Permit

Environmental Protection Act 1994

Environmental authority EPML00982013 – Lady Loretta Mine

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

Environmental authority number: EPML00982013

Environmental authority takes effect on 15 September 2026.

Environmental authority holder

Name(s)	Registered address
NORANDA PACIFIC PTY LIMITED	Level 9, 60 Edward St BRISBANE CITY QLD 4000

Environmentally relevant activity and location details

Environmentally relevant activity/activities	Location(s)
Schedule 3 - 09 - A mining activity involving drilling, costeaning, pitting or carrying out geological surveys causing significant disturbance	ML5568
Schedule 3 - 10 - Investigating the potential development of a mineral resource by large bulk sampling or constructing an exploratory shaft, adit or open pit	
Schedule 3 - 17 - Mining copper ore	
Schedule 3 - 18 - Mining lead, silver or zinc separately or in any combination	
Ancillary 07 - Chemical manufacturing - 3(d) - Manufacturing, in a year, a total of 200t or more of any of the following – explosives	
Ancillary 08 - Chemical Storage - 2 - Storing 50t or more of chemicals of dangerous goods class 6, division 6.1 under subsection (1)(b)	
Ancillary 15 - Fuel burning - Using fuel burning equipment that is capable of burning at least 500kg of fuel in an hour	
Ancillary 16 - Extraction and Screening - 2(c) - Extracting, other than by dredging, in a year, the following quantity of material - more than 1,000,000t	
Ancillary 16 - Extraction and Screening - 3(c) - Screening, in a year, the following quantity of material - more than 1,000,000t	

DELIVERING FOR QUEENSLAND | Queensland Government

Environmentally relevant activity/activities	Location(s)
Ancillary 60 - Waste disposal - 2(a) - Operating a facility for disposing of, in a year, the following quantity of waste mentioned in subsection (1)(b) - less than 2000t	
Ancillary 60 - Waste disposal - 2(e) - Operating a facility for disposing of, in a year, the following quantity of waste mentioned in subsection (1)(b) - more than 20,000t but not more than 50,000t	
Ancillary 61 - Thermal waste reprocessing and treatment - 1(a) - Thermally reprocessing or treating, in a year, the following quantity of general waste - not more than 5,000t	
Ancillary 63 - Sewage Treatment - 1(b-i) - Operating sewage treatment works, other than no-release works, with a total daily peak design capacity of more than 100 but not more than 1500EP if treated effluent is discharged from the works to an infiltration trench or through an irrigation scheme	

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).

Mobile and temporary activities

If you operate a mobile and temporary ERA, other than regulated waste transport, you are required to maintain a work diary. You must:

- use the approved form for a work diary (ESR/2015/1696);
- keep the work diary records for 2 years after the last entry;
- inform the administering authority within 7 days of the work diary being lost or stolen;
- record the information required in the work diary for each location within 1 day of leaving the location.

Contaminated land

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

- the presence of, or happening of an event involving, a hazardous contaminant on the land that is causing, or is reasonably likely to cause, serious or material environmental harm (notice must be given within 24 hours); or
- if the land is contaminated land – a change in the condition of the land that is causing, or is reasonably likely to cause, serious or material environmental harm (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 land (notice must be given within 20 business days).

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(1) 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, in accordance with section 200(2) of the EP Act, the day that the EA takes effect may not be before:

(a) if the authority is for a resource activity—the day the relevant tenure is granted to the applicant; or

(b) if a development permit for a material change of use of premises under the *Planning Act 2016* is necessary for carrying out an activity that related to the authority—the day the development permit takes effect; or

(c) if an SDA Approval under the *State Development and Public Works Organisation Act 1971* is necessary for carrying out an activity that relates to the authority—the day the approval takes 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 EA.

	15 September 2026
Signature	Date

Gus Gonzo

Department of the Environment, Tourism, Science and Innovation

Delegate of the administering authority

Environmental Protection Act 1994

Enquiries:

Minerals Business Centre
PO Box 7230, Cairns QLD 4870
Phone: (07) 4222 5352
Email: ESCairns@detsi.qld.gov.au

Obligations under the *Environmental Protection Act 1994*

In addition to the requirements found in the conditions of this EA, 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 restore the environment (section 319C)
- 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 EP Act. 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 and Federal Government agencies prior to commencing any activity at the site. For example, this may include permits or approvals with your local Council (for planning approval), the Department of Transport and Main Roads (to access State controlled roads), the Department of Natural Resources and Mines, Manufacturing, and Regional and Rural Development (to clear vegetation), and the Department of Primary Industries (to clear marine plants or to obtain a quarry material allocation).

Obligations under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act)

Matters of national environmental significance (MNES) are regulated under the Commonwealth EPBC Act rather than under state legislation. You may need to submit a referral if your project potentially impacts any matters protected under the EPBC Act. For more information on self-assessments, and referral and assessment processes, please visit the Australian Government Department of Climate Change, Energy, the Environment and Water's website at www.dcceew.gov.au/environment/epbc/advice.

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

If you are operating a quarry, other than a sand and gravel quarry where there is no crushing capability, you will be required to comply with the *Mining and Quarrying Safety and Health Act 1999*. For more information on your obligations under this legislation, visit Resources Safety and Health Queensland's website at www.rshq.qld.gov.au, or call 13 QGOV (13 74 68) or your local Mines Inspectorate Office.

Development approval

This permit is not a development approval under the *Planning Act 2016*. The conditions of this EA are separate, and in addition to, any conditions that may be on the development approval. If a copy of this EA is attached to a development approval, it is for information only and may not be current. Please contact the Department of the Environment, Tourism, Science and Innovation to ensure that you have the most current version of the EA relating to this site.

Obligations under the *Aboriginal Cultural Heritage Act 2003* and *Torres Strait Islander Cultural Heritage Act 2003* (the Cultural Heritage Acts)

The Cultural Heritage Acts require anyone who carries out a land-use activity to exercise a duty of care. This 'duty of care' means land users must take all reasonable and practicable measures to ensure their activity does not harm Aboriginal or Torres Strait Islander cultural heritage, and applies to any activity where Aboriginal or Torres Strait Islander cultural heritage is located. For more information on your obligations under this legislation, please visit the Department of Women, Aboriginal and Torres Strait Islander Partnerships and Multiculturalism webpage at, www.dwatsipm.qld.gov.au.

Conditions of environmental authority

The environmentally relevant activities conducted at the locations described above must be conducted in accordance with the following site-specific conditions of approval. This environmental authority consists of the following Schedules:

- Schedule A – General conditions
- Schedule B – Air Quality
- Schedule C – Water Management
- Schedule D – Regulated Dams
- Schedule E – Land
- Schedule F – Noise and Vibration
- Schedule G – Waste Management
- Schedule H – Nature Conservation
- Schedule I – Definitions
- Schedule J – Figures and Plans

Schedule A – General conditions

Activity

A1 This environmental authority does not authorise environmental harm unless a condition contained within this authority explicitly authorises that harm. Where there is no condition or the authority is silent on a matter, the lack of a condition or silence shall not be construed as authorising harm.

A2 In carrying out the mining activity, all reasonable and practicable measures must be taken to prevent or minimise the likelihood of environmental harm being caused.

Exploration

A3 Exploration activities must comply with the standard conditions contained within the most recent version of the *"Eligibility criteria and standard conditions for exploration and mineral development projects—Version 2"* (ESR/2016/2241).

Note: The provisions of this environmental authority prevail to the extent of any inconsistency with the standard conditions.

A3A Despite standard condition A13 of the *"Eligibility criteria and standard conditions for exploration and mineral development projects—Version 2"* (ESR/2016/2241), exploration activities are authorised to occur in accordance with the exploration program described in document titled *"Lady Loretta EA Amendment Supporting Information Report",* Revision V0-2, dated 24 July 2026, prepared by SGME Pty Ltd for Austral Resources Operation Pty Limited.

Note: To remove any doubt, all exploration activities must be conducted in compliance with conditions ***H1 to H5.***

Maintenance of measures, plant and equipment

A4 The environmental authority holder must:

(a) install all measures, plant and equipment necessary to ensure compliance with the conditions of this environmental authority and the general environmental duty;

(b) maintain such measures, plant and equipment in a proper condition;

(c) operate such measures, plant and equipment in a proper manner; and

(d) ensure that all instruments and devices used for the measurement or monitoring of any parameter under any condition of this environmental authority must be calibrated and appropriately operated and maintained.

Monitoring and Reporting

A5 Except where specified otherwise in other conditions of this environmental authority, all monitoring records or reports required by this environmental authority must be kept for a period of not less than 5 years.

A6 Any management or monitoring plans, systems or programs required to be developed and implemented by a condition of this environmental authority must be reviewed for effectiveness in minimising the likelihood of environmental harm on an annual basis and amended immediately if required.

A7 The holder of this environmental authority must, upon request from the administering authority, supply monitoring records, plans and reports in the form and by the means requested by the administering authority within ten (10) business days or a timeframe as otherwise agreed to by the administering authority.

A8 All monitoring referred to in this environmental authority must be undertaken by a suitably competent person using monitoring equipment that is accurately calibrated and maintained in accordance with manufacturer's specifications.

A9 All analysis and tests required to be conducted under this environmental authority must be carried out by a laboratory that has National Association of Testing Authorities (NATA) certification for such analysis and tests, except as otherwise authorised by the administering authority.

A10 The holder of this environmental authority must notify the administering authority by telephone and email promptly but within forty-eight (48) hours, after becoming aware of any monitoring result that demonstrates an exceedance of any environmental authority limit.

Risk management

A11 The holder of this environmental authority must develop and implement a risk management system for mining activities which conforms to the Standard for Risk Management (ISO31000:2009) or the latest edition of the equivalently recognised Standard for Risk Management.

Notification of Emergencies, Incidents and Releases

A12 The holder of this environmental authority must notify the administering authority by written notification 24 hours, after becoming aware of any emergency or incident which results in the release of contaminants not in accordance, or reasonably expected to be not in accordance, with the conditions of this environmental authority.

A13 Within 10 business days following initial notification of an emergency 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 or actions taken at the time to prevent or minimise unlawful environmental harm

(c) proposed actions to prevent a recurrence of the emergency or incident.

A14 The holder of this environmental authority must notify any potentially impacted stakeholder by telephone promptly after becoming aware of any emergency, incident or release that has the potential to impact on environmental values.

Storage and handling of flammable and combustible liquids

A15 Flammable and combustible liquids, including petroleum products, must be stored and handled in accordance with the latest edition of AS1940 – The storage and handling of flammable and combustible liquids.

Chemical Storage and Handling

A16 All explosives, hazardous chemicals, corrosive substances, toxic substances, gases and dangerous goods must be stored and handled in accordance with the current Australian standard where such is applicable.

Complaints

A17 Records must be kept of all environmental complaints received about the mining activities including the following details:

(a) name, address and contact number for complainant (if not available record - not identified);

(b) time and date of complaint;

(c) specifics of the complaint;

(d) investigations undertaken;

(e) conclusions formed;

(f) actions taken to resolve complaint;

(g) any abatement measures implemented; and

(h) person responsible for resolving the complaint.

This information must be made available for inspection by the administering authority on request.

A18 When requested by the administering authority, the environmental authority holder must commence relevant specified monitoring within a period of 2 weeks to investigate any complaint of environmental harm at any sensitive place or commercial place. The results of the investigation (including an analysis and interpretation of the monitoring results) and abatement measures implemented must be provided to the administering authority within fourteen (14) days of completion of the investigation.

Third party auditing

A19 Compliance with the conditions of this environmental authority must be audited by an appropriately qualified third party auditor within one (1) year of the commencement of this environmental authority, and then at regular intervals not exceeding once every three (3) years.

A20 Within one (1) month of receiving the final version of the third party auditor's report, the holder of this environmental authority must provide a written report to the administering authority addressing the:

(a) Actions taken by the holder to ensure compliance with this environmental authority; and

(b) Actions taken to prevent a recurrence of any non-compliance issues identified.

A21 The third party auditor must certify the independent findings of the audit in the report.

A22 The financial costs of the third party audit is the responsibility of the holder of this environmental authority.

A23 The holder of this environmental authority must promptly act upon any recommendations arising from the audit by:

(a) investigating any non-compliance issues identified; and

(b) implementing measures or taking necessary action to ensure compliance with the requirements of this environmental authority.

Meteorological Station

A24 The holder of this environmental authority must establish and maintain a permanent meteorological station to continuously measure and record wind speed, wind direction, temperature and daily rainfall volume.

Community

A25 The holder of this environmental authority must establish, promote and maintain easily accessible lines of communication between residents and land owners to ensure that social, cultural heritage and other impacts are identified and managed. This must include but not be limited to the following:

(a) regular meetings with all relevant stakeholders at intervals of not less than six (6) months; or

(b) the establishment of a consultative committee, with representative of all relevant stakeholders which meets at regular intervals as determined by the committee.

Definitions

A26 Words and phrases used throughout this environmental authority are defined in Schedule I - Definitions. Where a definition for a term used in this environmental authority is sought and the term is not defined within this environmental authority, the definitions in the most up to date published versions of the *Environmental Protection Act 1994*, its Regulations and Environmental Protection Policies must be used.

A27 Where a condition of this environmental authority requires compliance with a standard, policy or guideline published externally to this environmental authority and the standard is amended or changed subsequent to the issue of this environmental authority, the holder of this environmental authority must:

(a) comply with the amended or changed standard, policy or guideline within 2 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 Schedule D of this Environmental Authority, 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.

A28 In carrying out the mining activities, the holder of the environmental authority must comply with Schedule A – Table 1 (Authorised Disturbance Areas) and Figure 6 (Domain Disturbances).

Schedule A – Table 1 (Authorised Disturbance Areas)

Mine Domain	Mine Feature Name	Maximum Disturbance Area (Ha)
Dams	Leachate Dam	1
	Containment Dam A	10
	Containment Dam B	3
	Paste Plant Dam	1
Waste Rock	Waste Rock Dump	11
Underground Mining	Underground Shaft	1
Bulk Products/Materials[1]	Processing Materials	12
Infrastructure[2]	Infrastructure	110
Other	Exploration	6.49
	Miscellaneous[3]	6

[1]Includes paste plant, ROM and LMD stockpile.

[2]Includes roads, infrastructure and sediment dams.

[3]Includes topsoil stockpiles. Rehabilitation borrow pit areas to be confirmed through further investigation.

END OF SCHEDULE A

Schedule B – Air Quality

Dust nuisance

B1 Subject to Conditions B2 and B3 the release of dust or particulate matter or both resulting from the mining activity must not cause an environmental nuisance, at any sensitive or commercial place.

B2 When requested by the administering authority, dust and particulate monitoring must be undertaken within a reasonable and practicable timeframe nominated by the administering authority to investigate any complaint (which is neither frivolous nor vexatious nor based on mistaken belief in the opinion of the authorised person) of environmental nuisance at any sensitive or commercial place, and the results must be notified within fourteen (14) days to the administering authority following completion of monitoring.

B3 If the environmental authority holder can provide evidence through monitoring that the following limits are not being exceeded then the holder is not in breach of B1:

(a) Dust deposition of 120 milligrams per square meter per day, averaged over one month, when monitored in accordance with AS 3580.10.1 *Methods for sampling and analysis of ambient air - Determination of particulates - Deposited matter - Gravimetric method of 1991*; and

(b) A concentration of particulate matter with an aerodynamic diameter of less than 10 micrometer (μm) (PM10) suspended in the atmosphere of 150 micrograms per cubic meter over a 24 hour averaging time, at a sensitive or commercial place downwind of the operational land, when monitored in accordance with:

i. Particulate matter - Determination of suspended particulate PM10 high-volume sampler with size-selective inlet - Gravimetric method, when monitored in accordance with AS 3580.9.6 *Methods for sampling and analysis of ambient air - Determination of suspended particulate matter - PM (sub) 10 high volume sampler with size-selective inlet - Gravimetric method of 1990*; or

ii. Any alternative method of sampling PM10, which may be permitted by the 'Air Quality Sampling Manual' as published from time to time by the administering authority.

NOTE: You must propose which monitoring method is appropriate in accordance with condition (B3) (a) or (b) or both.

B4 If monitoring indicates exceedance of the relevant limits in Condition B3, then the environmental authority holder must:

(a) address the complaint including the use of appropriate dispute resolution if required; or

(b) immediately implement dust abatement measures so that emissions of dust from the activity do not result in further environmental nuisance.

Point Source Releases to Air

B5 Releases to the atmosphere resulting from the incineration of wastes must be undertaken in accordance with the incinerator's operational manual and be;

(a) a release from the incineration of the following authorised wastes (no other wastes are permitted to be incinerated on site):

(i) paper and cardboard.

(b) from the release point shown in Schedule B – Table 1;

(c) in accordance with the criteria shown in Schedule B – Table 1; and

(d) directed vertically upwards, with no impedance.

Schedule B – Table 1 (Release of contaminants)

Release Point	Contaminant released	Maximum mesh size
Incinerator on ML5568	Ash only	1cm

END OF SCHEDULE B

Schedule C – Water Management

General

C1 Contaminants that will, or have the potential to, cause environmental harm must not be released directly or indirectly to any waters except as permitted under the conditions of this environmental authority.

C2 The release of contaminants directly or indirectly to waters must not:

(a) produce any visible discolouration of receiving waters; or

(b) produce any slick or other visible or odorous evidence of oil, grease or petrochemicals nor contain visible floating oil, grease, scum, litter or other objectionable matter.

C3 The following information must be recorded in relation to all water monitoring required under the conditions of this environmental authority and submitted to the administering authority in the specified format when requested:

(a) the date and time when the sample was taken;

(b) the monitoring point where the sample was taken;

(c) the measured or estimated daily quantity of the contaminants released from all release points;

(d) the release flow rate at the time of sampling for each release point; and

(e) the results of all monitoring and details of any exceedances of the conditions of this environmental authority;

Contaminant Release to Waters

C4 The release of contaminants to waters must only occur from the release points specified in Schedule C – Table 1 (Release Points) and depicted in Schedule J – Figure 2 (Release Points).

Schedule C – Table 1 (Release Points)

Release Point	Location		Contaminant Source, Location and Description of Release Point	Receiving Waters Description
	Easting (GDA94, MGA 94 – Zone 54)	Northing (GDA94, MGA94 – Zone 54)		
LMD	297,185.06	7,812,382.86	Leachate Management Dam Spillway	Magazine Creek
CDA	297,652.35	7,812,055.10	Containment Dam A Spillway	Desert Creek
CDB	296,937.01	7,811,813.70	Containment Dam B Spillway	Desert Creek
PPD	297,740.93	7,812,464.92	Paste Plant Dam Spillway	Desert Creek

C5 The release of contaminants to waters from the authorised release points must be monitored at the locations specified in Schedule C – Table 1 (Release Points) for each quality characteristic and at the frequency specified in Schedule C – Table 2 (Contaminant Release Limits).

C6 The release of contaminants to waters must not exceed the contaminant limits stated in Schedule C – Table 2 (Contaminant Release Limits).

Schedule C – Table 2 (Contaminant Release Limits)

Quality Characteristic[1]	Contaminant Limit	Monitoring Frequency
Temperature	For interpretation purposes only	Event based sampling of release events: • One sample must be taken within twelve (12) hours of a release event commencing. A second sample must be taken between twelve (12) and twenty four (24) hours after the release event commences. • Where a release event has a duration of twenty four (24) hours or greater, samples must be taken daily for one (1) week, and once a week thereafter until release event ceases.
Dissolved Oxygen	For interpretation purposes only	
Hardness	For interpretation purposes only	
Turbidity (NTU)	For interpretation purposes only	
Suspended Solids (mg/L)	For interpretation purposes only	
pH (pH units)[2]	4 (minimum) 9 (maximum)	
EC (µS/cm)[2]	1000	
Aluminium (mg/L)	5	
Arsenic[3] (mg/L)	0.5	
Boron (mg/L)	5	
Cadmium (mg/L)	0.01	
Chromium (mg/L)	1	
Cobalt (mg/L)	1	
Copper (mg/L)	1	
Fluoride (mg/L)	2	
Lead (mg/L)	0.1	
Mercury (mg/L)	0.002	
Molybdenum (mg/L)	0.15	
Nickel (mg/L)	1	
Selenium (mg/L)	0.02	
Zinc (mg/L)	20	

1. All metals and metalloids must be measured as total (unfiltered) and dissolved (filtered) concentrations. Contaminant limits are based on total metals.
2. May be measured on site using calibrated instruments which are appropriately operated and maintained.
3. Speciated arsenic concentrations for As (III) and As (V) only required if 13 µg/L is exceeded - note that the sample bottle requirements for As (total species) and As (speciated) may differ.

NOTES

(a) All dissolved (filtered) samples must be obtained from field filtered grab samples.
(b) Grab sampling is the preferred method for sample collection.

Stream Flow Monitoring

C7 The holder of this environmental authority must install, operate and maintain a stream flow gauging station at the locations specified in Schedule C – Table 3 (Contaminant Release during Flow Events) to determine and record stream flows at gauging stations relevant to each release point, as specified in Schedule C – Table 3 (Contaminant Release during Flow Events) for any receiving water into which a release occurs.

C8 Notwithstanding any other condition of this environmental authority, the release of contaminants to waters from the release points specified in Schedule C – Table 1 (Release points) must only take place during periods of natural flow events specified as minimum flow in Schedule C – Table 3 (Contaminant Release during Flow Events).

Schedule C – Table 3 (Contaminant Release during Flow Events)

Monitoring point(s)		Gauging station description	Minimum Flow	Location		Flow Recording Frequency
				Easting (GDA94, MGA94 – Zone 54)	Northing (GDA94, MGA94 – Zone 54)	
Magazine Creek	SW01	25m upstream of eastern lease boundary of ML5568	2m^3/sec	298114	7813256	Continuous during flow events
Desert Creek	SW03	90m downstream of eastern lease boundary of ML5568	2m^3/sec	297852	7811970	
	SW07	On lease boundary of ML5568	8m^3/sec	296762	7809890	

Note: The volume of flow can be determined by height of water or flow. The actual flow must be a quantifiable measure, e.g.: ≥5m^3/sec

C9 Releases to waters must be undertaken so as not to cause erosion of the bed and banks of the receiving waters or cause a material build up of sediment in such waters.

Notification of Release Event

C10 Within twenty four (24) hours of a release event commencing, the holder of this environmental authority must notify the administering authority in writing of the release event. The notification must include the following information:

(a) release commencement date/time;
(b) expected release cessation date/time;
(c) release point(s);
(d) release volume and contaminant load (estimated);
(e) receiving water(s) including the natural flow rate; and
(f) any details (including available data) regarding likely impacts on the receiving water(s).

C11 The holder of this environmental authority must notify the administering authority within twenty-four (24) hours after cessation of a release event, and within twenty (20) business days provide the administering authority with the following written information:

(a) release cessation date/time;
(b) natural flow volume in receiving water;
(c) volume of water released;
(d) details regarding the compliance of the release with the conditions of Schedule C in this environmental authority (i.e. contaminant limits, natural flows, discharge volume);
(e) all in-situ water quality monitoring results; and
(f) any other matters pertinent to the release.

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 C10 and C11, provided the relevant details of the release are included within the notification provided in accordance with conditions C10 and C11.

Receiving Waters Monitoring

C12 Reference sites, interim upstream sites and downstream waters must be monitored at the monitoring points specified in Schedule C – Table 4 (Receiving Water and Stream Sediment Reference Sites and Downstream Monitoring Points) and Schedule J – Figure 1 (Surface Water and Groundwater Sampling Sites) for each quality characteristic and at the frequency stated in Schedule C – Table 5 (Receiving Waters Contaminant Trigger Levels and Contaminant Limits).

Schedule C – Table 4
(Receiving Water and Stream Sediment Reference Sites and Downstream Monitoring Points)

Monitoring Points	Receiving Waters Location Description	Location	
		Easting (GDA94, MGA94 – Zone 54)	Northing (GDA94, MGA94– Zone 54)
Reference Sites[1]			
SW02	Lady Annie Catchment. On unnamed tributary upstream of Lady Annie Pit.	295453	7813431
SW06	Lady Annie Catchment. On upper Desert Creek, and receives run-off from southern areas of Lady Annie ML9017.	296122	7809640
SW09	Desert Creek Catchment. On a tributary of Desert Creek.	296558	7812700
SW10	Magazine Creek Catchment. On an unnamed tributary to Magazine Creek.	297514	7813308
SW22	Nicholson Catchment. On unnamed tributary, 2km North of the Lady Annie Pit.	295429	7814206
Interim Upstream Monitoring Sites			
SW04[2]	Desert Creek Catchment. On a tributary of Desert Creek at the northern end of the existing airstrip, approximately 700 m downstream of the Lady Annie Pit and 10 m downstream of the Haul Road crossing.	295450	7811516
SW05[2]	Desert Creek Catchment. On a tributary of Desert Creek, approximately 2 km downstream of the Lady Annie Pit and 1.3 km downstream of the Haul Road crossing.	295678	7810385
Downstream Monitoring Sites			
SW01	Magazine Creek Catchment. Approximately 1.2 km downstream of the Leachate Management Dam, on Magazine Creek.	298092	7813236
SW03	Desert Creek Catchment. On unnamed drainage feature downstream of mining areas.	297862	7811982
SW07	Desert Creek Catchment. On Desert Creek, approximately 3 km downstream of the Lady Annie Pit and 1.5 km downstream of the Lady Loretta camp and admin areas.	296795	7809904
SW08	Desert Creek Catchment. Unnamed tributary of Desert Creek, downstream of CDB Lady Loretta camp and admin areas.	296617	7810516
SW12	Magazine Creek Catchment. Approximately 2 km downstream of the Leachate Management Dam, on Magazine Creek.	298812	7813547
SW14	Desert Creek Catchment. The most downstream monitoring site on Desert Creek, downstream of Lady Annie and Lady Loretta mining areas.	303817	7812308
SW15	Desert Creek Catchment. 2.8km Southeast of Lady Loretta mine on unnamed tributary of Desert Creek.	298878	7810723
SW26	Desert Creek Catchment. Approximately 5.75km downstream of CDA release point, and 80m upstream of the power line crossing on Desert Creek.	300551	7809899

1. Reference sites must:
   (a) be from the same bio-geographic and climatic region;
   (b) have similar geology, soil types and topography;
   (c) contain a range of habitats similar to those at the test sites;
   (d) have a similar flow regime;
   (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; and
   (f) the data from upstream reference monitoring points must not be used where they are affected by releases from other mines.

2. Sites SW04 and SW05 are located on a Desert Creek tributary, downstream of Lady Annie mining operations and upstream of Lady Loretta mining operations. These sites are not considered reference sites (for the purpose of calculating site specific trigger levels); however the sites provide an indication of the quality of water entering the Desert Creek catchment upstream of Lady Loretta.

C13 If quality characteristics of the receiving water at the downstream monitoring points exceed any of the trigger levels specified in Schedule C – Table 5 (Receiving Waters Contaminant Trigger Levels and Contaminant Limits) the holder of this environmental authority must compare the downstream results to the reference site results in the receiving waters and:

(a) where the downstream result is the same or a lower value than the reference site value for the quality characteristic during the same sampling event then no action is to be taken; or

(b) where the downstream results exceed the reference site complete an investigation in accordance with the ANZECC and ARMCANZ 2000 methodology, into the potential for environmental harm

and provide a written report to the administering authority within three (3) months, outlining:

(i) details of the investigations carried out;

(ii) details of the environmental impacts observed; and

(iii) actions taken to prevent environmental harm.

Note: Where an exceedance of a trigger level has occurred and is being investigated, in accordance with condition C13 (b), then no further reporting is required for subsequent trigger events for that quality characteristic within the three (3) month investigation period.

C14 The release of contaminants must not result in an exceedance of contaminant limits stated in Schedule C – Table 5 (Receiving Waters Contaminant Trigger Levels and Contaminant Limits) at the downstream monitoring points specified in Schedule C – Table 4 (Receiving Water and Stream Sediment Reference Sites and Downstream Monitoring Points).

Schedule C – Table 5 (Receiving Waters Contaminant Trigger Levels and Contaminant Limits)

Quality Characteristic[1]	Trigger Level	Contaminant Limit	Monitoring Frequency
Hardness ($CaCO_3$) Temperature Dissolved Oxygen	For interpretation purposes only		Routine based sampling: • Monthly[9] Event based sampling of release events: • One (1) sample must be taken within twelve (12) hours of a release event commencing. A second sample must be taken between twelve (12) and twenty four (24) hours after the release event commences. • Where a release event has a duration of twenty four (24) hours or greater, samples must be taken daily for one (1) week and once a week thereafter until the release event ceases.
pH (pH units)[11]	6.0[3] or 20th percentile[7] of reference[2], whichever is lower (minimum) 7.5[3] or 80th percentile[7] of reference[2], whichever is higher (maximum)	4 (minimum) 9 (maximum)	
Electrical conductivity (µS/cm)[11]	500[5] or 80th percentile[7] of reference[2], whichever is higher	1000 or 95th percentile[7] of reference[2], whichever is lower	
Suspended Solids (mg/L)	80th percentile[7] of reference[2]	95th percentile[7] of reference[2]	
Sulphate (mg/L)	250[12] or 80th percentile[7] of reference[2], whichever is higher	1000[6] or 95th percentile[7] of reference[2], whichever is lower	
Aluminium[10] (mg/L)	0.055[3] or 80th percentile[7] of reference[2] whichever is higher	5[6] or 95th percentile[7] of reference[2], whichever is lower	
Arsenic[8] (mg/L)	0.013[3] or 80th percentile[7] of reference[2], whichever is higher	0.5[6] or 95th percentile[7] of reference[2], whichever is lower	
Boron (mg/L)	0.37[3] or 80th percentile[7] of reference[2], whichever is higher	5[6] or 95th percentile[7] of reference[2], whichever is lower	
Cadmium (mg/L)	0.0002[3] or 80th percentile[7] of reference[2], whichever is higher	0.01[6] or 95th percentile[7] of reference[2], whichever is lower	
Chromium (mg/L)	0.001[3] or 80th percentile[7] of reference[2], whichever is higher	1[6] or 95th percentile[7] of reference[2], whichever is lower	
Cobalt (mg/L)	0.0043[13] or 80th percentile[7] of reference[2], whichever is higher	1[6] or 95th percentile[7] of reference[2], whichever is lower	
Copper (mg/L)	0.0014[3] or 80th percentile[7] of reference[2], whichever is higher	1[6] or 95th percentile[7] of reference[2], whichever is lower	
Fluoride (mg/L)	80th percentile[7] of reference[2]	2[6] or 95th percentile[7] of reference[2], whichever is lower	
Lead (mg/L)	0.0034[3] or 80th percentile[7] of reference[2], whichever is higher	0.1[6] or 95th percentile[7] of reference[2], whichever is lower	
Mercury (mg/L)	0.0006[3] or 80th percentile[7] of reference[2], whichever is higher	0.002[6] or 95th percentile[7] of reference[2], whichever is lower	

Quality Characteristic[1]	Trigger Level	Contaminant Limit	Monitoring Frequency
Molybdenum (mg/L)	0.034[4] or 80th percentile[7] of reference[2], whichever is higher	0.15[6] or 95th percentile[7] of reference[2], whichever is lower	
Nickel (mg/L)	0.011[3] or 80th percentile[7] of reference[2], whichever is higher	1[6] or 95th percentile[7] of reference[2], whichever is lower	
Selenium (mg/L)	0.011[3] or 80th percentile[7] of reference[2], whichever is higher	0.02[6] or 95th percentile[7] of reference[2], whichever is lower	
Zinc (mg/L)	0.008[3] or 80th percentile[7] of reference[2], whichever is higher	20[6] or 95th percentile[7] of reference[2], whichever is lower	

1. All metals and metalloids must be measured as dissolved (filtered) and total (unfiltered) concentrations and obtained from grab samples.
2. Reference sites as specified in Schedule C – Table 4 (Receiving Water and Stream Sediment Reference Sites and Downstream Monitoring Points).
3. Trigger values for the protection of slightly to moderately disturbed systems from ANZECC/ARMCANZ (2000) Table 3.4.1; Table 3.3.4 and Table 3.3.5. Where appropriate the default trigger values may be hardness adjusted in accordance with ANZECC/ARMCANZ (2000) section 7.4.4. Hardness adjustment trigger values must be calculated based on the hardness in the receiving environment at the time of exceedance.
4. Low reliability value from section 8.3.7.1 of ANZECC/ARMCANZ (2000). Where appropriate the default trigger values may be hardness adjusted in accordance with ANZECC/ARMCANZ (2000) section 7.4.4. Hardness adjustment trigger values must be calculated based on the hardness in the receiving environment at the time of exceedance.
5. EC value as per the Queensland Water Quality Guidelines (EHP 2009), Table G.1, 75th percentile for the Gulf catchment.
6. For the protection of stock drinking water, based on ANZECC/ARMCANZ (2000) stock water quality guidelines.
7. Percentiles (20th, 80th and 95th) are calculated using ANZECC 2000 methodology (section 7.4.4.1) and the Queensland Water Quality Guidelines (EHP, 2009).
8. Speciated arsenic concentrations for As (III) and As (V) only required if 13 µg/L is exceeded - note that the sample bottle requirements for As (total species) and As (speciated) may differ.
9. Routine based sampling is not required in months when there is no water flow.
10. Aluminium trigger levels and contaminant limits only apply to event based sampling of release events. Routine based sampling for Aluminium is for interpretational purposes only.
11. May be measured on site using calibrated instruments which are appropriately operated and maintained.
12. Australian Drinking Water Guidelines, version 3.3 (2011), Table 10.6.
13. Derivation of a High Reliability Water Quality Guideline Value for Cobalt in Freshwaters to Improve Compliance Assessment at Lady Loretta Mine (NRA, 2015)

Stream Sediment

C15 Sediment quality of receiving waters and reference waters must be monitored twice a year (once at the end of the wet season and once at the end of the dry season) at the monitoring locations defined in Schedule C – Table 4 (Receiving Water Reference Sites and Downstream Monitoring Points) and identified on Schedule J – Figure 1 (Surface Water and Groundwater Sampling Sites) and for the parameters defined in Schedule C – Table 6 (Stream Sediment Trigger Levels and Contaminant Limits).

Schedule C – Table 6 (Stream Sediment Trigger Levels and Contaminant Limits)

Parameter[1]	Trigger Level[2]	Contaminant Limit[2]
Arsenic (mg/kg)	20 or reference[3], whichever is higher.	70[5] or 3 times the reference[3] whichever is higher
Boron (mg/kg)	Reference[3]	3 times the reference[3]
Cadmium (mg/kg)	1.5[4] or reference[3], whichever is higher.	10[5] or 3 times the reference[3] whichever is higher
Chromium (mg/kg)	80[4] or reference[3], whichever is higher.	370[5] or 3 times the reference[3] whichever is higher
Cobalt (mg/kg)	Reference[3]	3 times the reference[3]
Copper (mg/kg)	65[4] or reference[3], whichever is higher.	270[5] or 3 times the reference[3] whichever is higher
Fluoride (mg/kg)	Reference[3]	3 times the reference[3]
Lead (mg/kg)	50[4] or reference[3], whichever is higher.	220[5] or 3 times the reference[3] whichever is higher
Mercury (mg/kg)	0.15[4] or reference[3], whichever is higher.	1[5] or 3 times the reference[3] whichever is higher
Molybdenum (mg/kg)	Reference[3]	3 times the reference[3,4]
Nickel (mg/kg)	21[4] or reference[3], whichever is higher.	52[5] or 3 times the reference[3] whichever is higher.
Selenium (mg/kg)	Reference[3]	3 times the reference[3]
Zinc (mg/kg)	200[4] or reference[3], whichever is higher.	410[5] or 3 times the reference[3] whichever is higher
Particle size distribution	For interpretation purposes	

1. All samples must be sieved to the sand fraction (63 – 2000µm) prior to analysis.
2. Methods for Dilute Acid Extractable (DAE) analysis will be used to determine metals/metalloid concentrations in sediment, at monitoring points and reference sites, in accordance with the *Revision of the ANZECC/ARMCANZ Sediment Quality Guidelines*, CSIRO (May 2013).
3. Reference sites as specified in Schedule C – Table 4 (Receiving Water and Stream Sediment Reference Sites and Down Stream Monitoring Points).
4. ANZECC (2000) Interim Sediment Quality Guidelines – low values based on total sediments.
5. ANZECC (2000) Interim Sediment Quality Guidelines – high values based on total sediments.

C16 Releases of contaminants must not result in an exceedance of sediment contaminant limits stated in Schedule C – Table 6 (Stream Sediment Trigger Levels and Contaminant Limits).

C17 If quality characteristics of the sediments exceed any of the trigger levels specified in Schedule C – Table 6 (Stream Sediment Trigger Levels and Contaminant Limits), the holder of this environmental authority must compare the results of the downstream site to the data from reference monitoring sites and:

(a) if the level of contaminants at the downstream site does not exceed the reference monitoring site data, then no action is to be taken; or

(b) if the level of contaminants at the downstream site is greater than the reference monitoring site data, complete an investigation in accordance with the ANZECC and ARMCANZ 2000 methodology, into the potential for environmental harm and provide a written report to the administering authority within three (3) months, outlining:

(i) details of the investigations carried out;

(ii) details of the environmental impacts observed; and

(iii) actions taken to prevent environmental harm.

Note: Where an exceedance of a trigger level has occurred and is being investigated, in accordance with condition C17 (b), then no further reporting is required for subsequent trigger events for that quality characteristic within the three (3) month investigation period.

C18 All stream sediment sampling must be undertaken in accordance with the most recent version of Australian Standard AS 5667.12 *Guidance on Sampling of Bottom Sediments*.

Receiving Environment Monitoring Program (REMP)

C19 The environmental authority holder must develop and implement 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 mine affected water is being discharged from the site. For the purpose of the REMP, the receiving environment is the waters of Magazine Creek, Desert Creek and connected waterways within 10km downstream of the release, or further if an impact is detected beyond 10km. 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 mine affected water.

C20 A REMP Design Document that addresses the requirements of the REMP must be prepared and made available to the administering authority upon request.

C21 A report outlining the findings of the REMP, including all monitoring results and interpretations in accordance with condition C19 must be prepared and submitted in writing to the administering authority by 30 June 2018 and thereafter once every twelve (12) months. The report must include an assessment of reference water quality, any assimilative capacity for those contaminants monitored, the suitability of current release limits and recommendation for additional compliance monitoring points to protect downstream environment values.

Water Management Plan

C22 A Water Management Plan must be developed by an appropriately qualified person and implemented.

Saline, Acid and Metalliferous Drainage

C23 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 as a result of the mining activity.

Erosion and Sediment Control

C24 An Erosion and Sediment Control Plan must be developed by an appropriately qualified person and implemented for all stages of the mining activities on the site to minimise erosion and the release of sediment to receiving waters and contamination of stormwater.

Groundwater

C25 Groundwater quality and level must be monitored at the locations and frequencies defined in Schedule C – Table 7 (Groundwater Monitoring Locations and Frequency) and Schedule J – Figure 1 (Surface Water and Groundwater Sampling Sites) for quality characteristics identified in Schedule C – Table 8 (Groundwater Trigger Levels and Contaminant Limits).

Schedule C – Table 7 (Groundwater Monitoring Locations and Frequency)

Monitoring Point	Location		Surface RL (m)[1]	Monitoring Frequency
	Easting (GDA94, MGA94 – Zone 54)	Northing (GDA94, MGA94– Zone 54)		
Reference Bores[2]				
LD01	297826	7812637	330.8	Quarterly
LD03	297233	7811716	316.4	Quarterly
LD05	297052	7812087	310.22	Quarterly
GW01	297263	7812785	336.4	Quarterly
GW02a	296372	7812250	331.76	Quarterly
GW03	298760	7813357	321.83	Quarterly
GW11	296393	7813444	320	Quarterly
GW09	293774	7814704	358.3	Quarterly
Compliance Bores				
LD02	297714	7812382	330.0	Quarterly
LD04	297664	7811987	316.28	Quarterly
LD06	296915	7811740	316.07	Quarterly
GW04a	298814	7810670	304.09	Quarterly
GW19	297935	7811091	342	Quarterly
GW07a	298184	7813220	326.12	Quarterly
GW08	297020	7811218	308.69	Quarterly

1. RL must be measured to the nearest 5cm from the top of the bore casing.
2. Reference sites must:
   (a) Be from the same aquifer
   (b) have a similar flow regime;
   (c) be from the same bio-geographic and climatic region;
   (d) have similar geology, soil types and topography; 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.

Schedule C – Table 8 (Groundwater Trigger Levels and Contaminant Limits)

Quality Characteristic[1]	Trigger Level	Contaminant Limit
Hardness ($CaCO_3$)	For interpretation purposes	
pH (pH units)[9]	6.0[3] or 20th percentile[6] of reference[2], whichever is lower (minimum) 7.5[3] or 80th percentile[6] of reference[2], whichever is higher (maximum)	4 (minimum) 9 (maximum)
Electrical conductivity (µS/cm)[9]	500[5] or 80th percentile[6] of reference[2], whichever is higher	1000 or 95th percentile[6] of reference[2], whichever is lower
Sulphate (mg/L)	80th percentile[6] of reference[2]	1000[7] or 95th percentile[6] of reference[2], whichever is lower
Aluminium (mg/L)	0.055[3] or 80th percentile[6] of reference[2] whichever is higher	5[7] or 95th percentile[6] of reference[2], whichever is lower
Arsenic[8] (mg/L)	0.013[3] or 80th percentile[6] of reference[2], whichever is higher	0.5[7] or 95th percentile[6] of reference[2], whichever is lower
Boron (mg/L)	0.37[3] or 80th percentile[6] of reference[2], whichever is higher	5[7] or 95th percentile[6] of reference[2], whichever is lower
Cadmium (mg/L)	0.0002[3] or 80th percentile[6] of reference[2], whichever is higher	0.01[7] or 95th percentile[6] of reference[2], whichever is lower
Chromium (mg/L)	0.001[3] or 80th percentile[6] of reference[2], whichever is higher	1[7] or 95th percentile[6] of reference[2], whichever is lower
Cobalt (mg/L)	0.0014[4] or 80th percentile[6] of reference[2], whichever is higher	1[7] or 95th percentile[6] of reference[2], whichever is lower
Copper (mg/L)	0.0014[3] or 80th percentile[6] of reference[2], whichever is higher	1[7] or 95th percentile[6] of reference[2], whichever is lower
Fluoride (mg/L)	80th percentile[6] of reference[2]	2[7] or 95th percentile[6] of reference[2], whichever is lower
Lead (mg/L)	0.0034[3] or 80th percentile[6] of reference[2], whichever is higher	0.1[7] or 95th percentile[6] of reference[2], whichever is lower
Mercury (mg/L)	0.0006[3] or 80th percentile[6] of reference[2], whichever is higher	0.002[7] or 95th percentile[6] of reference[2], whichever is lower
Molybdenum (mg/L)	0.034[4] or 80th percentile[6] of reference[2], whichever is higher	0.15[7] or 95th percentile[6] of reference[2], whichever is lower
Nickel (mg/L)	0.011[3] or 80th percentile[6] of reference[2], whichever is higher	1[7] or 95th percentile[6] of reference[2], whichever is lower
Selenium (mg/L)	0.011[3] or 80th percentile[6] of reference[2], whichever is higher	0.02[7] or 95th percentile[6] of reference[2], whichever is lower
Zinc (mg/L)	0.008[3] or 80th percentile[6] of reference[2], whichever is higher	20[7] or 95th percentile[6] of reference[2], whichever is lower

1. All metals and metalloids must be measured as dissolved (filtered) and total (unfiltered) concentrations. Total concentrations are used for contaminant limits.
2. Reference sites as specified in Schedule C – Table 7 (Groundwater Monitoring Locations and Frequency).
3. Trigger level from ANZECC/ARMCANZ (2000) Table 3.4.1; Table 3.3.4 and Table 3.3.5.
4. Low reliability value from section 8.3.7.1 of ANZECC/ARMCANZ (2000).
5. EC value as per the Queensland Water Quality Guidelines (EHP), Table G.1, 75th percentile for the Gulf catchment.
6. Percentiles (20th, 80th and 95th) are calculated using the Queensland Water Quality Guideline (EHP 2009) method.
7. For protection of stock drinking water, based on ANZECC/ARMCANZ (2000) stock water quality guidelines.
8. Speciated arsenic concentrations for As (III) and As (V) only required if 13 µg/L is exceeded - note that the sample bottle requirements for As (total species) and As (speciated) may differ (for trigger levels only).
9. May be measured on site using calibrated instruments which are appropriately operated and maintained.

C26 The holder of this environmental authority must complete an annual groundwater monitoring report by 1 August each year and submit this report to the administering authority upon request. The report must be prepared by an appropriately qualified person and must address the following requirements as a minimum:

(a) analyses of groundwater chemistry and hydrogeological data for all groundwater monitoring bores;

(b) discuss effectiveness of the current groundwater monitoring regime and any improvements that could be made to ensure early detection of impacts to groundwater;

(c) Ensure that all potential groundwater impacts due to the mining activity are identified and monitored. Where potential groundwater impacts are identified, mitigation strategies must be described;

(d) Include a conceptual groundwater model that is reviewed, updated and validated once every 2 years in accordance with findings of the groundwater monitoring;

(e) changes in groundwater levels plotted as a function of time to identify seasonal patterns and possible draw-down effects;

(f) groundwater elevation contours and flow direction; and

(g) interpretation and discussion of groundwater monitoring data.

C27 By 30 January 2019, the holder of this environmental authority must submit a groundwater monitoring network design plan presenting a revised groundwater monitoring network suitable for the early detection of impacts to groundwater.

C28 If quality characteristics of groundwater from compliance bores identified in Schedule C – Table 7 (Groundwater Monitoring Locations and Frequency) exceed any of the trigger levels stated in Schedule C – Table 8 (Groundwater Trigger Levels and Contaminant Limits) the holder of this environmental authority must compare the compliance monitoring bore results to the reference bore results and:

(a) if the level of contaminants at the compliance monitoring bore does not exceed the reference bore results, then no action is to be taken; and

(b) if the level of contaminants at the compliance monitoring bore is greater than the reference bore results, complete an investigation in accordance with the ANZECC and ARMCANZ 2000, into the potential for environmental harm and provide a written report to the administering authority within three (3) months, outlining:

(i) details of the investigations carried out;

(ii) details of environmental impacts observed; and

(iii) actions taken to prevent environmental harm.

Note: Where an exceedance of a trigger level has occurred and is being investigated, in accordance with condition C28 (b), then no further reporting is required for subsequent trigger events for that quality characteristic within the three month investigation period.

C29 The release of contaminants must not result in an exceedance of contaminant limits stated in Schedule C – Table 8 (Groundwater Trigger Levels and Contaminant Limits) at the monitoring points specified in Schedule C – Table 7 (Groundwater Monitoring Locations and Frequency).

Monitoring Bore Construction, Maintenance and Decommissioning

C30 From 4 December 2018, any new groundwater bore installed or existing groundwater bores re-developed must be constructed and maintained in accordance with the methods prescribed in *'Minimum Construction Requirements for Water Bores in Australia* – Third Edition (or equivalent) (NWC, 2012)'.

Sewage Treatment – for Irrigation

C31 Treated sewage effluent may only be released to land within the nominated irrigation area identified in Schedule J – Figure 4 (Sewage Treatment Plant and Effluent Disposal) and in accordance with the contaminant release limits stated in Schedule C - Table 9 (Contaminant Release Limits to Land) and the conditions of this environmental authority.

C32 All sewage effluent released to land must be monitored at the frequency and for the parameters specified in Schedule C - Table 9 (Contaminant Release Limits to Land).

Schedule C – Table 9 (Contaminant Release Limits to Land)

Contaminant	Unit	Release limit	Limit type	Frequency
5 day Biochemical oxygen demand (BOD)[1]	mg/L	20	Maximum	Quarterly
Total Suspended Solids	mg/L	30	Maximum	Quarterly
Nitrogen	mg/L	30	Maximum	Quarterly
Phosphorus	mg/L	15	Maximum	Quarterly
E coli	Organisms / 100ml	1000	Maximum	Monthly
pH	pH units	6.0 – 9.0	Range	Monthly

1. Based on at least 5 but no more than 10 consecutive samples

C33 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.

C34 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.

C35 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.

C36 A minimum area of 5 hectares of land, excluding any necessary buffer zones, must be utilised for the irrigation of treated sewage effluent.

C37 The daily volume of effluent release to land must be measured and records kept of the volumes of effluent released.

C38 Treated sewerage 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 EP Act whilst using the treated sewerage effluent.

Water Reuse

C39 Mine affected water may be piped or trucked or transferred by some other means that does not contravene the conditions of this environmental authority and deposited into artificial water storage structures, such as farm dams or tanks, or used directly at properties owned by the environmental authority holder or a third party for the purpose of:

1. supplying stock water subject to compliance with the quality release limits specified in ANZECC and ARMCANZ (2000) Volume 1: Chapter 4.3 Table 4.3.1, 4.3.2 and 4.3.3 and;
2. supplying water treated by reverse osmosis for road maintenance in accordance with the conditions of this environmental authority.

C40 If the responsibility for mine affected water is given or transferred to another person in accordance with condition C39:

1. The responsibility for the mine affected water must only be given or transferred in accordance with a written agreement (third party agreement); and
2. The third party agreement must include a commitment from the person utilising the mine affected water to use it in such a way to prevent environmental harm and specifically make the persons aware of the General Environmental Duty (GED) under section 319 of the *Environmental Protection Act 1994*, environmental sustainability of the water disposal and protection of environmental values of waters; and
3. The third party agreement must be signed by both parties to the agreement.

END OF SCHEDULE C

Schedule D – Regulated Dams

Assessment of Consequence Category

D1 The consequence category of any structure must be assessed by a suitably qualified and experienced person in accordance with the *Manual for Assessing Consequence Categories and Hydraulic Performance of Structures* (EM635) at the following times:

(a) prior to the design and construction of the structure if it is not an existing structure; or

(b) if it is an existing structure, prior to the adoption of this schedule; or

(c) prior to any change in its purpose or the nature of its stored contents.

D2 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.

D3 Certification must be provided by the suitably qualified and experienced person who undertook the assessment, in the form set out in the *Manual for Assessing Consequence Categories and Hydraulic Performance of Structures* (EM635).

Design and Construction of a Regulated Structure

D4 Conditions D5 to D9 inclusive do not apply to existing structures.

D5 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* (EM635).

Note – Construction of a dam includes modification of an existing dam.

D6 Construction of a regulated structure is prohibited unless the holder has submitted a consequence category assessment report and certification to the administering authority; has been certified by a suitably qualified and experienced person for the design and design plan and the associated operating procedures in compliance with the relevant condition of this authority.

D7 Certification must be provided by the suitably qualified and experienced person who oversees the preparation of the design plan, in the form set out in the *Manual for Assessing Consequence Categories and Hydraulic Performance of Structures* (EM635), and must be recorded in the Regulated Dams/Levees register.

D8 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* (EM635);

(b) be designed and constructed with due consideration given to ensuring that the design integrity will not be compromised on account of:

(i) floodwaters from entering the regulated dam from any watercourse or drainage line; and

(ii) wall failure due to erosion by floodwaters arising from any watercourse or drainage line.

D9 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; and

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

Operation of a Regulated Structure

D10 Operation of a regulated structure, except for an existing structure, is prohibited unless:

(a) the holder has submitted to the administering authority:

(i) one paper copy and one electronic copy of the design plan and certification of the design plan in accordance with condition D8; and

(ii) a set of 'as constructed' drawings and specifications; and

(iii) certification of those 'as constructed drawings and specifications' in accordance with condition D9; and

(iv) 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.

(b) the requirements of this authority relating to the construction of the regulated structure have been met; and

(c) there is a current operational plan for the regulated structures; and

(d) the holder has entered the details required under this authority, into a Register of Regulated Dams; and

(e) relevant details for the regulated structure have been included in Schedule D – Table 1 (Location of Regulated Structures), Schedule D – Table 2 (Basic Details of Regulated Structures) and Schedule D – Table 3 (Hydraulic Performance of Regulated Structures) of this environmental authority.

Schedule D – Table 1 (Location of Regulated Structures)

Column 1	Column 2	Column 3	Column 4
Name of Regulated Structure	**Easting[1] (GDA94, MGA94 – Zone 54)**	**Northing[1] (GDA94, MGA94 – Zone 54)**	**Mining Lease**
Leachate Dam	297,444.51	7,813,099.85	ML5568
	297,523.29	7,813,006.55	
	297,467.32	7,812,950.57	
	297,392.68	7,813,060.46	
Containment Dam A	297,551.00	7,812,303.70	
	297,715.80	7,812,146.00	
	297,617.10	7,811,892.30	
	297,350.50	7,811,909.70	
	297,316.70	7,812,107.60	
Containment Dam B	297,065.09	7,812,038.29	
	297,054.72	7,811,689.97	
	296,886.78	7,811,683.76	
	296,901.29	7,812,036.22	
Paste Plant Dam	297,705.75	7,812,656.15	
	297,848.88	7,812,522.87	
	297,795.76	7,812,378.02	
	297,620.74	7,812,583.58	

1 A minimum of three (3) control points are required to constrain the location of all activities associated with the regulated structure. Additional infrastructure which forms part of any regulated structure (which is not required to be located within the control points) may include appurtenant works consisting of tailings discharge pipelines, seepage collection systems, runoff diversion bunds, containment systems, pressure relief wells, decant and recycle water systems.

2 TBA – To be advised by prior to construction of the dam.

Schedule D – Table 2 (Basic Details of Regulated Structures)

Column 1	Column 2	Column 3	Column 4	Column 5	Column 6	Column 7
Name of Regulated Structure	**Hazard Category**	**Surface Area at Spillway (ha)**	**Maximum Volume at Spillway (ML)**	**Maximum Depth at Spillway (m)**	**Spillway Level (mAHD)**	**Use**
Leachate Management Dam	High	0.26	4.93	3	339.7	- Capture leachate from waste rock stockpile
Containment Dam A	Significant	8.45	190	4.38	323.5	- Store runoff from ROM stockpile, Crushing and Loading Area, Portal, MIA Fuel Depot and Power Plant - Store pumped flow from PPD & CDB - Supply of water to underground operations - Supply of water for dust suppression - Supply of water to paste plant
Containment Dam B	Significant	2.46	67	4.46	325.7	- Store runoff from WRD and MIA
Paste Plant Dam	Significant	0.79	27	6.35	326.9	- Store runoff from paste plant - Storage of tray wash return - Storage of flush water return

D11 For existing structures that are regulated structures:

(a) Where the existing structure that is a regulated structure is to be managed as part of an integrated containment system for the purpose of sharing DSA volume across the system, the holder must submit to the administering authority within 12 months of the commencement of this condition a copy of the certified system design plan including that structure; and

(b) There must be a current operational plan for the existing structures.

D12 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 (MRL)

D13 Conditions D14 to D17 inclusive only apply to Regulated Structures which have not been certified as low consequence category for 'failure to contain – overtopping'.

D14 The mandatory reporting level (MRL) must be marked on a regulated dam in such a way that during routine inspections of that dam, it is clearly observable.

D15 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.

D16 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.

D17 The holder must record any changes to the MRL in the Register of Regulated Structures and Schedule D – Table 3 (Hydraulic Performance of Regulated Structures).

Schedule D — Table 3 (Hydraulic Performance of Regulated Structures)

Column 1	Column 2	Column 3	Column 4
Name of Regulated Structure	**Spillway Capacity AEP**	**Design Storage Allowance AEP**	**Mandatory Reporting Level AEP**
Leachate Management Dam	1:100 Year AEP	1:20 AEP 2 month wet season	1:10 AEP 72hr duration
Containment Dam A	1:1000 Year AEP	1:20 Year AEP, 2 Month Wet Season	1:10 Year AEP, 72hr duration
Containment Dam B	1:1000 Year AEP	1:20 Year AEP, 2 Month Wet Season	1:10 Year AEP, 72hr duration
Paste Plant Dam	1:1000 Year AEP	1:20 Year AEP, 2 Month Wet Season	1:10 Year AEP, 72hr duration

Design Storage Allowance (DSA)

D18 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.

D19 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).

D20 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.

D21 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 network of linked containment systems).

Annual Inspection Report

D22 Each regulated structure must be inspected each calendar year by a suitably qualified and experienced person.

D23 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.

D24 The suitably qualified and experienced person who prepared the annual inspection report must certify the report in accordance with the *Manual for Assessing Consequence Categories and Hydraulic Performance of Structures* (EM635).

D25 The holder must:

(a) within twenty (20) business days of receipt of the annual inspection report, provide to the administering authority:

i) The recommendations section of the annual inspection report; and

ii) If applicable, any actions being taken in response to those recommendations; and

(b) If, following receipt of the recommendations and (if applicable) actions, the administering authority requests a full copy of the annual inspection report from the holder, provide this to the administering authority within 10 business days of receipt of the request.

Transfer Arrangements

D26 The holder must provide a copy of any reports, documentation and certifications prepared under this authority, including but not limited to any Register of Regulated Structures, consequence assessment, design plan and other supporting documentation, to a new holder on transfer of this authority.

Register of Regulated Dams

D27 A Register of Regulated Dams must be established and maintained by the holder for each regulated dam.

D28 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.

D29 The holder must make a final entry of the required information in the Register of Regulated Dams once compliance with condition D10 and D11 has been achieved.

D30 The holder must ensure that the information contained in the Register of Regulated Dams is current and complete on any given day.

D31 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.

D32 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.

Transitional Arrangements

D33 All existing structures that have not been assessed in accordance with either the Manual or the former Manual for Assessing Hazard Categories and Hydraulic Performance of Dams must be assessed and certified in accordance with the Manual within 6 months of amendment of the authority adopting this schedule.

D34 All existing structures must subsequently comply with the timetable for any further assessments in accordance with the Manual specified in Schedule D – Table 4 (Transitional requirements for existing structures), depending on the consequence category for each existing structure assessed in the most recent previous certification for that structure.

D35 Schedule D – Table 4 (Transitional requirements for existing structures) ceases to apply for a structure once any of the following events has occurred:

(a) it has been brought into compliance with the hydraulic performance criteria applicable to the structure under the Manual; or

(b) it has been decommissioned; or

(c) it has been certified as no longer being assessed as a regulated structure.

D36 Certification of the transitional assessment required by D33 and D34 (as applicable) must be provided to the administering authority within 6 months of amendment of the authority adopting this schedule.

Schedule D – Table 4 (Transitional requirements for existing structures)

Transition period required for existing structures to achieve the requirements of the *Manual for Assessing Consequence Categories and Hydraulic Performance of Dams*			
Compliance with criteria	**High**	**Significant**	**Low**
>90% and a history of good compliance performance in last 5 years	No transition required	No transition required	No transitional conditions apply. Review consequence assessment every 7 years.
>70% - ≤90%	Within 7 years, unless otherwise agreed with the administering authority, based on no history of unauthorised releases.	Within 10 years, unless otherwise agreed with the administering authority, based on no history of unauthorised releases	No transitional conditions apply. Review consequence assessment every 7 years.
>50% - ≤70%	Within 5 years, unless otherwise agreed with the administering authority, based on no history of unauthorised releases.	Within 7 years, unless otherwise agreed with the administering authority, based on no history of unauthorised releases.	Review consequence assessment every 7 years.
≤50%	Within 5 years or as per compliance requirements (e.g. TEP timing).	Within 5 years or as per compliance requirements (e.g. TEP timing).	Review consequence assessment every 5 years.

END OF SCHEDULE D

Schedule E – Land

General

E1 Other than as authorised under this environmental authority, contaminants must not be released to land in a manner which constitutes environmental nuisance, or material or serious environmental harm.

Topsoil

E2 Topsoil and subsoils must be stripped and stockpiled ahead of mining to a depth determined from soil surveys to ensure that useable soil resources are preserved for rehabilitation.

E3 Topsoil and subsoil stockpiles must be managed to ensure stability and minimise the release of contaminants. Measures must include:

(a) Vegetating stockpiles;

(b) Minimising the height of stockpiles: and

(c) Re-using stockpiles as soon as possible.

E4 A topsoil inventory which identifies the topsoil requirements for the mining project and availability of suitable topsoil on site must be kept.

Infrastructure

E5 All buildings, structures, mining equipment and plant erected and/or used for the mining activities must be removed from the site prior to surrender, except where agreed in writing by the administering authority, the Minister responsible for the *Mineral Resources Act 1989* and the landowner.

Contaminated Land

E6 The holder of this environmental authority must maintain a register of land areas on the mining lease that are potentially contaminated by the mining activities, that includes:

(a) maps of potentially contaminated land;

(b) details, including reports on the investigation of these areas;

(c) details, including reports, on the remediation of these areas; and

(d) details of any management plans for remediated areas.

E7 The holder of this environmental authority must keep details of its procedures to assess, investigate and manage any potentially contaminated land that is proposed to be disturbed.

END OF SCHEDULE E

Schedule F – Noise and Vibration

General

F1 In the event of noise related complaints from a noise sensitive place that cannot be resolved through consultation, noise levels at the location of the complaint must not exceed a $L_{Amax,adj,T}$ of background noise levels plus 5 dB (A) from 7 am to 10 pm and background noise levels plus 3 dB (A) from 10 pm, weekends and public holidays.

F2 In the event of blasting related complaints from a noise sensitive place that cannot be resolved through consultation, blasting impacts at the location of the complaint must not exceed the following:

(a) Airblast overpressure:

i. 115 dB (Lin) Peak for 4 out of any consecutive 5 blasts; and

(b) Ground vibration:

i. for vibrations of more than 35 Hz – not more than 25 mm per second ground vibration, peak particle velocity, or

ii. for vibrations of not more than 35 Hz – not more than 10 mm per second ground vibration, peak particle velocity.

F3 The complainant must be notified of the results of noise and blast monitoring as soon as practicable and appropriate mitigation measures must be implemented if required.

F4 The results of any noise and blast monitoring must be presented to the administering authority upon request.

END OF SCHEDULE F

Schedule G – Waste Management

Waste Management Program

G1 A waste management program must be developed, implemented and maintained by 1 November 2012 for the mining activities at the licensed place. The waste management program must be reviewed and updated on a frequency not exceeding every two (2) years. The program must be provided to the administrating authority on request and must include:

(a) a description of the mining activity that may generate waste;

(b) waste management control strategies including;

(i) recording of the types and amounts of wastes generated by the mining activity;

(ii) segregation of the wastes;

(iii) storage of the wastes;

(iv) transport of the wastes; and

(v) monitoring and reporting matters concerning the waste.

(c) the hazard characteristics of the wastes generated including disposal procedures for regulated wastes;

(d) a program for reusing, recycling or disposing of all wastes;

(e) how the waste will be dealt with in accordance with the waste management hierarchy, including a description of the types and amounts of waste that will be dealt with under each of the waste management practices in the waste and resource management hierarchy (i.e. avoidance, reuse, recycling, energy recovery, disposal);

(f) procedures for identifying and implementing opportunities to minimise the amount of waste generated, promote efficiency in the use of resources and improve the waste management practices employed;

(g) procedures for dealing with accidents, spills, and other incidents that may impact on waste management;

(h) details of any accredited management system employed, or planned to be employed, to deal with the waste;

(i) how often the performance of the waste management practices will be assessed;

(j) the indicators or other criteria on which the performance of the waste management practices will be assessed; and

(k) staff training and induction to the waste management program.

Waste disposal

G2 All general and regulated waste other than those authorised to be disposed of onsite must be removed from the site to a facility that is lawfully able to accept the waste under the *Environmental Protection Act 1994*.

Regulated waste

G3 Regulated waste, other than that authorised to be disposed of onsite under this authority, must only be removed and transported from the site by a person who holds a current authority to transport such wastes to a facility that is lawfully able to accept the waste under the *Environmental Protection Act 1994*.

G4 Regulated waste generated in the mining activity can be temporarily stored on site awaiting removal provided it is stored to ensure there is minimal risk of causing fire or contamination to land or waters.

G5 Each container of regulated waste stored awaiting movement off-site must be clearly marked to identify the contents.

Tyre storage and disposal

G6 Tyres stored awaiting disposal or transport for take-back and recycling or waste-to-energy options – must be stockpiled in volumes less than 3m in height and 200m^2 and at least 10m from any other tyre storage area.

G7 Fire Prevention measures must be implemented including the removal of all combustible materials, including grass and vegetation, within a 10m radius of any tyre storage area.

G8 Disposal of tyres onsite must be conducted in accordance with the requirements of *Operational Policy – Disposal and storage of scrap tyres at mine site* (EM729).

General Waste Disposal

G9 The only waste that can be disposed of on site is waste generated on site and is limited to:

(a) Waste rock;

(b) Rejects;

(c) General Waste;

(d) Tyres; and

(e) Demolition waste.

G10 Up to 2000t/yr of non-putrescible general waste may be disposed of to the underground mine voids and encapsulated within mine backfill.

G11 A record of underground mine voids used for non-putrescible general waste disposal must be maintained. Notwithstanding any other condition of this authority, such records must be maintained until the administering authority approves the surrender of this authority.

G12 Up to 50,000t of demolition waste, comprising concrete and up to 5,000t of scrap steel and miscellaneous demolition wastes, may be disposed to the underground mine voids.

G13 A record of underground mine voids used for demolition waste disposal must be maintained. Notwithstanding any other condition of this authority, such records must be maintained until the administering authority approves the surrender of this authority.

G14 Completed waste disposal trenches must be capped with a low permeability material and compacted and contoured to effectively minimise water infiltration.

G15 A record of the location of trenches used for waste disposal must be maintained. Notwithstanding any other condition of this authority, such records must be maintained until the administering authority approves the surrender of this authority.

Waste Incineration

G16 The holder of this environmental authority must not burn waste except for incineration of the following wastes at the licensed place:

(a) paper and cardboard.

G17 The holder of this environmental authority must keep records of all wastes incinerated at the site.

Waste rock disposal

G18 The holder of this environmental authority must develop, implement and submit to the administering authority a waste rock and spoil management plan by 1 February 2013.

G19 Waste rock and spoil disposal must not occur on the site unless the holder of this environmental authority has submitted to the administering authority a waste rock and spoil management plan, together with the certification by an appropriately qualified person that the plan has addressed the requirements of condition (G21) in accordance with best practice environmental management.

G20 The waste rock management plan must be independently certified by an appropriately qualified person with a minimum of five (5) years of demonstrated expertise and experience in the design and rehabilitation of waste rock dumps.

G21 The waste rock and spoil management plan must include:

(a) Characterisation of the waste rock and spoil to predict the quality of runoff and seepage generated, including salinity, acidity, alkalinity, dissolved metals, metalloids and non-metallic inorganic substances;

(b) A program of progressive sampling program to validate pre-mine waste rock and spoil characterisation. The waste rock sampling program must include validation of salinity, acid and alkali producing potential and relevant metal concentrations;

(c) Where the acid rock drainage potential / neutral mine drainage potential of waste rock material has not been conclusively determined, geochemical kinetic testing must be conducted to indicate oxidation rates, potential reaction products and effectiveness of control strategies;

(d) Records must be maintained of all waste rock characterisation and disposal including contingency planning for the management of acid rock / neutral mine drainage;

(e) A materials balance and disposal plan demonstrating how potentially acid forming and acid forming waste rock will be selectively placed and/or encapsulated to minimise the generation of acid mine drainage;

(f) A materials balance and disposal plan demonstrating how waste rock that has a potential to generate neutral and/or saline mine drainage will be selectively placed and managed to minimise the generation of neutral and/or saline mine drainage;

(g) A sampling program to verify encapsulation and/or placement of potentially acid forming / acid forming waste rock / waste rock that has a potential to generate neutral mine drainage;

(h) How often the performance of the plan will be assessed;

(i) Monitoring or rehabilitation, research and/or trials to verify the requirements and methods for decommissioning and final rehabilitation of the placed materials, including the prevention and management of acid mine drainage, erosion minimisation and establishment of vegetation cover.

G22 The waste rock dump must be constructed to prevent any water other than incidental rainfall from entering the waste rock dump.

END OF SCHEDULE G

Schedule H – Nature Conservation

Biodiversity Offsets

H1 All impacts to prescribed environmental matters must be determined, documented, and mapped by an appropriately qualified person.

H2 Records of impacts to prescribed environmental matters must be kept for the life of the environmental authority.

H3 A register of all records made under condition **H2** must be maintained for the life of the environmental authority and include:

(a) the size and extent of impact; and

(b) a determination of whether the impact is a significant residual impact.

H4 Significant residual impacts to prescribed environmental matters:

(a) are only authorised for the matters in **Table H1 – Authorised significant residual impacts to prescribed environmental matters;** and

(b) must not exceed the maximum extent of impact prescribed in **Table H1 – Authorised significant residual impacts to prescribed environmental matters.**

Table H1 – Authorised significant residual impacts to prescribed environmental matters

Prescribed Environmental Matter	Environmental offset required (Yes / No)	Maximum extent of impact
		Extent in hectares (ha)
Habitat for an animal that is vulnerable wildlife—		
Petrogale purpureicollis (purple-necked rock-wallaby)	Yes	8.37

Environmental Offsets

H5 An environmental offset must be made in accordance with the *Environmental Offsets Act 2014* and the most recent version of the Queensland Environmental Offsets Policy, for each prescribed environmental matter, and for the maximum extent of impact, listed in **Table H1 – Authorised significant residual impacts to prescribed environmental matters**.

Note: Deemed conditions provided in section 16 of the Environmental Offsets Act 2014 *also apply to this authority. Any contravention of a deemed condition will be dealt with under the* Environmental Protection Act 1994.

END OF SCHEDULE H

Schedule I – Definitions

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

"acid mine drainage (AMD)" means any contaminated release emanating from a mining operation formed through a series of chemical and biological reaction, when geological strata is disturbed and exposed to oxygen and moisture as a result of the mining activity.

"acid rock drainage (ARD)" means any contaminated release emanating from a mining activity formed through a series of chemical and biological reactions, when geological strata is disturbed and exposed to oxygen and moisture as a result of the mining activity.

"administering authority" means the chief executive of the agency administering the *Environmental Protection Act 1994.*

"affected land" means land on which an event has caused or threatens serious or material environmental harm.

"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).

"Annual Exceedance Probability" or **"AEP"** means the probability that at least one event in excess of a particular magnitude will occur in any given year.

"ANZECC 2000" means Australian and New Zealand Environment Conservation Council Marine and Freshwater Quality Guidelines.

"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 relative to the subject matter using the relevant protocols, standards, methods or literature.

"assessed" and **"assessment"** by a suitably qualified and experienced person in relation to a hazard assessment of a dam/structure, 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.

"associated works" in relation to a dam/structure, means:

(a) operations of any kind and all things constructed, erected or installed for that dam/structure; and

(b) any land used for those operations.

"authorised person" means a person holding office as an authorised person under an appointment under the *Environmental Protection Act 1994* by the chief executive or chief executive officer of a local government.

"background" 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.

"bunded" means within bunding consistent with Australian Standard 1940.

"certification", "certifying" or **"certified"** by a suitably qualified and experienced person in relation to a design plan or an annual report regarding dams/structures, 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 at any time:

(a) exactly what is being certified and the precise nature of that certification;

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

(c) the relevant data and facts on which the certification 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 certification has been based using the relevant data and facts, and the relevant criteria.

"chemical" means:

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

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

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

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

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

  (i) a pesticide, insecticide, fungicide, herbicide, rodenticide, 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 workplace used as an office or for business or commercial purposes, which is not part of the mining activity and does not include employees accommodation or public roads.

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

"contaminant" A contaminant can be a gas, liquid or solid; or an odour; or an organism (whether alive or dead), including a virus; or energy, including noise, heat, radioactivity and electromagnetic radiation; or a combination of contaminants

"contaminated" means the substance has come into contact with a contaminant.

"control measure" means any action or activity that can be used to prevent or eliminate a hazard or reduce it to an acceptable level.

"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. A dam does *not* mean 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.

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

"design plan" is the documentation required to describe the physical dimensions of the dam, the materials and standards to be used for construction of the dam, and the criteria to be used for operating the dam. The documents must include all investigation and design reports, plans and specifications sufficient to hand to a contractor for construction, and planned decommissioning and rehabilitation outcomes; so as to address all hazard scenarios that would be identified by a properly conducted hazard assessment for the structure. Documentation must be such that a 'suitable qualified and experienced person' could conduct an independent review without seeking further information from the designer.

"Design Storage Allowance" or **"DSA"** means an available volume, estimated in accordance with the *Manual for Assessing Hazard Categories and Hydraulic Performance of Dams*, that must be provided in a dam/structure as at 1 November each year in order to prevent a discharge from that dam/structure to an annual exceedance probability (AEP) specified in that Manual.

"EC" means electrical conductivity.

"effluent" treated waste water released from sewage treatment plants.

"emergency" An emergency exists if -

(a) either -

  (i) human health or safety is threatened; or

  (ii) serious or material environmental harm has been or is likely to be caused; and

(b) urgent action is necessary to -

  (i) protect the health or safety of persons; or

  (ii) prevent or minimise the harm; or

  (iii) rehabilitate or restore the environment because of the harm.

"emergency action plan" means documentation forming part of the operational plan held by the holder of this environmental authority or a nominated responsible officer, that identifies emergency conditions that sets out procedures and actions that will be followed and taken by the dam/structure owner and operating personnel in the event of an emergency. The actions are to minimise the risk and consequences of failure, and ensure timely warning to downstream communities and the implementation of protection measures. The plan must require dam/structure owners to annually update contact details that are part of the plan, and to comprehensively review the plan at least every five years.

"environmental authority" means environmental authority under the *Environmental Protection Act 1994*.

"environmental harm" is any adverse effect, or potential adverse effect (whether temporary or permanent and of whatever magnitude, duration or frequency) on an environmental value, and includes environmental nuisance.

"environmental nuisance" means environmental nuisance is unreasonable interference or likely interference with an environmental value caused by -

(a) aerosols, fumes, light, noise, odour, particles or smoke; or

(b) an unhealthy, offensive or unsightly condition because of contamination; or

(c) another way prescribed by regulation.

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

"environmentally relevant activity (ERA)" means an environmentally relevant activity as defined under Section 18 of the *Environmental Protection Act 1994* and listed under Schedule 2 of the *Environmental Protection Regulation 2008*.

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

"flow event" means a surface water flow in a drainage feature or watercourse that occurs as a result of rainfall.

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

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

"hazardous waste" means a substance, whether liquid, solid or gaseous that, if improperly treated, stored, disposed of or otherwise managed, is likely to cause environmental harm.

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

"hydraulic performance" means the capacity of a regulated dam/structure to contain or safely pass flowable substances based on a probability (AEP) of performance failure specified for the relevant hazard category in the *Manual for Assessing Hazard Categories and Hydraulic Performance of Dams*.

"infrastructure" means water storage dam/structures, roads and tracks, buildings and other structures built for the purpose of the mining activity but does not include facilities required for the long term management of mining impacts or the protection of potential resources. Such facilities include dam/structures containing hazardous waste, waste rock dumps, voids, or ore stockpiles and buildings or other structures whose ownership can be transferred and which have a residual beneficial use for the next owner of the operational land or the background land owner.

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

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

"licensed place" means the mining activities carried out at the mining tenements detailed in Table 3 (page 3) of this environmental authority.

"m" means metres.

"Mandatory Reporting Level" or **"MRL"** means a warning and reporting level determined in accordance with the criteria in the *Manual for Assessing Hazard Categories and Hydraulic Performance of Dams* published by the administering authority.

"material environmental harm" Material environmental harm is environmental harm (other than environmental nuisance) -

(a) that is not trivial or negligible in nature, extent or context; or

(b) that causes actual or potential loss or damage to property of an amount of, or amounts totalling, more than the threshold amount but less than the maximum amount; or

(c) that results in costs of more than the threshold amount but less than the maximum amount being incurred in taking appropriate action to -

  (i) prevent or minimise the harm; and

  (ii) rehabilitate or restore the environment to its condition before the harm.

"maximum amount" means the threshold amount for serious environmental harm. (refer to EP Act 1994)

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

"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.

"metalliferous mine drainage" means any waters, contaminated with metals / metalloids or other contaminants as a result of the mining activity.

"mg/L" means milligrams per litre.

"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 there from;

(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) rock mined in block or slab form for building or monumental purposes;

but does not include—

(l) living matter;

(m) petroleum within the meaning of the *Petroleum Act 1923*;

(n) 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;

(o) water.

"ML" means megalitres.

"mL" means millilitres.

"modification" or **"modifying"**(see definition "construction").

"NATA" means National Association of Testing Authorities, Australia.

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

"noxious" means harmful or injurious to health or physical well being.

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

"operational plan" for a dam/structure means a document that amongst other things sets out procedures and criteria to be used for operating a dam/structure during a particular time period. The operational plan as defined herein may form part of a plan of operations or plan otherwise required in legislation.

"PAF waste rock" means potentially acid forming waste rock with either a Net Acid Producing Potential of greater than 5 kg of H_2SO_4/tonne or a Net Acid Generation oxidation pH of less than 4.5 (pH unit).

"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.

"process water" means water used or produced during the mineral development activities.

"protected area" means – a protected area under the *Nature Conservation Act 1992*; or

(a) a marine park under the *Marine Parks Act 1992*; or

(b) a World Heritage Area.

"receiving environment" means all groundwater, surface water, land, and sediments that are not disturbed areas authorised by this environmental authority.

"receiving waters" means all groundwater and surface water that are not disturbed areas authorised by this environmental authority.

"regulated structure" means any regulated dam or levee.

"regulated waste" means non-domestic waste mentioned in schedule 7 of the *Environmental Protection Regulation 1998* (whether or not it has been treated or immobilised), and includes:

(a) for an element – any chemical compound containing the element; and

(b) anything that has contained the waste.

"release event" means a surface water discharge from water storages or contaminated areas on the licensed place.

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

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

"saline mine drainage" The movement of waters, contaminated with salt(s), as a result of the mining activity.

"serious environmental harm" Serious environmental harm is environmental harm (other than environmental nuisance) -

(a) that is irreversible, of a high impact or widespread; or

(b) caused to -

  (i) an area of high conservation value; or

  (ii) an area of special significance, such as the Great Barrier Reef World Heritage Area; or

(c) that causes actual or potential loss or damage to property of an amount of, or amounts totalling, more than the threshold amount; or

(d) that results in costs of more than the threshold amount being incurred in taking appropriate action to -

  (i) prevent or minimise the harm; and

  (ii) rehabilitate or restore the environment to its condition before the harm.

In this section— threshold amount means $50,000 or, if a greater amount is prescribed by regulation, the greater amount.

"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.

"significant disturbance" – includes land;

(a) if it is contaminated land; or

(b) it has been disturbed and human intervention is needed to rehabilitate it.

Some examples of disturbed land include:

(a) areas where soil has been compacted, removed, covered, exposed or stockpiled;

(b) areas where vegetation has been removed or destroyed to an extent where the land has been made susceptible to erosion; (vegetation and topsoil)

(c) areas where land use suitability or capability has been diminished;

(d) areas within a watercourse, waterway, wetland or lake where the mining activity occur;

(e) areas submerged by tailings or hazardous contaminant storage and dam/structure walls in all cases;

(f) areas under temporary infrastructure. Temporary infrastructure includes 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 have ceased; or

(g) areas where land has been contaminated and a suitability statement has not been issued.

However, the following areas are not included:

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

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

(c) by agreement with the administering authority, areas previously significantly 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. The agreement to leave permanent infrastructure must be recorded in the Landowner Agreement and lodged with the administering authority;

(e) disturbances that pre-existed the grant of the tenure unless those areas are disturbed during the term of the tenure.

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

"subsoil", or substrata, is the layer of soil under the topsoil on the surface of the ground. The subsoil may include substances such as sand, silt and/or clay that has only been partially broken down by air, sunlight, water and wind, to produce true soil.

"spillway" means passage or outlet from the dam/structure through which surplus water flows.

"structure" means dam or levee.

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

(a) for regulated dam/structures, an RPEQ who is a civil engineer with the required

(i) qualifications in dam/structure safety and dam/structure design.

(b) for regulated levees, an RPEQ who is a civil engineer with the required

(i) 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 volume across the integrated containment system.

"threshold amount" means $5000 or, if a greater amount is prescribed by regulation, the greater amount.

"void" means any constructed, open excavation in the ground.

"waste water" means used water from the mining activity, process water or contaminated storm water.

"watercourse" means a river, creek or stream in which water flows permanently or intermittently in a visibly defined channel (natural, artificial or artificially improved) with:

(a) continuous bed and banks;

(b) an extended period of flow for some months after rain ceases, and

(c) an adequacy of flow that sustains basic ecological processes and maintains biodiversity.

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

"waters" includes river, stream, lake, lagoon, pond, swamp, wetland, unconfined surface water, unconfined water natural or artificial watercourse, bed and bank of any waters, dams, non-tidal or tidal waters (including the sea), stormwater channel, stormwater 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.

"µS/cm" means micro siemens per centimetre.

END OF SCHEDULE I

Schedule J – Figures and Plans

Figure 1 – Surface Water and Groundwater Sampling Sites

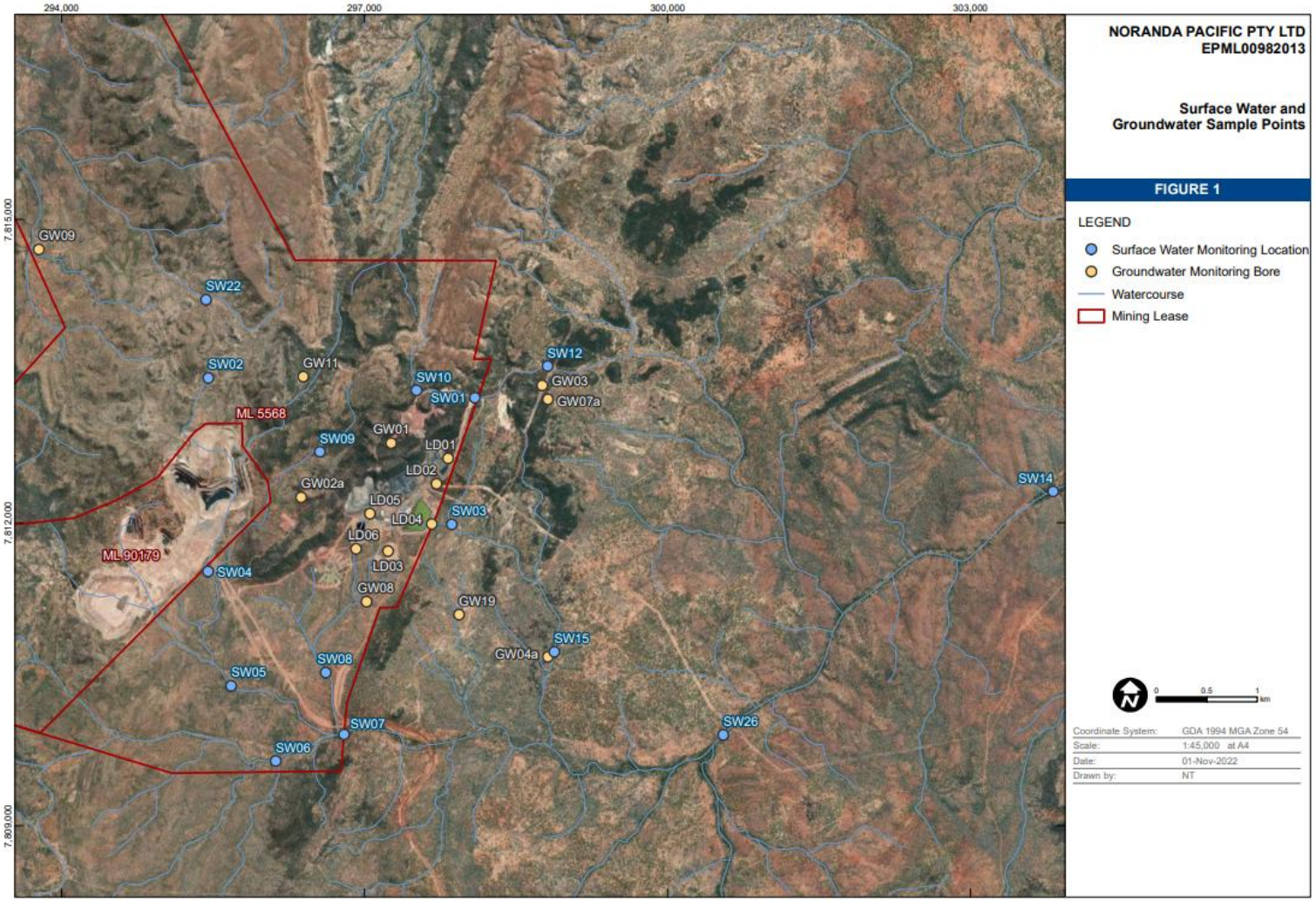


Figure 2 – Release Points

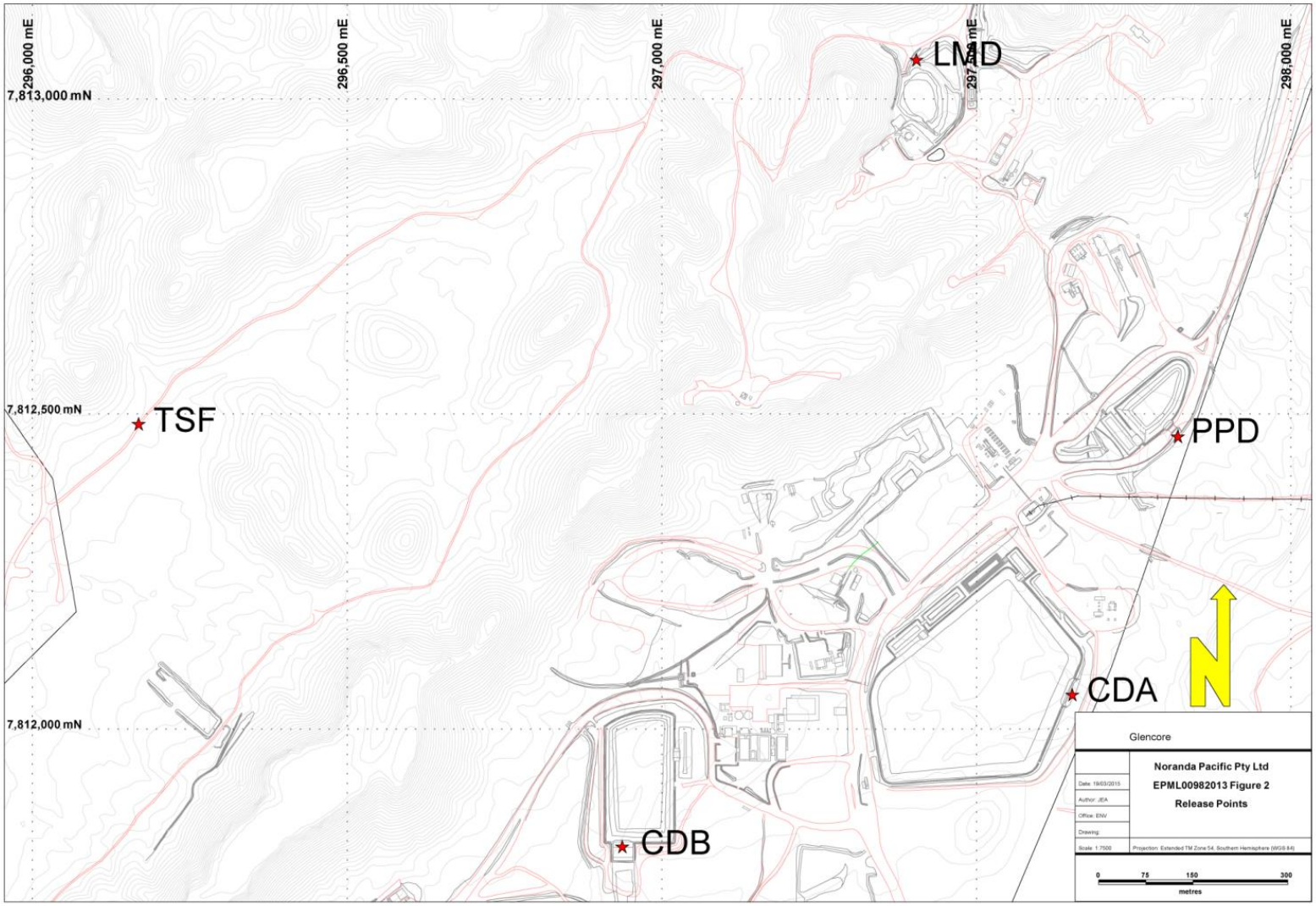


Figure 3 – Site Plan

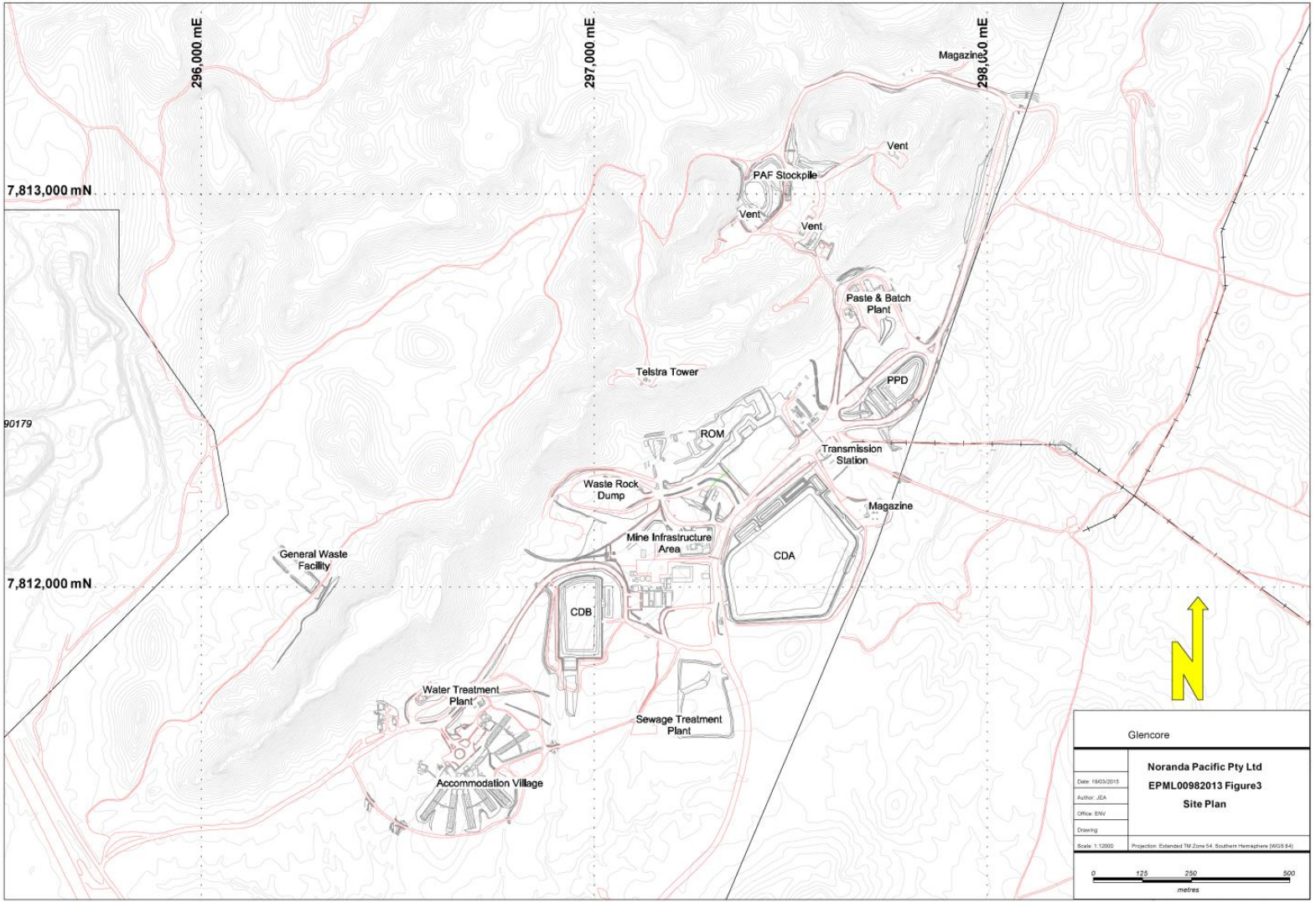


Figure 4 – Sewage Treatment Plant and Effluent Disposal

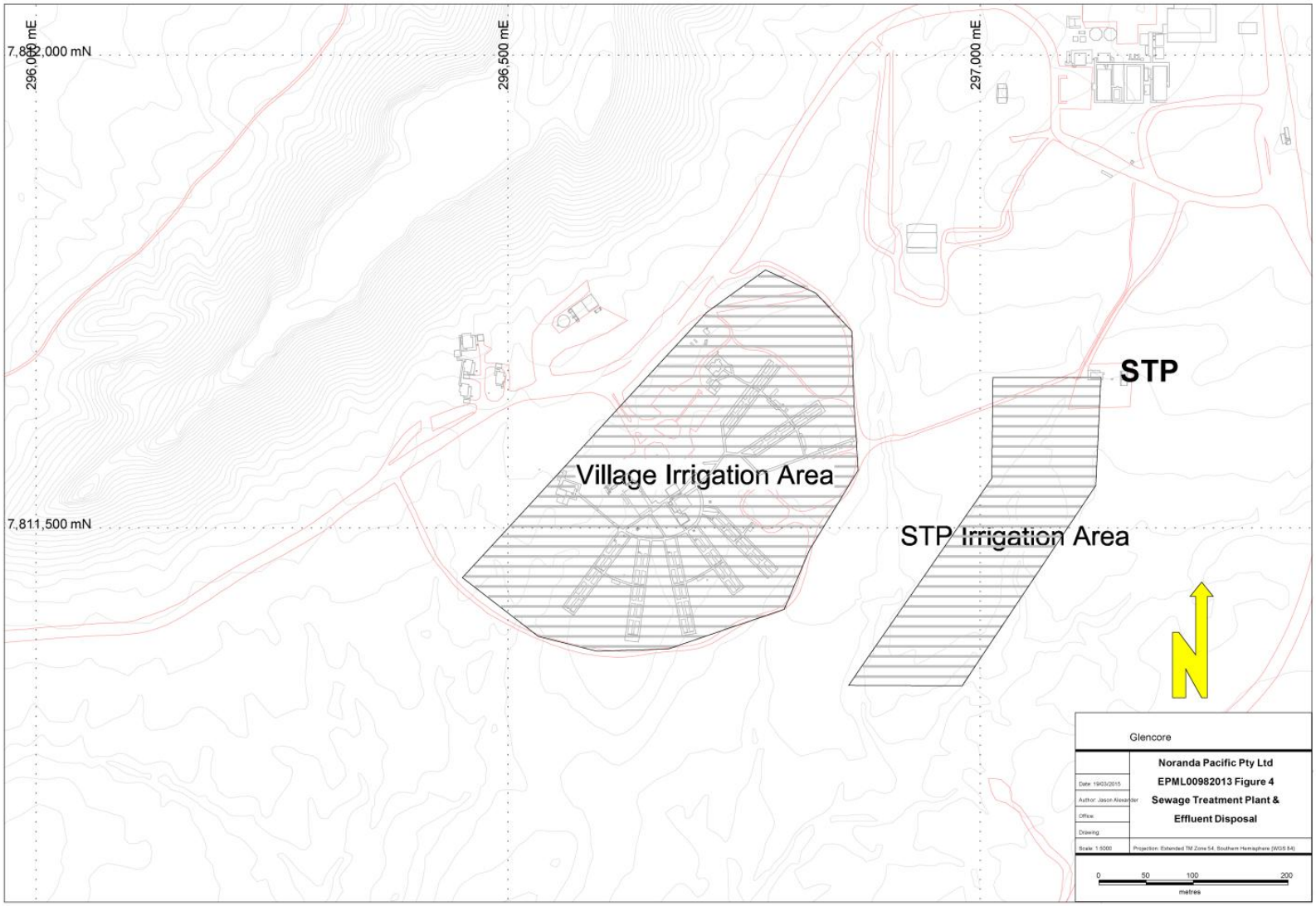


Figure 5 – General Waste Disposal Trench

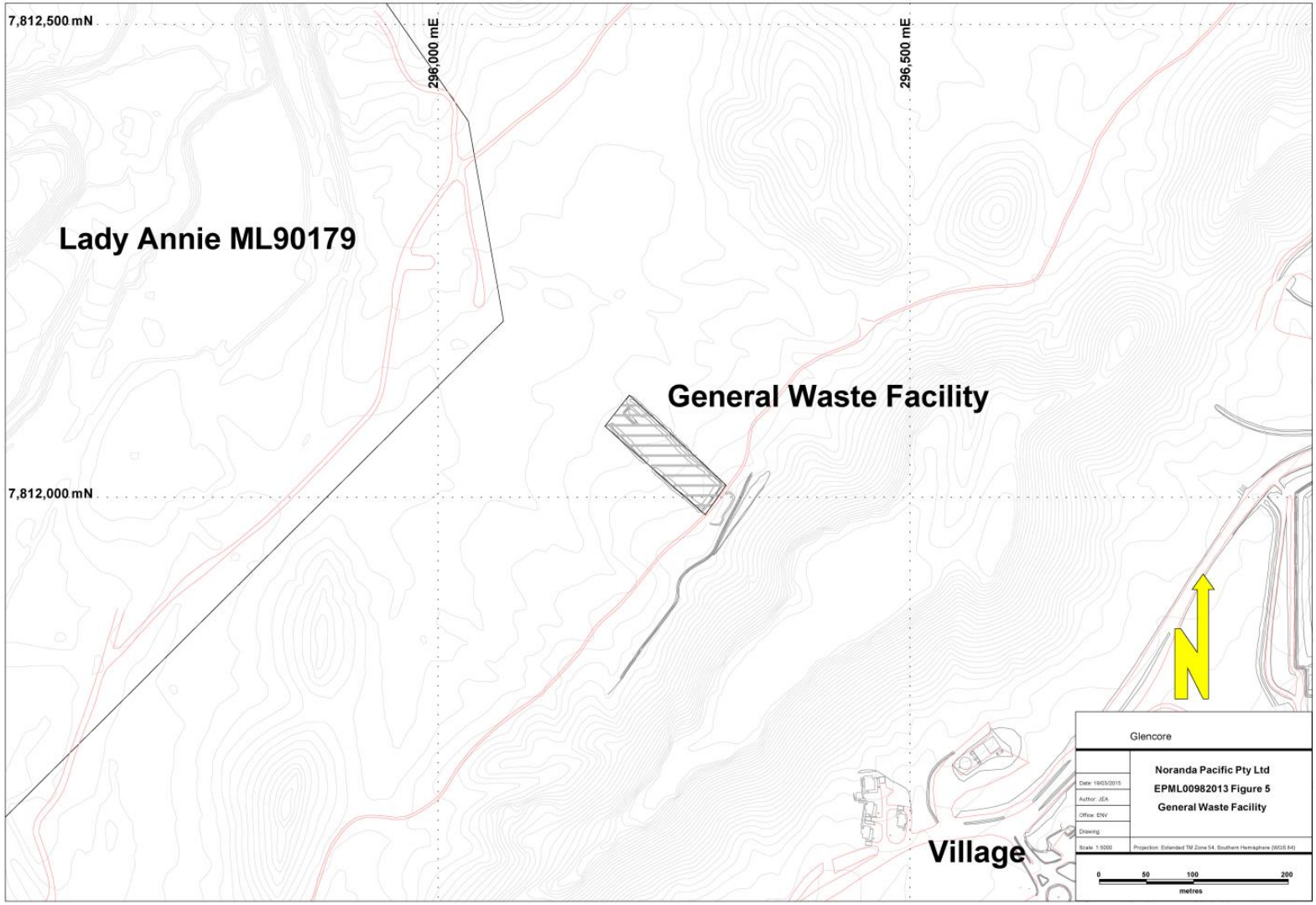
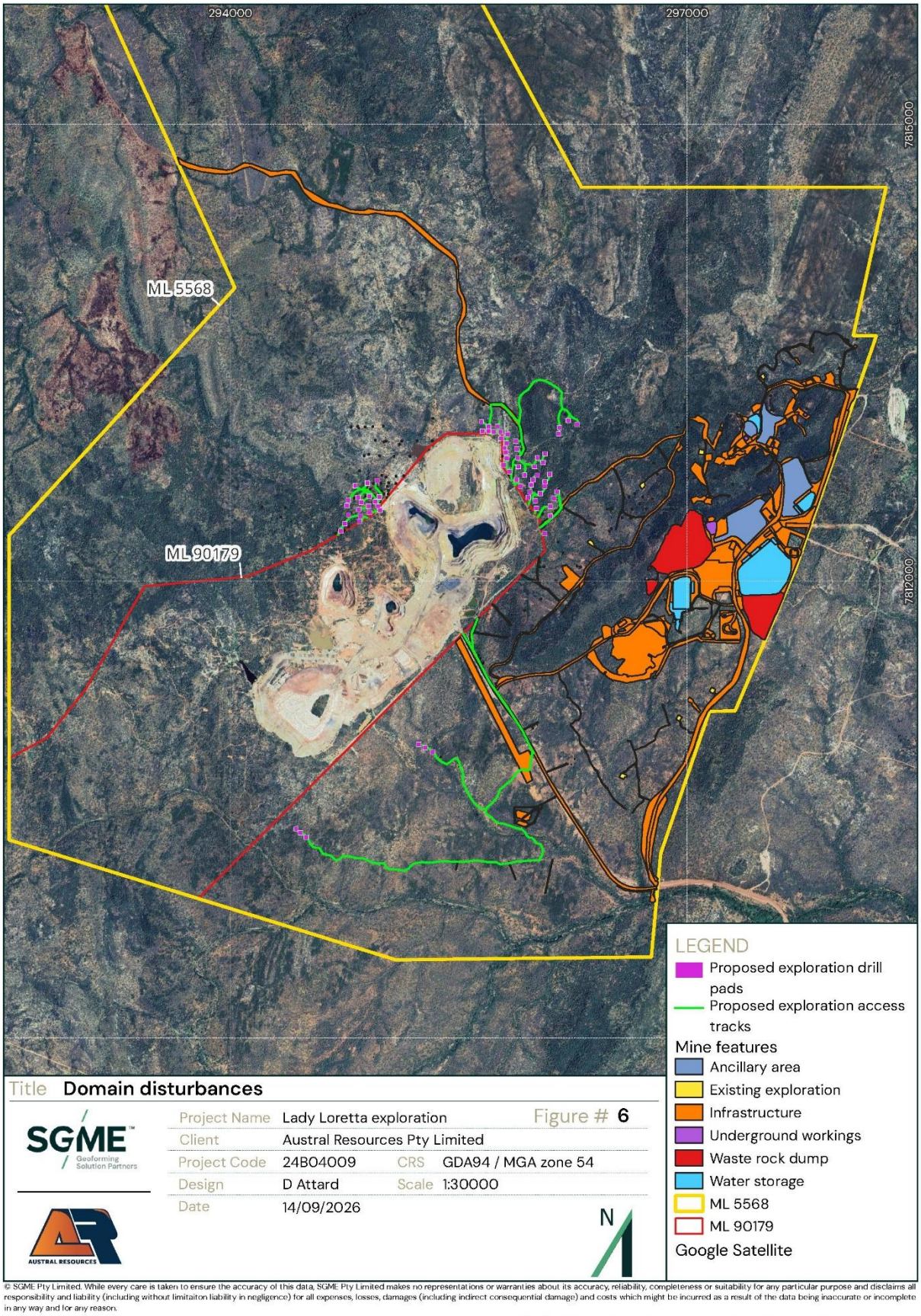


Figure 6 – Domain Disturbances



© SGME Pty Limited. While every care is taken to ensure the accuracy of this data, SGME Pty Limited makes no representations or warranties about its accuracy, reliability, completeness or suitability for any particular purpose and disclaims all responsibility and liability (including without limitaiton liability in negligence) for all expenses, losses, damages (including indirect consequential damage) and costs which might be incurred as a result of the data being inaccurate or incomplete in any way and for any reason.

END OF SCHEDULE J

END OF ENVIRONMENTAL AUTHORITY