'**: A state where 'balance' is achieved despite changing variables.

**'existing structure'** means a structure that prior to 29 June 2017 meets any or both of the following, a structure:

a) with a design that is in accordance with the (ESR/2016/1933) Manual for Assessing Consequence Categories and Hydraulic Performance of Structures and that is considerably in progress;
b) that is under considerable construction or that is constructed.

**'flowable substance'** means matter or mixture of materials which can be forced to or otherwise flow under any conditions possible in a situation. It includes water, other liquids or a mixture that includes water or any other liquid or suspended solids.

**'functional design'** is a document that contains 'conceptual' information about the design, operation and revegetation criteria of a watercourse diversion that addresses the outcomes stated in the conditions on the environmental authority relating to the diversion. The document should include, but not be limited to:
a) geomorphic and vegetation assessment of the existing watercourse
b) hydrologic conditions of the existing watercourse
c) the proposed watercourse diversion route
d) results from hydrologic, hydraulic and sediment transportation modelling used in the design of the diversion.

**'functionality'**: the purpose that something is designed or expected to fulfil.

**'hazard category'** means a category, either low significant or high, into which a dam is assessed as a result of the application of tables and other criteria in 'Manual for Assessing Hazard Categories and Hydraulic Performance of Dams (ESR/2016/1933)'.

**'hazardous contaminant'** means a contaminant, other than an item of explosive ordnance, that, if improperly treated, stored, disposed of or otherwise managed, is likely to cause serious or material environmental harm because of—(a) its quantity, concentration, acute or chronic toxic effects, carcinogenicity, teratogenicity, mutagenicity, corrosiveness, explosiveness, radioactivity or flammability; or (b) its physical, chemical or infectious characteristics.

**'holder'**, for a mining tenement, means a holder of the tenement under the Mineral Resources Act 1989, and the holder of the associated environmental authority under the Environmental Protection Act 1994.

**'hydraulic performance'** means the capacity of a regulated dam to contain or safely pass flowable substances based on the design criteria specified for the relevant consequence category in the Manual for assessing consequence categories and hydraulic performance of structures (ESR/2016/1933).
**'infrastructure'** means water storage dams, levees,, roads and tracks, buildings and other structures built for the purpose of the mining activity.

**'LAeq,adj,15mins'** means the noise level, adjusted to represent the response of the human ear and measured in decibels over a period of 15 minutes and adjusted for tonality.

**'LA1, adj, 15 mins'** means the A-weighted sound pressure level, (adjusted for tonal character and impulsiveness of the sound) exceeded for 1% of any 15-minute measurement period, using Fast response.

**'land'** in the 'land schedule' of this document means land excluding waters and the atmosphere, that is, the term has a different meaning from the term as defined in the Environmental Protection Act 1994. For the purposes of the Acts Interpretation Act 1954, it is expressly noted that the term 'land' in this environmental authority relates to physical land and not to interests in land.

**'land use'** means the selected post mining use of the land, which is planned to occur after the cessation of mining operations.
**'levee'** means an embankment that only provides for the containment and diversion of stormwater or flood flows from a contributing catchment, or containment and diversion of flowable materials resulting from releases from other works, during the progress of those stormwater or flood flows or those releases; and does not store any significant volume of water or flowable substances at any other times.

**'m'** means metres.

**'mandatory reporting level'** means a warning and reporting level determined in accordance with the criteria in the Manual for assessing consequence categories and hydraulic performance of structures (ESR/2016/1933) published by the administering authority.
**'manual'** means the Manual for assessing consequence categories and hydraulic performance of structures (ESR/2016/1933) published by the administering authority, as amended from time to time.

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

**'mineral'** means a substance which normally occurs naturally as part of the earth's crust or is dissolved or suspended in water within or upon the earth's crust and includes a substance which may be extracted from such a substance, and includes—

a) clay if mined for use for its ceramic properties, kaolin and bentonite;
b) foundry sand;
c) hydrocarbons and other substances or matter occurring in association with shale or coal and necessarily mined, extracted, produced or released by or in connection with mining for shale or coal or for the purpose of enhancing the safety of current or future mining operations for coal or the extraction or production of mineral oil therefrom;
d) limestone if mined for use for its chemical properties;
e) marble;
f) mineral oil or gas extracted or produced from shale or coal by in situ processes;
g) peat;
h) salt including brine;
i) shale from which mineral oil may be extracted or produced;
j) silica, including silica sand, if mined for use for its chemical properties;
k) (k)rock mined in block or slab form for building or monumental purposes;
l) but does not include—
    a. living matter;
    b. petroleum within the meaning of the Petroleum Act 1923;
    c. soil, sand, gravel or rock (other than rock mined in block or slab form for building or monumental purposes) to be used or to be supplied for use as such, whether intact or in broken form;
    d. water.

**'minimise'** is to reduce to the smallest possible amount or degree.

**'natural flow'** means the flow of water within surface waters caused as a result of rainfall and/or groundwater inflow into surface waters that is not a result of human activity.

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

**'operational plan'** includes:

a) normal operating procedures and rules (including clear documentation and definition of process inputs in the DSA allowance);
b) contingency and emergency action plans including operating procedures designed to avoid and/or minimise environmental impacts including threats to human life resulting from any overtopping or loss of structural integrity of the regulated structure.

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

**'permanent watercourse diversion'** is a man-made structure that incorporates the geomorphologic, hydraulic, hydrologic and ecological components of a local watercourse and is designed, constructed, operated and maintained according to an engineering standard that ultimately achieves a self-sustaining watercourse able to function without features or characteristics that rely on ongoing maintenance or that impose a financial or other burden on the proponent, government or the community.

**'pre-existing watercourse'** is the section of watercourse from which the flow of water will be diverted as a result of the construction and operation of a watercourse diversion.

**'prescribed environmental matters'** has the meaning in section 10 of the Environmental Offsets Act 2014, limited to the matters of State environmental significant listed in schedule 2 of the Environmental Offsets Regulation 2014.

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

**'proper and efficient condition'** means operational and able to perform the required function.

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

a) a watercourse
b) groundwater
c) an area of land that is not specified in Table A1 of this environmental authority.

The term does not include land that is specified in Table A1 of this environmental authority.

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

**'reference site'** means a site which must:

a) be from the same bio-geographic and climatic region; and
b) have similar geology, soil types and topography; and
c) contain a range of habitats similar to those at the test sites; and
d) have a similar flow regime; and
e) not be so close to the test sites that any disturbance at the test site also results in a change at the reference site

**'register of regulated dams'** includes:

a) Date of entry in the register;
b) Name of the structure, its purpose and intended/actual contents;
c) The consequence category of the dam as assessed using the Manual for assessing consequence categories and hydraulic performance of structures (ESR/2016/1933);
d) Dates, names, and reference for the design plan plus dates, names, and reference numbers of all document(s) lodged as part of a design plan for the dam;
e) Name and qualifications of the suitably qualified and experienced person who certified the design plan and 'as constructed' drawings;
f) For the regulated dam, other than in relation to any levees –
    i. The dimensions (metres) and surface area (hectares) of the dam measured at the footprint of the dam;
    ii. Coordinates (latitude and longitude in GDA94) within five metres at any point from the outside of the dam including its storage area
    iii. Dam crest volume (megalitres);
    iv. Spillway crest level (metres AHD).
    v. Maximum operating level (metres AHD);
    vi. Storage rating table of stored volume versus level (metres AHD);
    vii. Design storage allowance (megalitres) and associated level of the dam (metres AHD);
    viii. Mandatory reporting level (metres AHD);
g) The design plan title and reference relevant to the dam;
h) The date construction was certified as compliant with the design plan;
i) The name and details of the suitably qualified and experienced person who certified that the constructed dam was compliant with the design plan;
j) Details of the composition and construction of any liner;
k) The system for the detection of any leakage through the floor and sides of the dam;

l) Dates when the regulated dam underwent an annual inspection for structural and operational adequacy, and to ascertain the available storage volume for 1 November of any year;
m) Dates when recommendations and actions arising from the annual inspection were provided to the administering authority;
n) Dam water quality as obtained from any monitoring required under this authority as at 1 November of each year.

**'regulated structure'** means any structure in the significant or high consequence category as assessed using the Manual for assessing consequence categories and hydraulic performance of structures (ESR/2016/1933) published by the administering authority. A regulated structure does not include:

- a fabricated or manufactured tank or container, designed and constructed to an Australian Standard that deals with strength and structural integrity of that tank or container;
- a sump or earthen pit used to store residual drilling material and drilling fluid only for the duration of drilling and well completion activities;
- a flare pit.

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

**'release'** means the discharge of a contaminant/s to the receiving environment as a result of the mining activities.

**'revegetation'** is the re-establishment of vegetation1 of a species and density of cover similar to surrounding undisturbed areas or the landform that existed before mining activities on soil surfaces associated with the construction or rehabilitation of a watercourse diversion.

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

**'saline drainage'** The movement of waters, contaminated with salts, as a result of the mining activity.

**'self-sustaining'** means not requiring on-going intervention and maintenance to maintain functional riverine processes and characteristics

**'sensitive place'** means:

a) a dwelling, residential allotment, mobile home or caravan park, residential marina or other residential premises, or
b) a motel, hotel or hostel, or
c) an educational institution, or
d) a medical centre or hospital, or
e) a protected area under the Nature Conservation Act 1992, the Marine Parks Act 1992 or a World Heritage Area, or
f) a public park or gardens.

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

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

'**spillway'** means a weir, channel, conduit, tunnel, gate or other structure designed to permit discharges form the dam, normally under flood conditions or in anticipation of flood conditions.

**'stable'** means land form dimensions are or will be stable within tolerable limits now and in the foreseeable future. Stability includes consideration of geotechnical stability, settlement and consolidation allowances,

bearing capacity (traffic ability), erosion resistance and geochemical stability with respect to seepage and contaminant generation.

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

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

- For regulated dams, an RPEQ who is a civil engineer with the required qualifications in dam safety and dam design.
- For regulated levees, an RPEQ who is a civil engineer with the required qualifications in the design of flood protection embankments.

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

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

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

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

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

**'water'** is defined under Schedule 4 of the Water Act 2000.

**'watercourse'** has the meaning in Schedule 4 of the Environmental Protection Act 1994 and means:

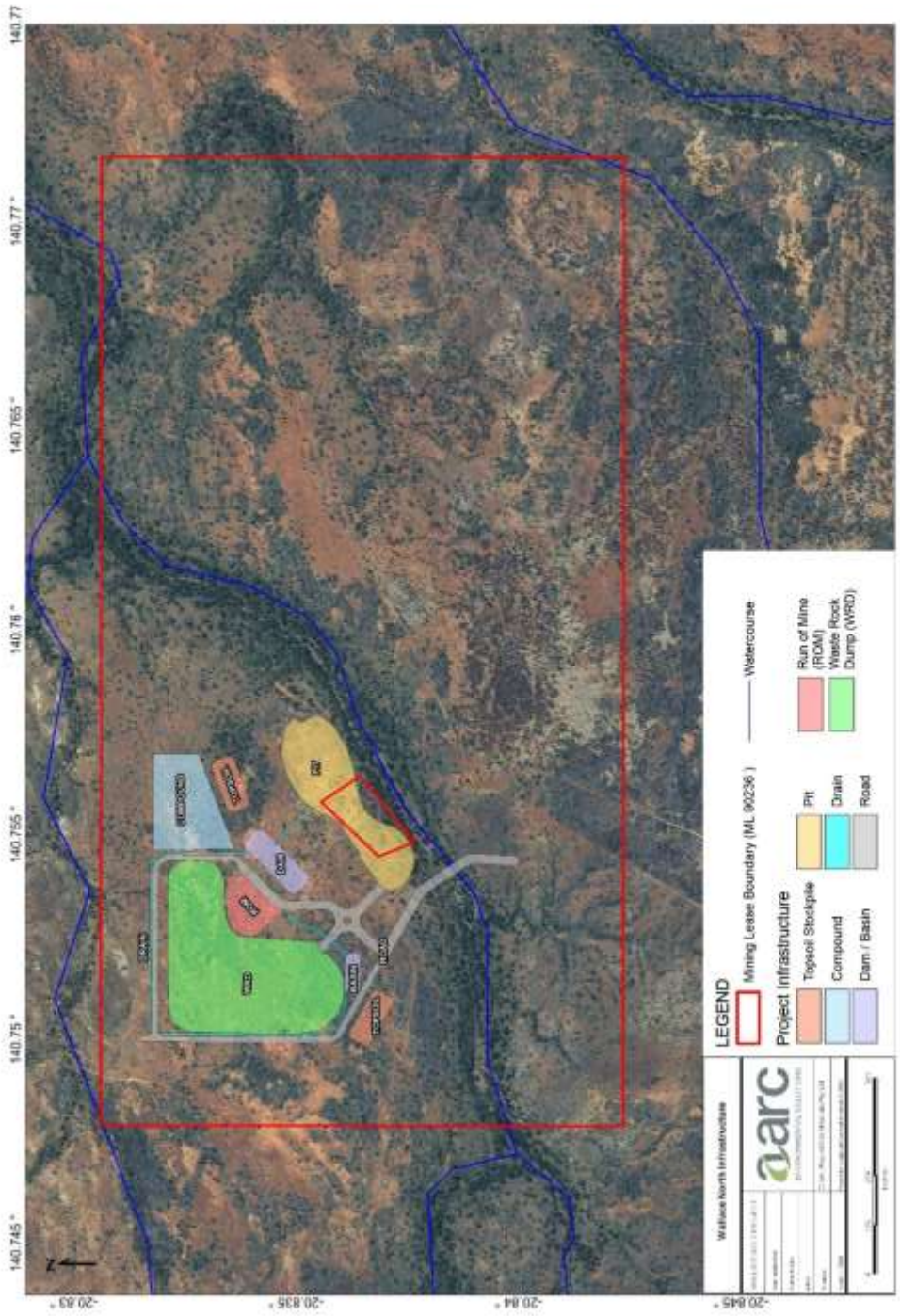
a) a river, creek or stream in which water flows permanently or intermittently—
    a. in a natural channel, whether artificially improved or not; or
    b. in an artificial channel that has changed the course of the watercourse.
b) watercourse includes the bed and banks and any other element of a river, creek or stream confining or containing water.

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

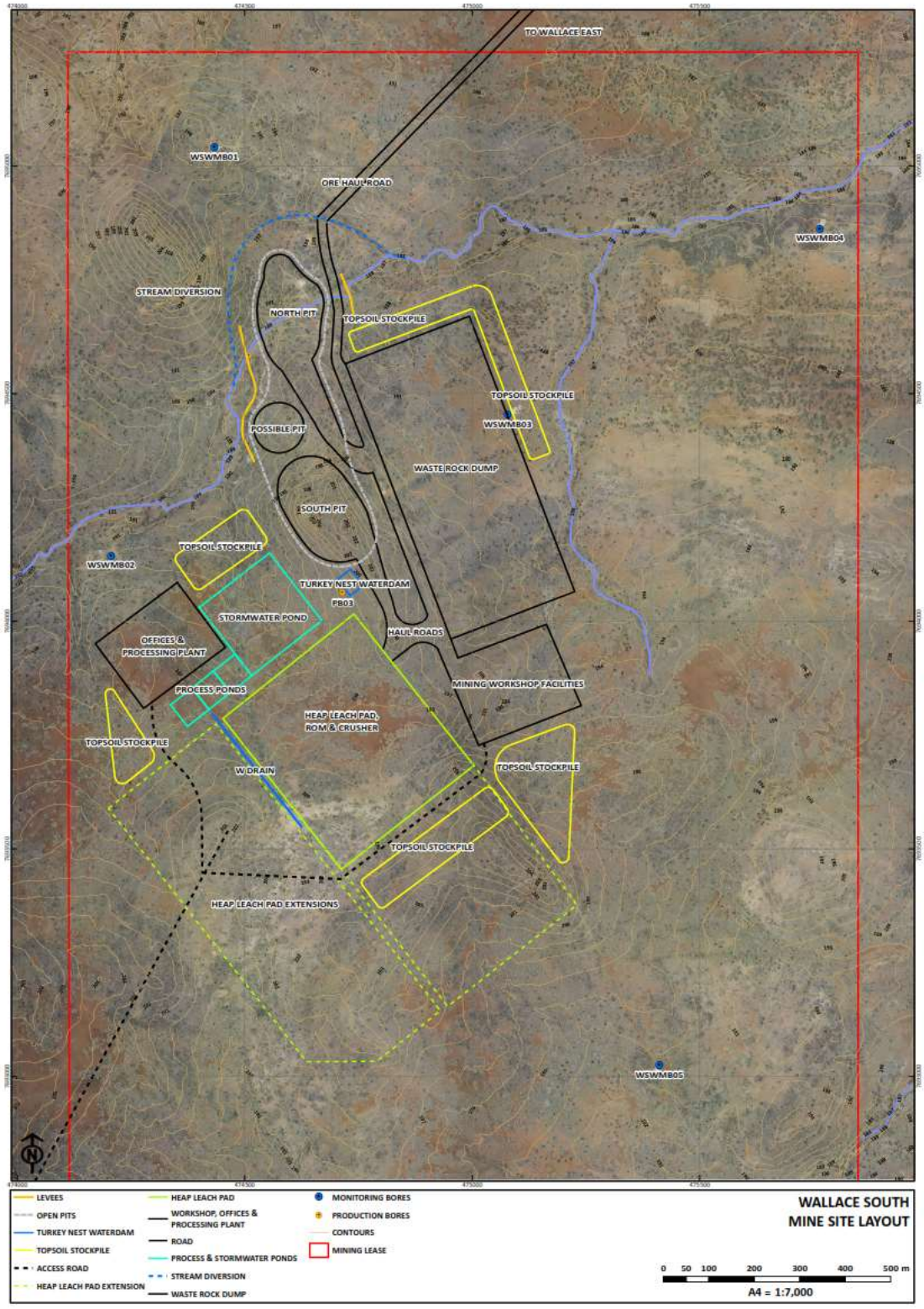
**'wet season'** means the time of year, covering one or more months, when most of the average annual rainfall in a region occurs. For the purposes of DSA determination this time of year is deemed to extend from 1 November in one year to 31 May in the following year inclusive.

# Appendices – Maps/Plans

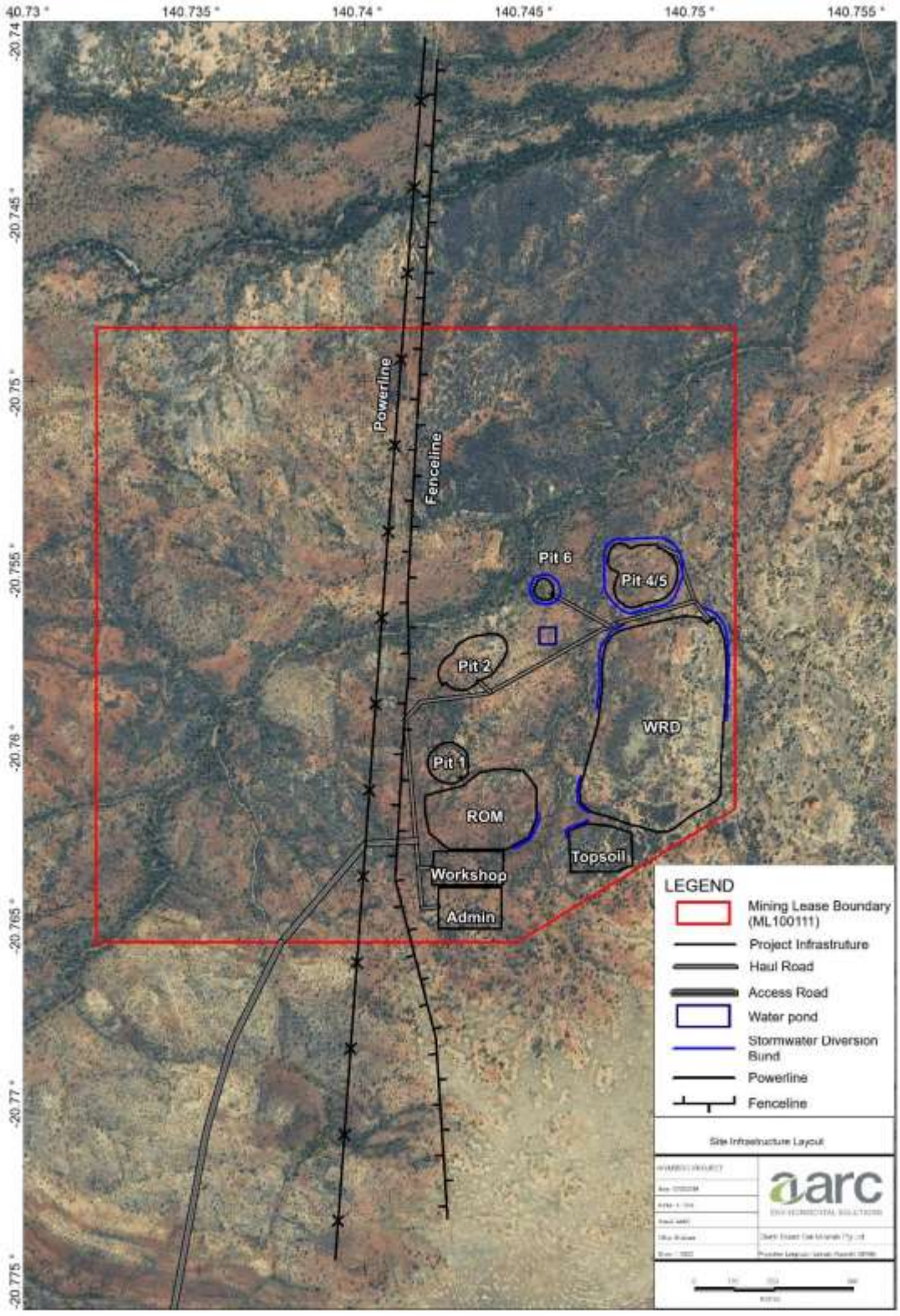
**Schedule J – Figure 1 Project Infrastructure and Layout - ML90236**



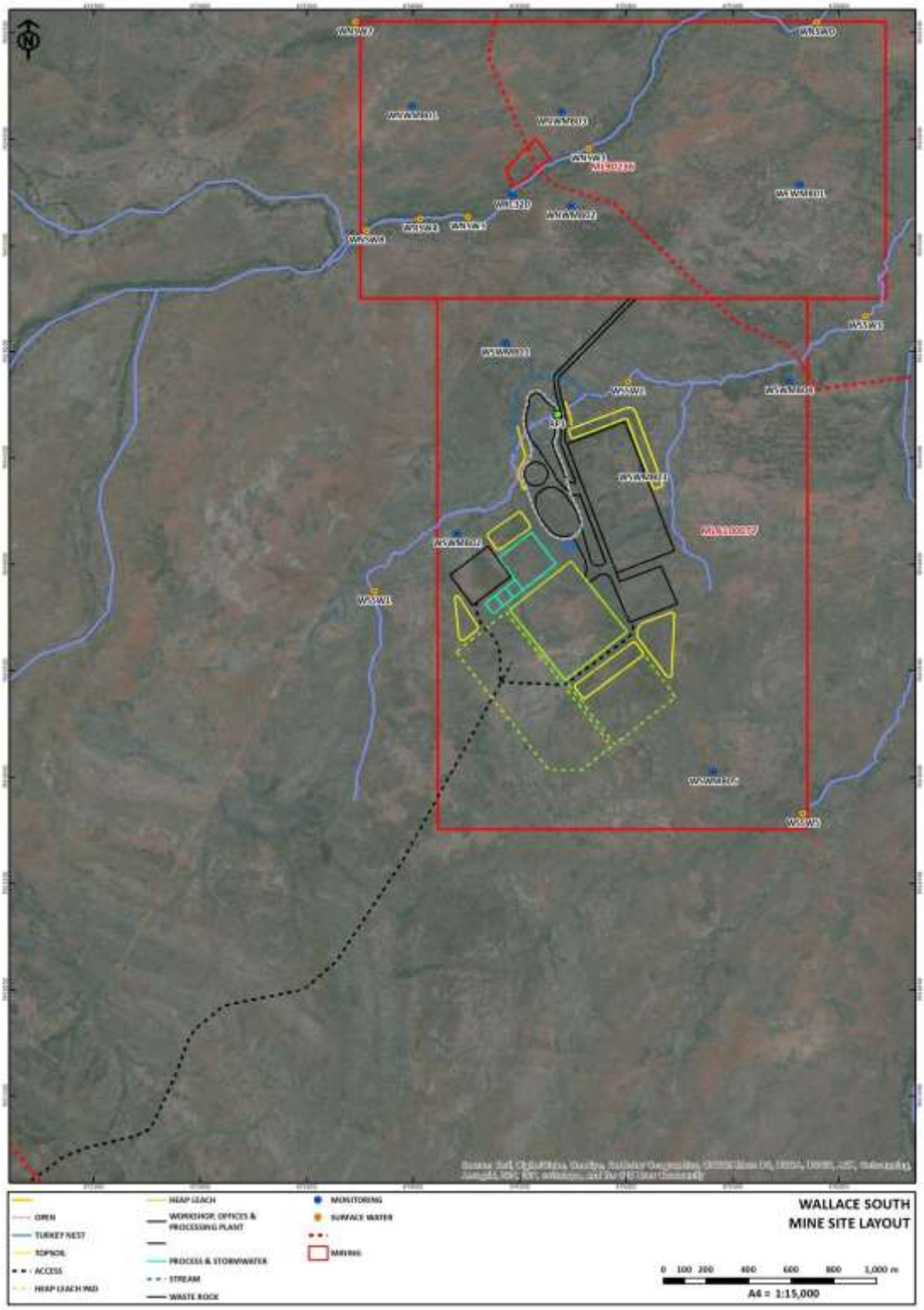
**Schedule J – Figure 2 Project Infrastructure and Layout - ML100077**



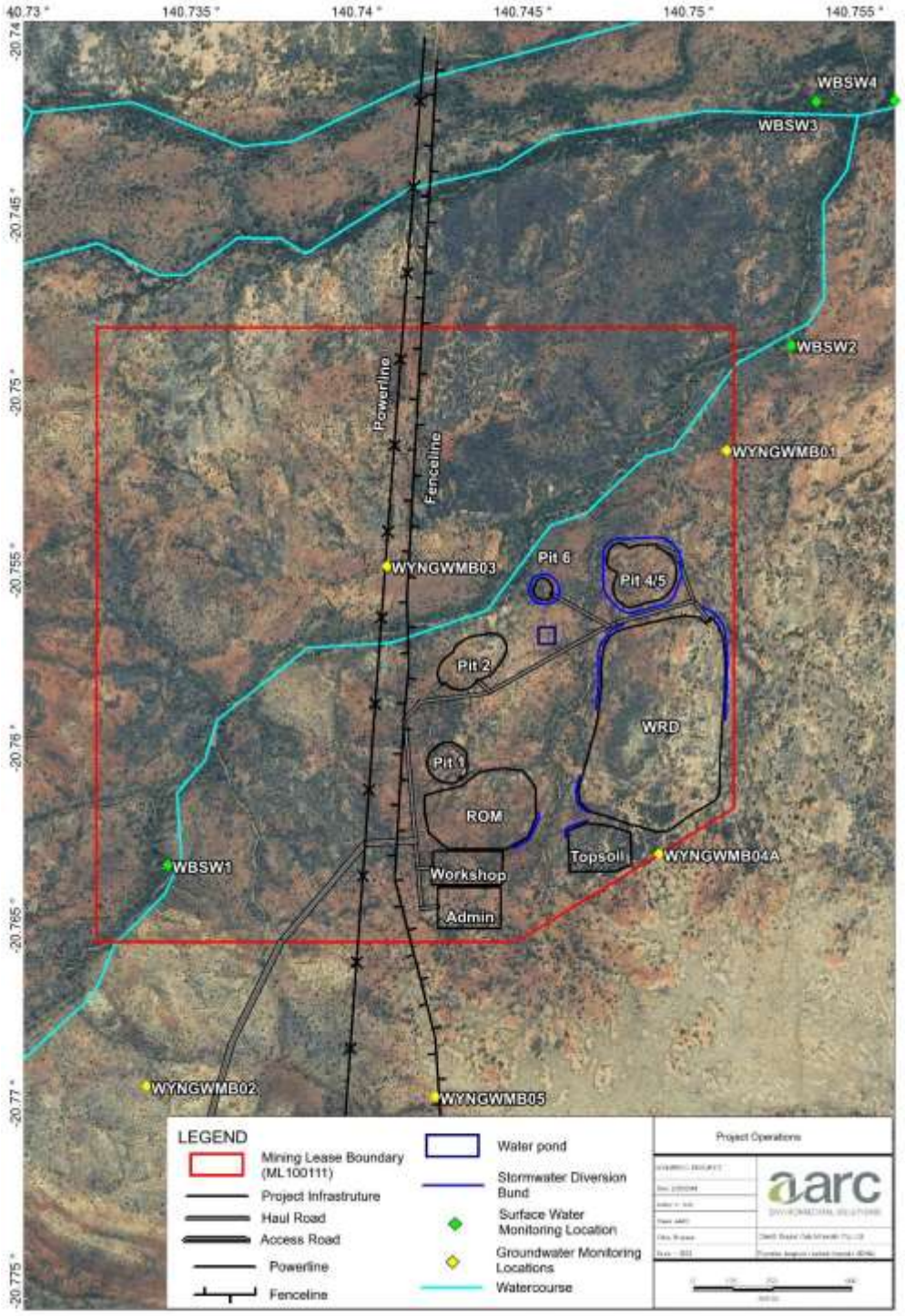
**Schedule J – Figure 3 Project Infrastructure and Layout - ML100111**



**Schedule J – Figure 4 Surface Waters and Groundwater Monitoring Locations**



**Schedule J – Figure 5 Groundwater and surface water monitoring sites ML100111**




## END OF ENVIRONMENTAL AUTHORITY