Environmental Protection Act 1994

Environmental authority EPML00982113

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

Environmental authority number: EPML00982113

Environmental authority takes effect on 16 December 2020

Environmental authority holder(s)

Name(s)	Registered address
Conquest Mining Limited	Level 24 175 Liverpool St SYDNEY NSW 2000 Australia

Environmentally relevant activity and location details

Environmentally relevant activity/activities	Location(s)
Ancillary 63 - Sewage Treatment 1: Operating sewage treatment works, other than no-release works, with a total daily peak design capacity of (b-ii) more than 100 but not more than 1500EP otherwise	ML10343
Schedule 3 16: Mining gold ore	ML100002
Ancillary 31 - Mineral processing 2: Processing, in a year, the following quantities of mineral products, other than coke (b) more than 100,000t	ML10375
Ancillary 63 - Sewage Treatment 1: Operating sewage treatment works, other than no-release works, with a total daily peak design capacity of (b-ii) more than 100 but not more than 1500EP otherwise	ML10375
Schedule 3 16: Mining gold ore	ML10343
Ancillary 60 - Waste disposal 1: Operating a facility for disposing of, in a year, the following quantity of waste mentioned in subsection (1)(a) (a) less than 50,000t	ML10375
Ancillary 08 - Chemical Storage 1: Storing a total of 50t or more of chemicals of dangerous goods class 1 or class 2, division 2.3 under subsection (1)(a)	ML100002
Schedule 3 16: Mining gold ore	ML10375

Environmentally relevant activity/activities	Location(s)
Ancillary 60 - Waste disposal 1: Operating a facility for disposing of, in a year, the following quantity of waste mentioned in subsection (1)(a) (a) less than 50,000t	ML10343
Ancillary 08 - Chemical Storage 1: Storing a total of 50t or more of chemicals of dangerous goods class 1 or class 2, division 2.3 under subsection (1)(a)	ML10343
Schedule 3 18: Mining lead, silver or zinc seperately or in any combination	ML100002
Ancillary 60 - Waste disposal 1: Operating a facility for disposing of, in a year, the following quantity of waste mentioned in subsection (1)(a) (a) less than 50,000t	ML100002
Ancillary 08 - Chemical Storage 1: Storing a total of 50t or more of chemicals of dangerous goods class 1 or class 2, division 2.3 under subsection (1)(a)	ML10375
Schedule 3 18: Mining lead, silver or zinc seperately or in any combination	ML10343
Schedule 3 19: Mining metal ore, other than a metal ore mentioned in itms 11, 12, 14, 15, 16,17 or 18	ML100002
Schedule 3 17: Mining copper ore	ML100002
Schedule 3 18: Mining lead, silver or zinc seperately or in any combination	ML10375
Schedule 3 19: Mining metal ore, other than a metal ore mentioned in itms 11, 12, 14, 15, 16,17 or 18	ML10343
Schedule 3 17: Mining copper ore	ML10343
Ancillary 31 - Mineral processing 2: Processing, in a year, the following quantities of mineral products, other than coke (b) more than 100,000t	ML100002
Schedule 3 19: Mining metal ore, other than a metal ore mentioned in itms 11, 12, 14, 15, 16,17 or 18	ML10375
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Schedule 3 17: Mining copper ore	ML10375
Ancillary 31 - Mineral processing 2: Processing, in a year, the following quantities of mineral products, other than coke (b) more than 100,000t	ML10343

Additional information for applicants

Environmentally relevant activities

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

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

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

Contaminated land

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

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

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

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

Take effect

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

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

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

c) otherwise-on the day the authority is issued.

However, if the EA is authorising an activity that requires an additional authorisation (a relevant tenure for a resource activity, a development permit under the *Sustainable Planning Act 2009* or an SDA Approval under the *State Development and Public Works Organisation Act 1971*), this EA will not take effect until the additional authorisation has taken effect.

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

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

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

Date issued: 16 December 2020

Enquiries:
Minerals Business Centre
Department of Environment and Science

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Obligations under the *Environmental Protection Act 1994*

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

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

Conditions of environmental authority

Schedule A – General

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

A2 Contaminants with the potential to cause environmental harm must not be released directly or indirectly to the receiving environment, except as permitted under the conditions of this environmental authority.

A3 The environmental authority holder must ensure that the activity is carried out in accordance *with Table A1* as depicted in *Schedule J – Map 1 Location of authorised disturbance*.

Table A1 - Authorised disturbance ('Table A1')

Mine Domain	Mine Feature Name	Location (MGA94, Zone 55)		Maximum disturbance area (hectares)	Constraints
		Central Peg Coordinates			
Waste Rock and Ore	WRD	559926	7758123	70.0	Max height/slope angles
	Temporary PAF Stockpile	559159	7757793	4.85	
	Temporary NAF Stockpile	558999	7757715	4.0	
	Low grade ore stockpile	559592	7758734	5.4	
	Temporary waste rock stockpile - Underground	559410	7757915	1	
Run of Mine (ROM)	ROM Pad	559821	7758845	10	
	Finger 11 & 12 stockpile	559850	7758560	5.0	
Processing area	Process Plant Areas (includes chemical and concentrate storages)	560026	7759008	10.10	Scale and intensity
Mining Area	Area39 Pit & Portal Entrance	558690	7757946	6.4	
Mining Area	V2 Pit & Portal Entrance	559129	7758187	38	
Exploration	Exploration core shed and existing borrow pit.	558667	7759256	2.0	
Dams	Tailings Storage Facility	559447	7759237	55	
	Main Site Water Dam	558799	7759584	27.30	
	Site Water Drainage Pond 1	559446	7758597	1.54	Scale and intensity
	Site Water Drainage Pond 2	559999	7758654	1.47	
	Site Water Drainage Pond 3	559628	7758921	2.19	
Drainage	Clean Water Diversion Drain 1	560155	7757859	3.5	
	Clean Water Diversion Drain 2	559310	7757804	0.5	
	Clean Water	558698	7757730	0.71	

Mine Domain	Mine Feature Name	Location (MGA94, Zone 55)		Maximum disturbance area (hectares)	Constraints
		Central Peg Coordinates			
	Diversion Drain 3				
	Clean Water Diversion Drain 4	559031	7758977	0.5	
	Clean Water Diversion Drain 5	560150	7758650	2	
Drainage	Clean Water Diversion Drain 6	558731	7759091	0.27	
Drainage	Site Water Collection Drain 1 (West)	559578	7758201	1.5	
	Site Water Collection Drain 2 (South)	559620	7758602	0.5	
	Site Water Collection Drain 3 (Adjacent TSF)	559120	7759030	3.0	
Borrow Pits and Stockpiles	Material Borrow Area (Adjacent V2 Pit)	558650	7758320	25.0	Scale and intensity
	Clay Borrow Area (North)	558648	7759955	4	
	NAF Supply	559334	7759763	6.0	
	Layback V2 pitwall for additional NAF rock	559147	7758562	2.50	
	Topsoil Telstra Hill	559013	7758720	8.12	
	Topsoil Admin	560057	7759210	1.2	
	Topsoil MSWD	558661	7759824	0.5	
	Topsoil TSF	559848	7759388	2.27	
	Topsoil Temp stockpiles	558893	7757708	0.36	
	Topsoil A39	558468	7757946	2.3	
	Topsoil Treated Effluent (within Clay Borrow Area (North))	558686	7759921	N/A*	
	Topsoil (WRD north) – within WRD disturbance area	560276	7758578	N/A*	
	Topsoil (WRD south) – within WRD disturbance area	560466	7758115	N/A*	
Roads & Tracks	Mine Haul Roads	559507	7758206	21.82	
	Main Access Roads	557500	7763530	9.10	
Roads & Tracks	Mine Site Roads	558180	7759010	18.67	
	Powerline (Infrastructure Corridor and 22kVA underground mine powerline)	554320 557915, 558772	7756000 7758179, 7758107	15.93	
Pipelines	Burdekin River Water Pipeline	554320	7756000	N/A**	

Mine Domain	Mine Feature Name	Location (MGA94, Zone 55)		Maximum disturbance area (hectares)	Constraints
		Central Peg Coordinates			
	(ML10375)				Scale and intensity
	Burdekin River Water Pipeline (ML100002)	541269	7757230	19.2	
Ancillary Infrastructure	Landfill	560384	7758721	1.0	Scale and intensity
	Administration & Offices	560077	7759080	3.0	
	Main Accommodation Camp & Facilities	558455	7759323	3.0	
	Sewage Treatment Plant (Camp)	558483	7759557	0.5	
	Magazine	557518	7758400	2.0	
	Magazine UG	558111	7757699	0.3	
Ancillary Infrastructure	Treated Effluent Irrigation (Disposal) Area – Main Camp (within Clay Borrow Area (North))	558707	7759971	N/A*	
	Treated Effluent Irrigation (Disposal) Area – Administration complex (within Topsoil Admin)	560064	7759198	N/A*	Scale and intensity
	Mining Crib and Heavy Vehicle Go-line	560097	7758804	1.5	
	ERT Training area	560197	7758690	1.0	
	Hard Stand – Process Plant laydown	560169	7758928	0.3	
	Mobile Maintenance Workshop and laydown	560045	7758712	1.0	
	Contractor Maintenance Workshop and laydown	560121	7758611	1.0	
	Bulk fuel station	560095	7758881	0.3	
	Call Point 6 Site Access	556961	7758290	1.0	
	MSWD hardstand	558796	7759266	3.0	
	Telstra Tower	560238	7758797	1.0	
	Concrete batch plant	559096	7757818	N/A*	
	Underground contractor laydown	560220	7758630	1	

N/A - Identifies a mine feature that is already within a disturbed area noted in table*

*N/A**– Burdekin river pipeline (ML 10375) is same as Powerline Infrastructure corridor (same coordinates)*

A4 The holder of this environmental authority must:

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

b) Maintain such measures, plant and equipment in a proper and efficient condition;

c) Operate such measures, plant and equipment in a proper and efficient manner; and

d) Ensure all instruments and devices used for the measurement or monitoring of any parameter under any condition of this environmental authority are properly calibrated.

Monitoring

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

a) Carried out by an appropriately qualified person, periodically reviewed and updated as required to reflect operational or environmental changes;

b) Kept for a period of not less than five years;

c) Provided to the administering authority in the specified format within 10 business days of a request; and

d) Undertaken in accordance with the most recent version of any applicable standard or guideline for the activity.

A6 The following information must be recorded in relation to all monitoring required under a condition of this environmental authority:

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

b) The location where the sample was taken; and

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

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

Note: *'Reasonable measures' could include establishing and maintaining safe all-weather access to a monitoring location by upgrading roads/tracks, use of suitable automated sampling devices, developing alternative routes or utilising alternative transport.*

Financial assurance

A8 Financial assurance must be lodged with the administering authority in the amount, the form and within the time required by the administering authority.

Risk management

A9 The holder of this environmental authority must develop and implement a risk management system for mining activities which mirrors the content requirement of the Standard for Risk Management (ISO31000:2009), or the latest edition of an Australian standard for risk management, to the extent relevant to environmental management, by 30 November 2011.

Notification of emergencies, incidents and exceptions

A10 The environmental authority holder must notify the administering authority within 24 hours of becoming aware of any emergency, incident, sample result or event which does or may contravene a condition of this environmental authority.

A11 Within 10 business days following the initial notification of an emergency, event or incident, or receipt of monitoring results, whichever is the latter, further written advice must be provided to the administering authority, including the following:

a) Results and interpretation of any samples taken and analysed;

b) Outcomes of actions taken at the time to prevent or minimise unlawful environmental harm; and

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

Complaints

A12 The holder of this environmental authority must record all environmental complaints received about the mining activities including:

a) Name, address and contact number of the complainant;

b) Time and date of complaint;

c) Reasons for the complaint;

d) Investigations undertaken;

e) Conclusions formed;

f) Actions taken to resolve the complaint;

g) Any abatement measures implemented; and

h) Person responsible for resolving the complaint.

A13 When requested by the administering authority, the environmental authority holder must undertake specified monitoring within the timeframe nominated by the administering authority, to investigate any complaint related to the activity.

Third-party reporting

A14 The holder of this environmental authority must:

a) By **30 June 2017**, obtain from an appropriately qualified person a report on compliance with the conditions of this environmental authority;

b) Obtain further such reports at regular intervals, not exceeding three (3) yearly intervals, from the completion of the report referred to above; and

c) Provide each report to the administering authority within 90 days of its completion.

A15 Disturbance due to exploration activities in areas not scheduled to be mined must be rehabilitated in accordance with provisions detailed in the administering authority's *Code of Environmental Compliance for Exploration and Mineral Development Projects* (the Code). Where there is a discrepancy between the Code and this environmental authority, the conditions of the environmental authority apply.

END OF CONDITIONS FOR SCHEDULE A

Schedule B – Air

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

END OF CONDITIONS FOR SCHEDULE B

Schedule C – Waste Management

C1 All waste generated as part of the mining activities must be disposed of in a lawful manner at an off-site facility, with the exception of:

a) Waste rock and tailings, which must be characterised, handled and disposed of in accordance with condition **C3** of this environmental authority;

b) Timber pallets; and

c) Tyres in accordance with condition **C5**.

Note: *The only waste authorised to be burnt on site is explosive boxes, so long as the burning does not cause environmental harm.*

C2 General waste must only be disposed of into the waste disposal trench facility of ML10343 and identified in *Schedule J – Map 1 Location of authorised disturbance and Map 3 Location of Landfill Facility*.

C3 All waste rock and tailings must be:

a) *Geochemically characterised* and disposed of in a manner that minimises the potential generation and/or release of contaminants to the receiving environment;

b) Where the geochemical characteristics of waste rock is uncertain, this material must be treated as *potentially acid forming, saline mine drainage* or *neutral mine drainage forming* until demonstrated otherwise; and

c) Details pertaining to meeting the requirements of this condition must be recorded and retained until this environmental authority is surrendered.

C4 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.

C5 Subject to demonstrating to the administering authority that no other use higher in the waste management hierarchy can be practicably implemented, waste tyres generated from mining activities may be disposed of on site in non-acid forming waste rock dumps.

C6 Any seepage from the waste rock dump must be captured and directed to the processing plant and / or Main Site Water Dam and / or open pit. The open pit is to remain a sink at all times if receiving seepage from the mining operation.

C7 All waste rock must be disposed of to the V2 and A39 pits in preference to the Waste Rock Dump where practicable.

C8 All waste rock disposed of to the pits must be disposed of below the post-mining groundwater level where geochemical characterisation has determined the waste rock as Potentially Acid Forming.

C9 Waste rock removed as a result of underground mining operations, other than waste rock stored at the *Temporary waste rock stockpile - Underground* must be progressively backfilled to the underground workings.

Sewage Treatment

C10 Effluent from the sewage treatment plant must comply with the release limits stated in *Table C1*.

Table C1 – Treated sewage effluent contaminant release limits ('Table C1')

Contaminant	Unit	Release limit	Limit type	Frequency
5 day Biochemical oxygen demand (BOD)1	mg/L	20	Maximum	Monthly
Total suspended solids	mg/L	30	Maximum	Monthly
Nitrogen	mg/L	30	50th percentile[1]	Monthly
		40	Maximum	Monthly
Phosphorus	mg/L	15	Maximum	Monthly
E-coli	Organisms/100ml	1000	Maximum	Monthly
pH	pH units	6.0 – 9.0.	Range	Monthly

[1] must be calculated based on 12 consecutive samples

C11 Sewage effluent may only be released to the following locations:

a) within the nominated area(s) identified in *Table A1: Ancillary Infrastructure - Treated Effluent Irrigation (Disposal) Area* and *Schedule J – Map 1 Location of authorised disturbance*; or

b) other land for the purpose of dust suppression and/or fire fighting; or

c) reused as part of the mining activities

C12 The application of sewage effluent 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 or over spray of effluent.

C13 Sewage effluent releases must be monitored at the frequency and for the parameters specified in *Table C1.*

C14 The daily volume of sewage effluent release must be measured and documented.

C15 When circumstances prevent the irrigation or beneficial reuse of treated sewage effluent such as during or following rain events, measures must be taken to store or lawfully dispose of effluent.

C16 Sewage effluent must only be supplied to another person or organisation that has a written plan detailing how the user of the treated sewage effluent will comply with their *general environmental duty* whilst using the treated sewage effluent.

END OF CONDITIONS FOR SCHEDULE C

Schedule D – Noise

Noise limits

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

Table D1 – Noise limits ('Table D1')

Sensitive or Commercial Place						
Noise level DB(A) measured as:	**Monday to Saturday**			**Sundays and Public Holidays**		
	7am to 6pm	6pm to 10pm	10pm to 7am	9am to 6pm	6pm to 10pm	10pm to 9am
$L_{A10, adj, 10 mins}$	BG + 5dB	BG + 5dB	BG + 3dB	BG + 5dB	BG + 5dB	BG + 0dB
$L_{A1, adj, 10 mins}$	BG + 10dB	BG + 10dB	BG + 5dB	BG + 10dB	BG + 10dB	BG + 5dB

Note: BG means background noise

Airblast overpressure nuisance

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

Table D2 – Blasting noise limits ('Table D2')

Blasting noise limits	**Sensitive or commercial blasting noise limits place limits**		
	Monday to Friday 7am to 6pm **Saturday, Sunday and Public Holidays 9am – 6pm** **Open Cut Pits and Underground Workings**	**Monday to Friday 6pm to 7am** **Saturday, Sunday and Public Holidays 6pm – 9am** **Open Cut Pits**	**Monday to Friday 6pm to 7am** **Saturday, Sunday and Public Holidays 6pm – 9am** **Underground Workings**
Air blast overpressure	115 dB (Linear) Peak for nine (9) out of ten (10) consecutive blasts initiated and not greater than 120 dB (Linear) Peak at any time.	No Blasting	115 dB (Linear) Peak for nine (9) out of ten (10) consecutive blasts initiated and not greater than 120 dB (Linear) Peak at any time.
Ground vibration peak particle velocity	5mm/second peak particle velocity for nine (9) out of ten (10) consecutive blasts and not greater than 10 mm/second peak particle velocity at any time.	No Blasting	5mm/second peak particle velocity for nine (9) out of ten (10) consecutive blasts and not greater than 10 mm/second peak particle velocity at any time.

Monitoring and reporting

D3 Noise monitoring and recording must include the following descriptor characteristics and matters:

a) $L_{AN,T}$ (where N equals the statistical levels of 1, 10 and 90 and T = 15 mins)

b) background noise LA90

c) the level and frequency of occurrence of impulsive or tonal noise and any adjustment and penalties to statistical levels

d) atmospheric conditions including temperature, relative humidity and wind speed and directions

e) effects due to any extraneous factors such as traffic noise

f) location, date and time of monitoring

g) if the complaint concerns low frequency noise, Max LpLIN,T and one third octave band measurements in dB(LIN) for centre frequencies in the 10 – 200 Hz range.

Note: *Noise or blast monitoring as required by the administering authority in accordance with Schedule A - condition* ***A13***

END OF CONDITIONS FOR SCHEDULE D

Schedule E – Water

E1 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.

E2 The release of contaminants to waters must only occur from the release points specified in *Schedule E - Table E1 (Contaminant Release Points)* and depicted in *Schedule J* - Map 2 - Monitoring locations.

Schedule E - Table E1 (Contaminant Release Points)

Release Point	Latitude Or Northing (GDA94)	Longitude Or Easting (GDA94)	Contaminant Source And Location, And Description Of Release Point	Monitoring Point, Including Description and Longitude and Latitude (GDA94)	Receiving Waters Description
Main Site Water Dam Spillway	7,759,600	558,800	Main Site Water Dam Spillway Overflow	Dam Spillway (558,000 mE & 7,759,600 mN)	Herbert Creek

E3 The release of contaminants to waters from the release points must be monitored at the locations specified in *Schedule E - Table E1 (Contaminant Release Points)* for each quality characteristic and at the frequency specified in *Schedule E - Table E2 (Contaminant Release Limit and Trigger Levels)*.

E4 Site-specific background contaminant and trigger limits based on background data must be developed by the environmental authority holder. The holder of this environmental authority holder must provide this data to the administering authority by 1 October 2013.

E5 The release of contaminants to waters must not exceed the contaminant release limits stated in *Schedule E - Table E2 (Contaminant Release Limit and Trigger Levels)* for each quality characteristic.

Schedule E - Table E2 (Contaminant Release Limit and Trigger Levels)

Quality Characteristic	Contaminant Release Limit (total metals) [1]	Contaminant Trigger Level (dissolved metals)	Monitoring Frequency
Electrical conductivity (µS/cm)	435 or 95th percentile of reference, whichever is lowest	435	Daily during release (the first sample must be taken within 2 hours of commencement of release if safe to do so)
pH (pH units)	6.0 (minimum) or 5th percentile of reference, whichever is highest 7.5 (maximum) or 95th percentile of reference, whichever is lowest	6.0 (minimum) 7.5 (maximum)	
Suspended Solids (mg/L)	Same as reference data or 50mg/L, whichever is lowest	N/A	
Sulphate as SO_4^{2-}	1000 (mg/L) or 95th percentile of reference, whichever is lowest	80th percentile of reference	
Fluoride	2 (mg/L) or 95th percentile of reference, whichever is lowest	80th percentile of reference	
Aluminium	5 (mg/L) or 95th percentile of reference, whichever is lowest	0.055 (mg/L)	
Arsenic	0.5 (mg/L) or 95th percentile of reference, whichever is lowest	0.013 (mg/L)	
Boron	5 (mg/L) or 95th percentile of reference, whichever is lowest	0.0370 (mg/L)	
Cadmium	0.01 (mg/L) or 95th percentile of reference, whichever is lowest	0.0002 (mg/L)	
Chromium	1 (mg/L) or 95th percentile of reference, whichever is lowest	0.001 (mg/L)	
Cobalt	1 (mg/L) or 95th percentile of reference, whichever is lowest	0.0028 (mg/L)	
Copper	1 (mg/L) or 95th percentile of reference, whichever is lowest	0.0014 (mg/L)	
Iron	95th percentile of reference	80th percentile of reference	
Lead	0.1 (mg/L) or 95th percentile of reference, whichever is lowest	0.0034 (mg/L)	
Manganese	0.1 (mg/L) or 9[5th] percentile of reference, whichever is lowest	1.9 (mg/L)	

Quality Characteristic	Contaminant Release Limit (total metals) [1]	Contaminant Trigger Level (dissolved metals)	Monitoring Frequency
Mercury	0.002 (mg/L) or 95th percentile of reference, whichever is lowest	0.0006 (mg/L)	Daily during release (the first sample must be taken within 2 hours of commencement of release if safe to do so)
Molybdenum	0.15 (mg/L) or 95th percentile of reference, whichever is lowest	80th percentile of reference	
Nickel	1 (mg/L) or 95th percentile of reference, whichever is lowest	0.011 (mg/L)	
Selenium	0.02 (mg/L) or 95th percentile of reference, whichever is lowest	0.011 (mg/L)	
Silver	95th percentile of reference	80th percentile of reference	
Zinc	20 (mg/L) or 95th percentile of reference, whichever is lowest	0.008 (mg/L)	
Cyanide (as un-ionised HCN; measured as (CN))	0.007[2] (mg/L)	0.004[3] (mg/L)	

Notes: All metals and metalloids must be measured as total (unfiltered) and dissolved (filtered). Trigger levels for metal/metalloids apply if dissolved results exceed trigger. Contaminant limits apply for metal/metalloids if total results exceed limits.

[1] Where the 5th or 95th percentile of the long-term reference data is exceeded and the reference site also exceeds the value during the same event, the value of the reference site during the same event applies as the contaminant release limit.

[2] Based on 95% species protection aquatic ecosystem (Table 3.4.1)

[3] Based on 99% species protection aquatic ecosystem (Table 3.4.1)

E6 If quality characteristics of the release exceed any of the trigger levels specified in *Schedule E -Table E2 (Contaminant Release Trigger and Limit Levels)* during a release event, the holder of this environmental authority must compare the downstream results in the receiving waters during that release event to the trigger values specified in *Schedule E - Table E2 (Contaminant Release Trigger and Limit Levels)* and:

1. If the level of contaminants at the downstream site is the same as the background value or a lower value than the reference value for the quality characteristic during the release event then no action is to be taken (the administering authority will determine if no action is required); or
2. 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 & ARMCANZ 2000 methodology, into the potential for environmental harm and provide a written report to the administering authority within 3 months, outlining:
    a. Details of the investigations carried out; and
    b. Actions taken to prevent environmental harm.

*Note: Where an exceedance of a trigger level has occurred and is being investigated, in accordance with condition **E6 (b)** of this condition, no further reporting is required for subsequent trigger events for that quality characteristic within the three month investigation period.*

E7 The holder of this environmental authority must install, operate and maintain a stream flow gauging station to determine and record stream flows at the locations upstream of each release point as specified in *Schedule E - Table E3 (Contaminant Release During Flow Events)* for any receiving water into which a release occurs.

E8 Notwithstanding any other condition of this environmental authority, the release of contaminants to waters must only take place during periods of natural flow events specified as minimum flow in *Schedule E - Table E3 (Contaminant Release During Flow Events)* for the contaminant release point(s) specified in *Schedule E- Table E1 (Contaminant Release Points)*.

Schedule E - Table E3 (Contaminant Release During Flow Events)

Receiving Water Description	Release Point	Gauging Station Description	Latitude or Northing (GDA94)	Longitude or Easting (GDA94)	Minimum Flow in Receiving Water Required for a Release Event	Flow Recording Frequency
Herbert Creek	Main Site Water Dam Spillway	Herbert Creek Gauging Station 1	7,759,593	558,807	Depending on individual catchment this minimum flow trigger will be either the release comprising less than 5% of the natural flow or any natural flow in the receiving environment. The volume of flow can be determined by height of water or flow. The actual flow must be a quantifiable measurement. Example: ≥5m3/sec	Continuous (minimum daily)

E9 At the time of release the water flow volume in the respective receiving water must be at least twenty (20) times the volume at which respective treated waste waters are released.

E10 The daily quantity of contaminants released from each release point must be measured and recorded at the monitoring points in *Schedule E - Table E1 (Contaminant Release Points)*.

E11 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.

E12 The holder of this environmental authority must notify the administering authority as soon as practicable of a release event (no later than twenty four (24) hours of having commenced releasing mine affected water to the receiving environment). Notification must include the submission of written verification to the administering authority of the following information:

1. Release commencement date/time;
2. Expected release cessation date/time;
3. Release point/s;
4. Release volume (estimated);
5. Receiving water/s including the natural flow rate; and
6. Any details (including available data) regarding likely impacts on the receiving water(s).

E13 The holder of this environmental authority must notify the administering authority as soon as practicable, (nominally within twenty-four (24) hours after cessation of a release) of the cessation of a release notified under condition **E12** and within 20 days provide the following information in writing:

1. Release cessation date/time;
2. Natural flow volume in receiving water;
3. Volume of water released;
4. Details regarding the compliance of the release with the conditions of this environmental authority (i.e. contamination limits, natural flow, discharge volume);
5. All in-situ water quality monitoring results; and
6. Any other matters pertinent to the water release event.

E14 Water storages stated in *Schedule E - Table E4 (Water Storage Monitoring)* which are associated with the release points must be monitored for the water quality characteristics specified in *Schedule E - Table E5 (Onsite Water Storage Contaminant Limits)* at the monitoring locations and at the monitoring frequency specified in *Schedule E - Table E4 (Water Storage Monitoring)*.

Schedule E- Table E4 (Water Storage Monitoring)

Water Storage Description	Latitude or Northing (GDA94)	Longitude or Easting (GDA94)	Monitoring Location Latitude or Northing (GDA94	Monitoring Location Longitude of Easting (GDA94)	Frequency of Monitoring
Main Site Water Dam	7,759,530 7,759,600 7,759,460 7,758,970 7,759,030 7,759,320	558,440 559,030 559,190 558,140 558,580 558,430	7,759,210	558,910	Quarterly
Tailings Storage Facility	7,759,420 7,759,070 7,758,670 7,759,050	559,270 559,720 559,340 558,940	7,759,660	559,360	Quarterly
V2 Pit	7,758,270 7,758,450 7,758,220 7,757,890 7,758,030	558,860 559,150 559,460 559,300 558,890	7,758,470	559,280	Quarterly
Site Water Drainage Pond 1	7,758,662 7,758,673 7,758,513 7,758,552 7,758,603	559,362 559,498 559,467 559,409 559,396	7,758,660	559,330	Quarterly
Site Water Drainage Pond 2	7,758,794 7,758,589 7,758,582 7,758,665 7,758,727	560,070 560,064 560,019 559,931 559,982	7,758,500	559,530	Quarterly
Site Water Drainage Pond 3	7,759,060 7,758,852 7,758,775 7,758,784	559,781 559,694 559,607 559,524	7,758,750	559,420	Quarterly

E15 In the event that waters storages defined in *Schedule E - Table E4 (Water Storage Monitoring)* exceed the contaminant limits defined in *Schedule E - Table E5 (Onsite Water Storage Contaminant Limits)*, the holder of the environmental authority must implement measures, where practicable, to prevent access to waters by livestock.

Schedule E - Table E5 (Onsite Water Storage Contaminant Limits)

Quality Characteristic	Test Value	Contaminant Limit[1]
pH (pH unit)	Range	Greater than 4, less than 9[2]
EC (µS/cm)	Maximum	5970
Sulphate (total) (mg/L)	Maximum	1000
Fluoride (total) (mg/L)	Maximum	2
Aluminium (total) (mg/L)	Maximum	5
Arsenic (total) (mg/L)	Maximum	0.5
Cadmium (total) (mg/L)	Maximum	0.01
Cobalt (total) (mg/L)	Maximum	1
Copper (total) (mg/L)	Maximum	1
Lead (total) (mg/L)	Maximum	0.1
Mercury (total) (mg/L	Maximum	0.002
Molybdenum (total) (mg/L)	Maximum	0.15
Nickel (total) (mg/L	Maximum	1
Selenium (total) (mg/L)	Maximum	0.02
Zinc (total) (mg/L)	Maximum	20
Cyanide WAD (total) (mg/L)	Maximum	0.5[3]
Cyanide free (total) (mg/L)	Maximum	0.02[3]

Notes:
1 Contaminant limit based on ANZECC & ARMCANZ (2000) stock water quality guidelines.
2 Page 4.2-15 of ANZECC & ARMCANZ (2000) "Soil and animal health will not generally be affected by water with pH in the range of 4-9".
3 Based on a site derived value.

E16 The quality of the receiving waters must be monitored at the locations specified in *Schedule E - Table E7 (Receiving Water Reference Sites and Down Stream Monitoring Points)* for each quality characteristic and at the frequency stated in *Schedule E - Table E6 (Receiving Waters Contaminant Limit and Trigger Levels).*

Schedule E - Table E6 (Receiving Waters Contaminant Limit and Trigger Levels)

Quality Characteristic	Limit	Trigger Level	Monitoring Frequency
pH	5.0 (minimum) or 5th percentile of reference, whichever is highest. 9.0 (maximum) or 95th percentile of reference, whichever is lowest	6.0 (minimum) 7.5 (maximum	Daily when a release is occurring
Electrical Conductivity (µS/cm)	1000 or 95th percentile of reference, whichever is lower	435	
Suspended solids (mg/L)	Same as reference data or 50mg/L, whichever is the lowest.	N/A	
Hardness ($CaCO_3$)	Interpretational purposes only		
Turbidity (NTU)	95th percentile of reference	80th percentile of reference	
Sulphate (SO_4^{2-}) (mg/L)	1000 (mg/L) or 95th percentile of reference, whichever is lowest.	80th percentile of reference	
Fluoride	2 (mg/L) or 95th percentile of reference, whichever is lowest.	80th percentile of reference	
Aluminium	5 (mg/L) or 95th percentile of reference, whichever is lowest	0.055 (mg/L)	
Arsenic	0.5 (mg/L) or 95th percentile of reference, whichever is lowest.	0.013 (mg/L)	
Boron	95th percentile of the reference	80th percentile of reference	
Cadmium	0.01 (mg/L) or 95th percentile of reference, whichever is lowest.	0.0002 (mg/L)	
Chromium	0.5 (mg/L) or 95th percentile of reference, whichever is lowest.	0.001 (mg/L)	
Cobalt	1 (mg/L) or 95th percentile of reference, whichever is lowest.	0.0028 (mg/L)	
Copper	1 (mg/L) or 95th percentile of reference, whichever is lowest.	0.0014 (mg/L)	
Iron	95th percentile of the reference	80th percentile of reference	
Lead	0.1 (mg/L) or 95th percentile of reference, whichever is lowest.	0.0034 (mg/L)	
Manganese	95th percentile of reference, whichever is lowest.	1.9 (mg/L) or 80th percentile of reference 1 whichever is higher	
Mercury	0.002 (mg/L) or 95th percentile of reference, whichever is lowest.	0.0006 (mg/L)	
Molybdenum	0.15 (mg/L) or 95th percentile of reference, whichever is lowest.	80th percentile of reference	
Nickel	1 (mg/L) or 95th percentile of reference, whichever is lowest.	0.011 (mg/L)	
Selenium	0.02 (mg/L) or 95th percentile of reference, whichever is lowest.	0.011 (mg/L)	
Silver	95th percentile of the reference	80th percentile of reference	
Zinc	20 (mg/L) or 95th percentile of reference, whichever is lowest.	0.008 (mg/L)	
Cyanide (as un-ionised HCN; measured as (CN))	0.007[2] (mg/L)	0.004[3] (mg/L)	

Notes:
All metals and metalloids must be measured as total (unfiltered) and dissolved (filtered). Trigger levels for metal/metalloids apply if dissolved results exceed trigger. Contaminant limits apply for metal/metalloids if total results exceed limits.

[1] Where the 5th or 95th percentile of the long-term reference data is exceeded and the reference site also exceeds the value during the same event, the value of the reference site during the same event applies as the contaminant release limit.

[2] Based on 95% species protection aquatic ecosystem (Table 3.4.1)

[3] Based on 99% species protection aquatic ecosystem (Table 3.4.1)

Schedule E - Table E7 (Receiving Water Reference Sites and Down Stream Monitoring Points)

Monitoring Points	Receiving Waters Location Description	Latitude or northing (GDA94)	Longitude or easting (GDA94)
Reference[1] / upstream Monitoring Points – a minimum 2 sites must be nominated			
Herbert Creek 1 (HC1)	Herbert Creek 200 meters upstream of mining activities.	7,757,800	558,300
Herbert Creek 2 (HC2)	Herbert Creek 600 metres upstream of mining activities	7,757,300	558,500
Bogie River 1 (BR1)	Bogie River 7 kilometres upstream of Herbert Creek/Bogie River confluence	7,773,400	561,000
Bogie River 2 (BR2)	Bogie River 2 kilometres upstream of Herbert Creek/Bogie River confluence	7,771,200	555,200
Downstream Monitoring Points			
Herbert Creek 3 (HC3)	Herbert Creek 70 metres downstream of mining activities	7,761,600	558,400
Herbert Creek 4 (HC4)	Herbert Creek 500 metres downstream of release point.	7,765,100	556,300
Bogie River 3 (BR3)	Bogie River downstream of Herbert Creek/Bogie River confluence	7,771,395	555,167
Bogie River 4 (BR4)	Bogie River 7 kilometres downstream of Herbert Creek/Bogie River confluence	7,771,196	548,559

Notes:

1. *The upstream monitoring points should be within 2 km of the release point.*
2. *The downstream point should not be greater than 5 km from the release point.*
3. *The data from upstream reference monitoring points must not be used where they are affected by releases from other mines.*

Reference sites must:

1. *Be from the same bio-geographic and climatic region;*
2. *Have similar geology, soil types and topography;*
3. *Contain a range of habitats similar to those at the test sites;*
4. *Have a similar flow regime; and*
5. *Not be so close to the test sites that any disturbance at the test site also results in a change at the reference site.*

E17 If quality characteristics of the receiving water at the downstream monitoring points exceed any of the trigger levels specified in *Schedule E - Table E6 (Receiving Waters Contaminant Limit and Trigger Levels)* the holder of this environmental authority must compare the downstream results to the reference site results in the receiving waters and:

1. Where the downstream result is the same as the background, 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 (the administering authority will determine if no action is required); or
2. Where the downstream results exceed the reference site complete an investigation in accordance with the ANZECC & ARMCANZ 2000 methodology, into the potential for environmental harm and provide a written report to the administering authority within 3 months, outlining:
   a. Details of the investigations carried out; and
   b. Actions taken to prevent environmental harm.

*Note: Where an exceedance of a trigger level has occurred and is being investigated, in accordance with condition **E17 (b)(ii)**, no further reporting is required for subsequent trigger events for that quality characteristic within the three month investigation period.*

E18 Release of contaminants must not result in an excedence of contaminant limits stated in *Schedule E - Table E6 (Receiving Water Contaminant Limit and Trigger Levels)*.

E19 The environmental authority holder must install all weather access and a safe sampling location at the Main Site Water Dam Spillway and take reasonable action to provide all weather access to the receiving environment and background monitoring locations defined in *Schedule E - Table E7 (Receiving Water Reference Sites and Down Stream Monitoring Points).*

E20 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 E - Table E7 (Receiving Water Reference Sites and Down Stream Monitoring Points)* and for the parameters defined in *Schedule E - Table E8 (Stream Sediment Contaminant Limit and Trigger Levels)*.

E21 If quality characteristics of the release exceed any of the trigger levels specified in *Schedule E - Table E8 (Stream Sediment Contaminant Limit and Trigger Levels)* during a release event, the holder of this environmental authority must compare the results of the downstream site to the data from reference monitoring sites, and:

1. 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
2. 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 & ARMCANZ 2000 methodology, into the potential for environmental harm and provide a written report to the administering authority within three (3) months, outlining:
   a. Details of the investigations carried out; and
   b. Actions taken to prevent environmental harm.

*Note: Where an exceedance of a trigger level has occurred and is being investigated, in accordance with condition **E21 (b)(ii)**, no further reporting is required for subsequent trigger events for that quality characteristic within the three month investigation period.*

E22 Releases of contaminants must not result in an exceedance of sediment contaminant limits stated in *Schedule E - Table E8 (Stream Sediment Contaminant Limit and Trigger Levels)*.

Schedule E- Table E8 (Stream Sediment Contaminant Limit and Trigger Levels)

Parameter	Unit	Contaminant Limit	Trigger Level
Arsenic	mg/kg	70[3] or 3 times the reference value[1], whichever is higher	Reference value[1] or 20[2], whichever is higher.
Bismuth	mg/kg	3 times the reference value[1]	Reference value[1]
Boron	mg/kg	3 times the reference value[1]	Reference[1]
Cadmium	mg/kg	10[3] or 3 times the reference value[1], whichever is higher	Reference value[1] or 1.5[3], whichever is higher.
Chromium	mg/kg	370[3] or 3 times the reference value[1], whichever is higher	Reference value[1] or 80[2], whichever is higher.
Cobalt	mg/kg	3 times the reference value[1]	Reference[1]
Copper	mg/kg	270[3] or 3 times the reference value[1], whichever is higher	Reference[1]or 65[2], whichever is higher.
Lead	mg/kg	220[3] or 3 times the reference value[1], whichever is higher	Reference value[1] or 50[2] whichever is higher.
Manganese	mg/kg	3 times the reference value[1]	Reference[1]
Mercury	mg/kg	1[3] or 3 times the reference value[1], whichever is higher	Reference value[1] or 0.15[2] whichever is higher.
Nickel	mg/kg	52[3] or 3 times the reference value[1], whichever is higher.	Reference value[1]or 21[2], whichever is higher.
Selenium	mg/kg	3 times the reference value[1]	Reference value[1]
Silver	mg/kg	3.7[3] or 3 times the reference value[1], whichever is higher	Reference value[1] or 12[2], whichever is higher.
Tin	mg/kg	3 times the reference value[1]	Reference value[1]
Uranium	mg/kg	3 times the reference value[1]	Reference value[1]
Zinc	mg/kg	410[3] or 3 times the reference value[1], whichever is higher	Reference value[1] or 200[2] or, whichever is higher.
Particle size distribution		Interpretational purposes only	Interpretational purposes only

[1] *Reference sites are defined in Schedule E - Table E7*
[2] *ANZECC (2000) Interim Sediment Quality Guidelines – low values based on total sediments*
[3] *ANZECC (2000) Interim Sediment Quality Guidelines – high values based on total sediment*

E23 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 of 1998*.

E24 A REMP must be developed and implemented by 30 March 2012 to monitor and record the effects of the release of contaminants on the receiving environment periodically and whilst contaminants are being discharged from the site, with the aims of identifying and describing the extent of any adverse impacts to local environmental values, and monitoring any changes in the receiving water. A copy of the REMP must be provided to the administering authority prior to its implementation and due consideration given to any comments made on the REMP by the administering authority.

For the purposes of the REMP, the receiving environment is the waters of Herbert Creek, Bogie River and drainage channels on the eastern side of the lease, including connecting waterways, within 20 km downstream of the release, or further if an impact is detected beyond 20 km.

E25 The REMP must address (but not necessarily be limited to) the following:

1. Description of potentially affected receiving waters including key communities and background water quality characteristics based on accurate and reliable monitoring data that takes into consideration any temporal variation (e.g. seasonality);
2. Description of applicable environmental values and water quality objectives to be achieved (i.e. as scheduled pursuant to the Environmental Protection (Water) Policy 2009);
3. Any relevant reports prepared by other governmental or professional research organisations that relate to the receiving environment within which the REMP is proposed;
4. Water quality targets within the receiving environment to be achieved, and clarification of contaminant concentrations or level indicating adverse environmental impacts during the REMP;
5. Monitoring for any potential adverse environmental impacts caused by the release;
6. Monitoring of stream flow and hydrology;
7. Monitoring of toxicants should consider the indicators specified in *Schedule E - Table E2 (Contaminant Release Limits and Trigger Levels)* to assess the extent of the compliance of concentrations with water quality objectives and/or the ANZECC & ARMCANZ 2000 guidelines for slightly to moderately disturbed ecosystems;
8. Monitoring as a minimum the parameters specified in *Schedule E - Table E2 (Contaminant Release Limits and Trigger Levels)* (in addition to dissolved oxygen saturation and temperature);
9. Monitoring biological indicators (for macroinvertebrates in accordance with the AusRivas methodology / the latest edition of the Administering Authority's monitoring and sampling manual) and metals/metalloids in sediments (in accordance with ANZECC & ARMCANZ 2000, BATLEY and/or the most recent version of AS5667.1 Guidance on Sampling of Bottom Sediments) for permanent, semi-permanent water holes and water storages;
10. The location of monitoring points (including the locations specified in *Schedule E - Table E7 (Receiving Water Reference Sites and Down Stream Monitoring Points)* which are reference and downstream impacted sites for each release point;
11. The frequency or scheduling or sampling and analysis sufficient to determine water quality objectives and to derive site specific reference values within 2 years (depending on wet season flows) in accordance with the latest edition of the Administering Authority's Queensland Water Quality Guidelines. For ephemeral streams, this should include periods of flow irrespective of mine or other discharges;
12. Specify sampling and analysis methods and quality assurance and control;
13. Any historical datasets to be relied upon;
14. Description of the statistical basis on which conclusions are drawn;
15. Any spatial and temporal controls to exclude potential confounding factors;

16. Detailed investigation and description of the characteristics of Herbert Creek riparian vegetation communities downstream of the lease (those communities potentially affected by reduced groundwater levels as a result of reduced discharge from up gradient shallow aquifers impacted by dewatering).
17. Monitoring of a representative range of vegetation communities detailed in (16) at minimum 3 monthly intervals up to Year 5 of operations, and then at minimum 6 monthly intervals for the remainder of project operations, to determine potential impacts caused by reduced groundwater levels.
18. Details of permanent vegetation monitoring transects and quadrats derived for (16) should be provided to the Department within 6 months, or by 30 January 2012 so that they may be included in the EA.
19. A set of indicators or criteria suitable for providing an early indication of impacts due to reduced groundwater levels should be developed and a comparison made against monitoring results collected while undertaking (17).
20. A report detailing monitoring results, performance against indicators and general performance of the vegetation communities in the downstream Herbert Creek environment should be included in the annual REMP report; and
21. A suitable number of representative groundwater monitoring bores should be installed within 6 months, in aquifers underlying the downstream Herbert Creek environment which could potentially be impacted by reduced discharge from the upstream aquifers on the mine site. The number and location of monitoring points should be suitable to represent potentially groundwater dependent ecosystem identified as a result of carrying out the requirements of (16). The initial REMP report should comprehensively detail and provide supporting evidence for the selection of monitoring locations.

Schedule E – Table E10 (Location and monitoring frequency of permanent riparian vegetation transects at MCO)

Vegetation Community	Receiving Environment Site	Transect	Easting (GDA94)	Northing (GDA94)	Up to year 5 of operations (2013-2018) Sampling Regime	Year 5 onwards (2018 onwards) Sampling Regime
RE 11.12.1	HC1	HC1V1	558279	7757748	Monitoring should occur on a 3 monthly basis	Monitoring should occur bi-annually
		HC1V2	558285	7757720		
		HC1V3	558298	7757765		
		HC1V4	558299	7757725		
RE 11.3.25b	HC3	HC3V1	558105	7761659		
		HC3V2	558145	7761642		
		HC3V3	558124	7761673		
		HC3V4	558102	7761675		
	HC4	HC4V1	556545	7764940		
		HC4V2	556622	7764873		
		HC4V3	556548	7764966		
		HC4V4	556629	7764895		
	BR1	BR1V1	560949	7773455		
		BR1V2	560905	7773464		
		BR1V3	560986	7773567		
		BR1V4	560918	7773545		

E26 A report outlining the findings of the REMP, including all monitoring results and interpretations in accordance with relevant conditions must be prepared and submitted in writing to the administering authority by 30 June each year. This should include an assessment of background water quality, any assimilative capacity for those contaminants monitored and the suitability of current discharge limits to protect downstream environment values. Where risk to the environment from mining activities is identified the REMP must be updated to include all action necessary to protect the receiving environment.

E27 Water contaminated by the mining activity may be piped, trucked or transferred by some other means that does not contravene the conditions of this authority for the purpose of supplying livestock water to directly adjoining properties or a third party.

E28 Water contaminated by the mining activity to supply livestock drinking water may only be piped, trucked or transferred if the quality meets the limits specified in *Schedule E - Table E5 (Onsite Water Storage Contaminant Limits)*.

E29 Water supplied for livestock watering purposes under *condition* **E27**, must be contained within a storage facility (tank or dam) such that it is not directly or indirectly released to the receiving environment.

E30 The volume and quality of water supplied under *condition* **E27** must be monitored and recorded. The quality parameters must include at a minimum, those listed in *Schedule E - Table E5 (Onsite Water Storage Contaminant Limits)*.

E31 If the responsibility of water contaminated by mining activities (the water) is given or transferred to another person in accordance with *condition* **E28**, *condition* **E29** and *condition* **E30**:

1. The responsibility of the water must only be given or transferred in accordance with a written agreement (the third party agreement);
2. The written agreement must require the recipient of the water not to use that water in a manner which would contravene a government standard, legalisation or policy or a condition of this environmental authority; and
3. The agreement must highlight that the use of contaminated water for stock must not be used in contravention of any food safety standards; and
4. Include in the third party agreement a commitment from the person utilising the water to use water in such a way as to prevent environmental harm or public health incidences 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 and waters.

E32 All determinations of water quality must be:

1. Performed by a person or body possessing appropriate experience and qualifications to perform the required measurements;
2. Made in accordance with methods prescribed in the latest edition of the Administering Authority's monitoring and sampling manual;
3. Collected from the monitoring locations identified within this environmental authority, within 2 hours of each other where possible;
4. Carried out on representative samples; and
5. For laboratory determinations, carried out in a laboratory accredited (e.g. NATA) for the method of analysis being used.

E33 The release of contaminants directly or indirectly to waters must not:

1. Produce any visible discolouration of receiving waters; or
2. 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.

E34 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 and frequency e.g. REMP reporting date:

1. The date on which the sample was taken;
2. The time at which the sample was taken;
3. The monitoring point at which the sample was taken;
4. The measured or estimated daily quantity of the contaminants released from all release points;
5. The release flow rate at the time of sampling for each release point;
6. The results of all monitoring and details of any exceedences with the conditions of this environmental authority; and
7. Water quality monitoring data must be provided to the administering authority in the specified electronic format upon request.

E35 A Water Management Plan must be developed, implemented, and maintained that provides for the proper and effective management of the actual and potential environmental impacts resulting from the mining activity and to ensure compliance with the conditions of this environmental authority.

E36 The Water Management Plan must be developed, implemented and maintained and must include at least the following components:

1. Contaminant Source Study;
2. Site Water Balance and Model;
3. Water Management System;
4. Saline Drainage Prevention and Management Measures;
5. Acid Rock Drainage Prevention and Management Measures (if applicable);
6. Emergency and Contingency Planning; and
7. Monitoring and Review.

E37 Each year the holder of the environmental authority must undertake a review of the Water Management Plan prior to the wet season (i.e. by 1 October) and a further review following the wet season (i.e. by 1 May the following year) to ensure that proper and effective measures, practices or procedures are in place so that the mine is operated in accordance with the conditions of this environmental authority and that environmental harm is prevented or minimised.

E38 A copy of the Water Management Plan and/or a review of the Water Management Plan must be provided to the administering authority on request.

E39 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 storm water.

E40 The Erosion and Sediment Control Plan must be included in the Plan of Operations, and provide for at least the following stormwater management functions:

1. Prevent or minimise the contamination of stormwater;
2. Diverting uncontaminated stormwater run-off around areas disturbed by mining activities or where contaminants or wastes are stored or handled;
3. Contaminated stormwater runoff, incident rainfall and leachate is collected; and treated, reused, or released in accordance with the conditions of this environmental authority;
4. Roofing or minimising the size of areas where contaminants or wastes are stored or handled;
5. Using alternate materials and or processes (such as dry absorbents) to clean up spills that will minimise the generation of contaminated waters;
6. Erosion and sediment control structures are placed to minimise erosion of disturbed areas and prevent the contamination of any waters;
7. Procedures to ensure that erosion and sediment control structures are maintained and adequate storage is available in sediment dams in accordance with design criteria; and
8. Training of staff that will be responsible for maintenance and operations of sediment and erosion control structures.

E41 Erosion protection measures and sediment control measures must be implemented and maintained to minimise erosion and the release of sediment and contamination of storm water.

E42 The maintenance and cleaning of any vehicles, plant or equipment must not be carried out in areas from which contaminants can be released into any receiving waters.

E43 Any spillage of wastes, contaminants or other materials must be cleaned up as quickly as practicable to minimise the release of wastes, contaminants or materials to any stormwater drainage system or receiving waters.

E44 The extraction of groundwater, other than that extracted as a result of pit dewatering activities, must not cause a decline in water levels within the associated aquifer.

E45 The extraction of groundwater must not cause environmental harm to any groundwater dependant ecosystems

E46 The extraction of groundwater as a result of pit dewatering activities must not exceed 400ML per annum.

E47 Groundwater recovered through dewatering activities must not be released directly to the environment, and must be pumped directly to the process plant in the first instance, or to existing site water management infrastructure.

E48 Groundwater quality and level must be monitored at the locations and frequencies defined in *Schedule E - Table E11 (Groundwater Monitoring Locations and Frequency)* for the quality characteristics identified in *Schedule E - Table E12 (Groundwater Contaminant Limits and Trigger Levels)*.

E49 Additional groundwater monitoring bores must be installed at appropriate intervals upstream and downstream of Pit V2 to enable detection, and monitoring of, a potential contaminant gradient which may occur along the fractured rock aquifer (lineament) by 30 March 2012. The final monitoring bore in the sequence, should be installed at a suitable location representative of groundwater discharge from the rock aquifer to Herbert Creek.

E50 Electronic dataloggers must be installed to monitor groundwater levels in the bores and at the intervals nominated in *Schedule E - Table E11 (Groundwater Monitoring Locations and Frequency)*.

E51 Groundwater drawdown must be modelled using a numerical groundwater model and the numerical groundwater model must be validated annually using measured standing water level data.

E52 In the event that the actual groundwater drawdown varies from the modelled groundwater drawdown for the Stage 4 pit cut-back and underground mining to -26.4mAHD, the environmental authority holder must undertake a review to determine compliance with condition E44 and E45 and document this review.

E53 Semi-permanent waterholes which occur along Herbert Creek downstream of the mining operation should be identified and recorded in consultation with landholders. Permanent water level monitoring locations ie. a surveyed depth board, should be installed at each waterhole in a manner which causes minimal damage to the bed, channel and surrounding vegetation as soon as water levels have dropped sufficiently to allow access. Surface water levels should be monitored and recorded on a monthly basis at each semi-permanent waterhole by this method or in the interim by visual method (photographic record) and written description.

E54 The register of semi-permanent waterholes and monitoring results should be detailed in the annual REMP report.

E55 In the event that the water levels in semi-permanent waterholes are reduced or found to be completely dry, an investigation should be undertaken to determine if the mining operations have likely caused or contributed to the reduction in standing surface water due to upstream dewatering activities, and a report provided to the administering authority within 2 months.

E56 If quality characteristics of groundwater from compliance bores identified in *Schedule E - Table E11 (Groundwater Monitoring Locations and Frequency)* exceed any of the trigger levels stated in *Schedule E - Table E12 (Groundwater Contaminant Limits and Trigger Levels)*, the holder of this environmental authority must compare the compliance monitoring bore results to the reference bore results and:

1. 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
2. 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 & ARMCANZ 2000, into the potential for environmental harm and provide a written report to the administering authority within 3 months, outlining:
    a. Details of the investigations carried out; and
    b. Actions taken to prevent environmental harm.

*Where an exceedance of a trigger level has occurred and is being investigated, in accordance with condition **E56 (2)**, no further reporting is required for subsequent trigger events for that quality characteristic within the three month investigation period.*

E57 Monitoring of groundwater from compliance bores identified in *Schedule E - Table E11 (Groundwater Monitoring Locations and Frequency)*, must not exceed any of the limits defined in *Schedule E - Table E12 (Groundwater Contaminant Limits and Trigger Levels)*.

Schedule E– Table E11 (Groundwater Monitoring Locations and Frequency)

Monitoring point	Location (GDA94)		Aquifer	Surface RL[1] (m)	Depth (m)	Screen(s) (m)	Monitoring frequency		
							Groundwater Level		Groundwater Quality
	mE	mN					Manual	Data Loggers	
Operational Bores									
DWB2	558906	7758379	Silica Alteration	154.85	86	68-80	Monthly	-	Quarterly
DWB3	558462	7757879	Silica Alteration	147.02	157	131.5-155.5	Monthly	-	Quarterly
DWB4	558706	7757776	Silica Alteration	~149.1	180	90-96 148-154 160-166 174-180	Monthly	-	Quarterly
DWB9a	559492	7758791	Volcaniclastic	140	115	80-115	Monthly	-	Quarterly
DWB39	559192	7758129	Fracture zone	65	102	26-102	Monthly	-	Quarterly
DWB40	559491	7758400	Fracture Zone	152	176	104-176	Monthly	-	Quarterly
DWB41	559570	7758114	Fracture Zone	152	170	32-70	Monthly	-	Quarterly
Compliance Bores									
MB4	559811	7759464	Volcaniclastic	143.1	54	42-54	Quarterly	-	Quarterly
MB5	559686	7759586	Volcaniclastic	141.1	54	43-47 49-53	Quarterly	Yes – 6 hourly	Quarterly
MB6	559455	7758213	Granite	136.9	27	18-20 23-26	Quarterly	-	Quarterly
MB7	557872	7759266	Volcaniclastic	139.4	49	38.5-41.5 44.5-49	Quarterly	Yes – 6 hourly	Quarterly
MB8	559556	7758786	Volcaniclastic	147	48	28-32 43-47	Quarterly	-	Quarterly
MB10	556333	7756691	Volcaniclastic	168	42	34-42	Quarterly	Yes – 6 hourly	Quarterly
MB11	561694	7758328	Volcaniclastic	159	36	24-36	Quarterly	Yes – 6 hourly	Quarterly
MB12	559012	7760491	Volcaniclastic	125	54	37.5-54	Quarterly	Yes – 6 hourly	Quarterly
MB13	558564	7759895	Volcaniclastic	125	47	28-47	Quarterly	-	Quarterly
MB13s	558777	7760023	Shallow groundwater system	125	25	7-25	Quarterly	Yes – 6 hourly	Quarterly
MB14	560006	7758562	Volcaniclastic	152.5	78	56-78	Quarterly	Yes – 6 hourly	Quarterly
MB16	560333	7758613	Shallow groundwater system [3]	157.5	75	27-75	Quarterly	Yes - 6 hourly	Quarterly
MB15	559381	7757916	Volcaniclastic	152.5	36	18-24 30-36	Quarterly	-	Quarterly
MB17	559170	7758795	Shallow groundwater system	153	70	22-70	Quarterly	Yes - 6 hourly	Quarterly

Monitoring point	Location (GDA94)		Aquifer	Surface RL[1] (m)	Depth (m)	Screen(s) (m)	Monitoring frequency		
							Groundwater Level		Groundwater Quality
	mE	mN					Manual	Data Loggers	
Nullabor 2 Bore (farm bore)	558926	7760957	Volcaniclastic	153.2	52.5	PVC	Quarterly	-	Quarterly
"Old Rig" Bore (farm bore)	560467	7759231	Volcaniclastic	~144.6	47	PVC	Quarterly	-	Quarterly
WSB1	557915	7758179	Alteration Zone	142.13	97	59.5-77.5	Quarterly	-	Quarterly
WSB4	560916	7757984	Fracture Zone	160.46	67	48-60	Quarterly	-	Quarterly
WSB5	560603	7758762	Alteration Zone	~155.6	130	113.5-125.5	Quarterly	-	Quarterly
WSB6	557121	7757344	Fracture	~154.4	106	40-46 82-88 100-106	Quarterly	-	Quarterly
Reference Bores [2]									
MB1	560807	7758393	Volcaniclastic	152.5	49	25-28 46-49	Quarterly	Yes – 6 hourly	Quarterly
MB2	560458	7758888	Volcaniclastic	151.6	49	23.5-26.5 44.5-47.5	Quarterly		Quarterly
MB3	560096	7759247	Volcaniclastic	144.6	48.5	25-28 45-48.5	Quarterly	Yes – 6 hourly	Quarterly

Notes:

1. *RL measurement to be taken from top of bore casing*
2. *Reference sites must:*
   - *a) Be from the same bio-geographic and climatic region; and*
   - *b) Have similar geology, soil types and topography; and*
   - c) *Not be so close to the test sites that any disturbance at the test site also results in a change at the reference site*
3. Shallow groundwater system is to be targeted for this bore

Schedule E – Table E12 (Groundwater Contaminant Limits and Trigger Levels)

Quality Characteristic	Contaminant Limit (Total Metals)	Contaminant Trigger Level (Dissolved Metals)
Electrical conductivity (µS/cm)	1000 or 95th percentile of reference[1], whichever is lower.	435
pH (pH Unit)	5.0 (minimum) or 5th percentile of reference[1], whichever is highest. 9.0 (maximum) or 95th percentile of reference[1], whichever is lowest	6.0 (minimum) 7.5 (maximum)
Suspended Solids (mg/L)	Same as reference data or 50mg/l whichever is the lowest.	N/A
Hardness (CaCO3)	Interpretational purposes only	
Sulphate (SO42-)	1000 (mg/L) or 95th percentile of reference[1], whichever is lowest.	80th percentile of the reference
Aluminium	5 (mg/L) or 95th percentile of reference[1], whichever is lowest	0.055 (mg/L)
Arsenic	0.5 (mg/L) or 95th percentile of reference[1], whichever is lowest.	0.013 (mg/L)
Cadmium	0.01 (mg/L) or 95th percentile of reference[1], whichever is lowest.	0.0002 (mg/L)
Chromium	1 (mg/L) or 95% of reference[1], whichever is lowest.	0.001 (mg/L)
Cobalt	1 (mg/L) or 95th percentile of reference[1], whichever is lowest.	0.0028 (mg/L)
Copper	1 (mg/L) or 95th percentile of reference[1], whichever is lowest.	0.0014 (mg/L)
Fluoride	2 (mg/L) or 95th percentile of reference[1], whichever is lowest.	80th percentile of the reference
Lead	0.1 (mg/L) or 95% of reference[1], whichever is lowest.	0.0034 (mg/L)
Manganese	95th percentile of reference[1], whichever is lowest.	1.9 (mg/L) or 80th percentile of reference [1] whichever is higher
Mercury	0.002 (mg/L) or 95% of reference[1], whichever is lowest.	0.0006 (mg/L)
Molybdenum	0.15 (mg/L) or 95% of reference[1], whichever is lowest.	80th percentile of the reference
Nickel	1 (mg/L) or 95th percentile of reference[1], whichever is lowest.	0.011 (mg/L)
Selenium	0.02 (mg/L) or 95th percentile of reference[1], whichever is lowest.	0.011 (mg/L)
Silver	95th percentile of reference	80th percentile of reference
Zinc	20 (mg/L) or 95th percentile of reference[1], whichever is lowest.	0.008 (mg/L)
Cyanide (as un-ionised HCN; measured as (CN)	0.007[2] (mg/L)	0.004[3] (mg/L)

1. *Reference sites must:*
   a) Be from the same bio-geographic and climatic region; and
   b) Have similar geology, soil types and topography; and
   c) *Not be so close to the test sites that any disturbance at the test site also results in a change at the reference site.*
2. *Based on 95% species protection aquatic ecosystem (Table 3.4.1)*
3. *Based on 99% species protection aquatic ecosystem (Table 3.4.1)*

E58 The construction, maintenance and decommissioning of groundwater monitoring bores must be undertaken in a manner that:

(a) prevents contaminants entering the groundwater; and

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

(c) maintains the hydrogeological environment within the aquifer.

E59 If a ground water dependent ecosystem is identified and is being impacted on by dewatering activities from the mining operation, supplement water must be provided to that location for a period determined by the administering authority.

E60 By 11 December 2018 a Groundwater Management Program must be developed, documented and implemented by appropriately qualified persons.

E61 The Groundwater Management Program required by Condition E60 must:

(a) identify potential sources of contamination to groundwater from the activity; and

(b) ensure that all potential groundwater impacts due to the activity are identified, monitored and mitigated; and

(c) document sampling and monitoring methodology; and

(d) ensure that adequate groundwater monitoring and data analysis is undertaken to achieve the following objectives:

a. detect any impacts to groundwater levels due to the activity;

b. detect any impacts to groundwater quality due to the activity;

c. determine compliance with condition E57; and

d. determine trends in groundwater quality; and

(e) include an appropriate quality assurance and quality control program; and

(f) include calibration and validation of the groundwater model; and

(g) include a review process to identify improvements to the program that includes addressing any comments provided by the administering authority.

E62 From 11 December 2018, the Groundwater Management Program must be reviewed on an annual basis by an appropriately qualified person to determine if it continues to meet the requirements stated in condition E61.

END OF CONDITIONS FOR SCHEDULE E

Schedule F – Biodiversity

Biodiversity offsets

F1 Significant residual impacts to prescribed environmental matters are not authorised under this environmental authority or the *Environmental Offsets Act 2014*.

F2 Records demonstrating that each impact to a prescribed environmental matter did not, or is not likely to, result in a significant residual impact to that matter must be:

a) completed by an appropriately qualified person; and

b) kept for the life of the environmental authority.

END OF CONDITIONS FOR SCHEDULE F

Schedule G – Land and Rehabilitation

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

a) Safe for humans and wildlife;

b) Non-polluting;

c) Stable;

d) Able to sustain an agreed post-mining land-use;

e) Revegetated with species endemic to the area with no declared pest species; and

f) Compliant with all conditions of this environmental authority.

G2 A Final Land Use Rehabilitation Plan ('FLURP') that describes how the rehabilitation objectives in condition **G1** will be achieved must be developed, documented, implemented, and maintainedfor all stages of the mining activity. The FLURP must at minimum include:

a) Schematic representation of the proposed final land form inclusive of site drainage features;

b) Details of proposed slope design and erosion and sediment controls;

c) Proposed cover designs for encapsulation of waste material, including performance criteria;

d) Proposed re-vegetation methods inclusive of plant species selection, propagation methods and establishment of suitable plant growth medium (i.e. top soil);

e) Materials balance for all rehabilitation requirements including available top soil and material suitable for encapsulating waste in accordance with the proposed encapsulation methodology;

f) Geotechnical, geochemical and hydrological studies necessary to demonstrate likely success of proposed rehabilitation methodology to achieve the required rehabilitation outcomes;

g) An investigation of proposed residual voids including potential for generation/mobilisation of contaminants, potential pathways for release of contaminants to waters (including groundwater) and a long-term void water balance model; and

h) A rehabilitation monitoring program sufficient to identify if required rehabilitation outcomes have been achieved.

G3 Rehabilitation in accordance with condition **G2** must commence progressively in accordance with the plan of operations.

G4 Residual voids (including open pits and underground workings) must not cause any serious or material environmental harm, other than the environmental harm constituted by the existence of the residual void itself, subject to any other condition within this environmental authority.

G5 All explosives, flammable or corrosive substances, hazardous chemicals, toxic substances, gases and dangerous goods must be stored and handled in accordance with:

a) The current Australian Standard where applicable; or

b) Where no relevant Australian Standard exists, store such materials within an on-site containment system sufficient to prevent release to the receiving environment.

G6 Minimise the potential for contamination of land by hazardous contaminants.

END OF CONDITIONS FOR SCHEDULE G

Schedule H – Regulated Structures

H1 The consequence category of any structure must be assessed by a suitably qualified and experienced person in accordance with the *Manual for assessing consequence categories and hydraulic performance of structures (ESR/2016/1933)* at the following times:

a) Prior to the construction of the structure, if it is not an existing structure; or

b) If it is an existing structure, by **20 December 2016** ; or

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

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

H3 Certification must be provided by the suitably qualified and experienced person who undertook the assessment, in the form set out in the *Manual for assessing consequence categories and hydraulic performance of structures (ESR/2016/1933)*.

Design and construction of a regulated structure

H4 Conditions **H5** to **H9** inclusive do not apply to existing structures.

H5 All regulated structures must be designed by, and constructed under the supervision of, a suitably qualified and experienced person in accordance with the requirements of the *Manual for assessing consequence categories and hydraulic performance of structures (ESR/2016/1933)*.

H6 Construction of a regulated structure is prohibited unless the environmental authority holder has submitted to the administering authority and 28 days have elapsed, the following:

a) a consequence category assessment report, as required by condition **H2**, and

b) the suitably qualified and experienced person certified design and design plan; and

c) the associated suitably qualified and experienced person certified operating procedures.

H7 Certification must be provided by the suitably qualified and experienced person who oversees the preparation of the design plan in the form set out in the *Manual for assessing consequence categories and hydraulic performance of structures (ESR/2016/1933)*, and must be recorded in the Register of Regulated Structures.

H8 Regulated structures must:

a) be designed and constructed in accordance with and conform to the requirements of the *Manual for assessing consequence categories and hydraulic performance of structures (ESR/2016/1933)*;

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

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

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

H9 Certification by the suitably qualified and experienced person who supervises the construction must be submitted to the administering authority within 10 days of the completion of construction of the regulated structure, and state that:

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

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

Operation of a regulated structure

H10 Operation of a regulated structure must not commence unless the environmental authority holder has submitted to the administering authority:

a) One paper copy and one electronic copy of the design plan and certification of the 'design plan' in accordance with condition **H7**, and

b) A set of 'as constructed' drawings and specifications, and

c) Certification of those 'as constructed drawings and specifications' in accordance with condition **H9**, and

d) Where the regulated structure is to be managed as part of an integrated containment system for the purpose of sharing the design storage allowance (DSA) volume across the system, a copy of the certified system design plan;

e) A statement that confirms:

i) The requirements of this authority relating to the construction of the regulated structure have been met;

ii) The details required under this authority, have been entered into a Register of Regulated Structures; and

iii) There is a current operational plan for the regulated structures.

H11 For existing structures that are regulated structures:

a) where the existing structure that is a regulated structure is managed as part of an integrated containment system for the purpose of sharing the DSA volume across the system, the environmental authority holder must submit to the administering authority within three (3) 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.

H12 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

H13 Conditions **H14** to **H17** inclusive only apply to Regulated Structures which have not been certified as low consequence category for 'failure to contain – overtopping'.

H14 The Mandatory Reporting Level (the MRL) specified in *Table H1* must be marked on a regulated structure in such a way that during routine inspections of that structure, it is clearly observable.

H15 The environmental authority holder must, as soon as practical and within forty-eight (48) hours of becoming aware, notify the administering authority when the level of the contents of a regulated structure reaches the MRL.

H16 The environmental authority holder must, immediately on becoming aware that the MRL has been reached, act to prevent the occurrence of any unauthorised discharge from the regulated structure.

H17 The environmental authority holder must record any changes to the MRL in *Table H1* and in the Register of Regulated Structures.

Design storage allowance

H18 The environmental authority holder must assess the performance of each regulated structure or linked containment system over the preceding November to May period based on actual observations of the available storage in each regulated structure or linked containment system taken prior to 1 July of each year.

H19 By 1 November of each year, storage capacity must be available in each regulated structure (or network of linked containment systems with a shared DSA volume), to meet the Design Storage Allowance (DSA) volume for the structure (or network of linked containment systems), as specified in *Table H1*.

H20 The environmental authority holder must, as soon as possible and within forty-eight (48) hours of becoming aware that the regulated structure (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.

H21 The environmental authority holder must, immediately on becoming aware that a regulated structure (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 structure or linked containment systems.

Annual inspection report

H22 Each regulated structure must be inspected each calendar year by a suitably qualified and experienced person.

H23 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, if applicable, to ensure the integrity of the regulated structure.

H24 The suitably qualified and experienced person who prepared the annual inspection report must certify the report in accordance with the *Manual for assessing consequence categories and hydraulic performance of structures (ESR/2016/1933)*.

H25 The environmental authority holder must within 20 business days of receipt of the annual inspection report, provide to the administering authority:

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

b) If applicable, any details of any actions being taken in response to those recommendations.

Transfer arrangements

H26 The environmental authority holder must provide a copy of any reports, documentation and certifications prepared under this authority, including but not limited to any Register of Regulated Structures, consequence assessment, design plan and other supporting documentation, to a new holder on transfer of this authority.

Decommissioning and rehabilitation

H27 Regulated structures and structures must not be abandoned but must be decommissioned and rehabilitated to achieve compliance with conditions **G1** and **G2** of this environmental authority.

Transitional arrangements

H28 All existing structures that have not been assessed in accordance with the *Manual for assessing consequence categories and hydraulic performance of structures (ESR/2016/1933)* must be assessed and certified in accordance with the *Manual for assessing consequence categories and hydraulic performance of structures (ESR/2016/1933)* by **20 December 2016**.

Hydraulic performance of regulated structures

H29 Each regulated structure authorised by this environmental authority as specified in *Table A1*, must meet the hydraulic performance criteria listed in *Table H1* for that structure.

Table H1 – Hydraulic performance criteria ('Table H1')

Name of Regulated Structure	Consequence Category	Spillway Capacity		Design Storage Allowance (DSA)		Mandatory Reporting Level (MRL)		Purpose of structure
		Design Criteria	mAHD	Design Criteria	mAHD	Design Criteria	mAHD	
Tailings Storage Facility (TSF)	High	Stage 1 to 3 designed to 1 in 2000 ARI, 24 hour storm event Stage 4 designed for Probable Maximum Flood (PMF)	RL 147.4m	1 in 100 AEP, 3 month wet season	RL 145.25 (642 ML)	1 in 100 AEP, 72 hour duration	RL 146.82m	Tailings storage
Main Site Water Dam (MSWD)	Significant	1 in 1000 ARI	RL 138.0m	1 in 20 AEP, 3 month wet season	RL 133.77m (930 ML)	1 in 10 AEP, 72 hour duration	RL 135.93m	Make-up water supply

H30 The hydraulic performance criteria specified in *Table H1* are the minimum mandatory performance requirements; regulated structures must be managed in a manner that ensures compliance with all conditions of this environmental authority.

END OF CONDITIONS FOR SCHEDULE H

Schedule I – Definitions

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.

Acceptance criteria means the measures by which actions implemented are deemed to be complete. The acceptance criteria indicate the success of the decommissioning and rehabilitation outcomes or remediation of areas which have been significantly disturbed by the mining activities. Acceptance criteria may include information regarding:

a) Stability of final land forms in terms of settlement, erosion, weathering, pondage and drainage;

b) Control of geochemical and contaminant transport processes;

c) Quality of runoff waters and potential impact on receiving environment;

d) Vegetation establishment, survival and succession;

e) Vegetation productivity, sustained growth and structure development;

f) Fauna colonisation and habitat development;

g) Ecosystem processes such as soil development and nutrient cycling, and the recolonisation of specific fauna groups such as collembola, mites and termites which are involved in these processes;

h) Microbiological studies including recolonisation by mycorrhizal fungi, microbial biomass and respiration;

i) Effects of various establishment treatments such as deep ripping, topsoil handling, seeding and fertiliser application on vegetation growth and development;

j) Resilience of vegetation to disease, insect attack, drought and fire;

k) Vegetation water use and effects on ground water levels and catchment yields.

Acid rock drainage means any contaminated discharge emanating from a mining activity formed through a series of chemical and/or biological reactions.

Administering authority is the agency that administers the environmental authority provisions under the Environmental Protection Act 1994.

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.

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).

Ambient (or total) noise At a place, means the level of noise at the place from all sources (near and far), measured as the Leq for an appropriate time interval.

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

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

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

Associated works In relation to a dam, means:

a) Operations of any kind and all things constructed, erected or installed for that dam; and
b) Any land used for those operations.

Authority means an environmental authority or a development approval.

Blasting means the use of explosive materials to fracture:

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

Bunded means contained within bunding that is consistent with Australian Standard 1940.

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

Certifying, certify or certified By an appropriately 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
d) the reasoning on which the certification has been based using the relevant data and facts, and the relevant criteria.

Chemical means:

- An agricultural chemical product or veterinary chemical product within the meaning of the Agricultural and Veterinary Chemicals Code Act 1994 (Commonwealth); or
- A dangerous good under the dangerous goods code; or
- A lead hazardous substance within the meaning of the Workplace Health and Safety Regulation 1997; or
- 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
- Any substance used as, or intended for use as:
    - A pesticide, insecticide, fungicide, herbicide, rodenticide, nematocide, miticide, fumigant or related product; or
    - A surface active agent, including, for example, soap or related detergent; or
    - A paint solvent, pigment, dye, printing ink, industrial polish, adhesive, sealant, food additive, bleach, sanitiser, disinfectant, or biocide; or
    - A fertiliser for agricultural, horticultural or garden use; or
- A substance used for, or intended for use for:
    - Mineral processing or treatment of metal, pulp and paper, textile, timber, water or wastewater; or
    - Manufacture of plastic or synthetic rubber.

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

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

Construction or Constructed In relation to a regulated structure includes building a new regulated structure and lifting or otherwise modifying an existing regulated structure, but does not include investigations and testing necessary for the purpose of preparing a design plan.

Contaminate means to render impure by contact or mixture.

Contaminated means the substance has come into contact with a contaminant.

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.

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.

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

Designer For the purposes of a regulated dam, means the certifier of the design plan for the regulated dam.

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

Domestic waste means waste, other than domestic clean-up waste, green waste, recyclable waste, interceptor waste or waste discharged to a sewer, produced as a result of the ordinary use or occupation of domestic premises.

Dwelling means any of the following structures or vehicles that is principally used as a residence:

- A house, unit, motel, nursing home or other building or part of a building; or
- A caravan, mobile home or other vehicle or structure on land; or
- A water craft in a marina.

Effluent means treated waste water discharged from sewage treatment plants.

Environmental authority holder means the holder of this environmental authority or any other works conducted by another entity on the approved leases.

Environmental offset Has the meaning in section 7 of the Environmental offsets Act 2014.

General waste means waste other than regulated waste.

Groundwater dependent ecosystem means ecosystems that require access to groundwater to meet all or some of their water requirements on a permanent or intermittent basis, so as to maintain their communities of plants and animals, ecosystem processes and ecosystem services.

Hazard In relation to a dam as defined, means the potential for environmental harm resulting from the collapse or failure of the dam 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 is assessed as a result of the application of tables and other criteria in ' Manual for assessing consequence categories and hydraulic performance of structures (ESR/2016/1933)'.

Hazardous waste means any substance, whether liquid, solid or gaseous, that tends to destroy life or impair or endanger health.

Hydraulic performance means the capacity of a regulated dam 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 consequence categories and hydraulic performance of structures (ESR/2016/1933).

Independent means a person, entity or organisation that is not directly or indirectly connected to Conquest Mining Limited.

Infrastructure means water storage dams, roads and tracks, buildings and other structures built for the purpose of mining activities.

Land capability As defined in the Technical Guidelines for the Environmental Management of Exploration and Mining in Queensland (DME 1995).

Land suitability As defined in the Technical Guidelines for the Environmental Management of Exploration and Mining in Queensland (DME 1995).

Land use Term to describe the selected post mining use of the land, which is planned to occur after the cessation of mining operations.

Landfill means land used as a waste disposal site for lawfully putting solid waste on the land.

Low hazard dam means any dam that is not a high or significant hazard category as assessed using the Manual for assessing consequence categories and hydraulic performance of structures (ESR/2016/1933).

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;
l) but does not include—
m) living matter;
n) petroleum within the meaning of the Petroleum Act 1923;
o) 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;
p) water.

Mandatory reporting level or MRL means a warning and reporting level determined in accordance with the criteria in the Manual for assessing consequence categories and hydraulic performance of structures (ESR/2016/1933) published by the administering authority.

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

Natural Flow Natural flow is defined as a flow event caused as a result of a local rainfall event, within a defined catchment area, and measured within the same receiving waters.

Neutral mine drainage has the same meaning as metalliferous mine drainage.

Non-acid forming, or non-acid producing (NAP) means rock that when exposed to an oxidising environment will not produce acid solutions. Compare with "ore or waste rock characterised as having acid forming potential.

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.

Ore or waste rock characterised as having acid forming potential means any rock with either a Net Acid Producing Potential of greater than 5 kg of H2SO4/tonne or a Net Acid Generation oxidation pH of less than 4.5 (pH unit).

Potentially acid forming (PAF) means ore or waste rock characterised as having acid forming potential.

Prescribed environmental matters has the meaning in section 10 of the Environmental Offsets Act 2014, limited to the matters of state environmental significant listed in schedule 2 of the Environmental Offsets Regulation 2014.

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

Process water means water used or produced during the mineral development activities.

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

a. a watercourse or surface waters

b. groundwater

Receiving waters has the same meaning as receiving environment.

Regulated dam means any dam in the significant or high consequence category as assessed using the Manual for assessing consequence categories and hydraulic performance of structures (ESR/2016/1933) published by the administering authority.

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

Residual void means an open pit resulting from the removal of ore and/or waste rock which will remain following the cessation of all mining activities and completion of rehabilitation processes.

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 residual impact Has the meaning in section 8 of the Environmental Offsets Act 2014.

Sink Refers to the state at which open pits will not release any contaminated water from the open voids to the receiving groundwater environment.

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

Stable in relation to land, means land form dimensions are and will remain within tolerable limits now and in the foreseeable future. Issues to be properly considered in regard to whether or not the landform is stable include geotechnical stability, settlement and consolidation allowances, bearing capacity (trafficability), erosion resistance and geochemical stability with respect to seepage, leachate and related contaminant generation.

Structure means any dam or levee

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

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

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

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

The holder means the holder of this environmental authority.

Trivial harm means environmental harm which is not material or serious environmental harm and will not cause actual or potential loss or damage to property of an amount of, or amounts totalling more than $5,000.

Void means any constructed, open excavation in the ground.

Waste water means used water from the activity, process water or contaminated storm water.

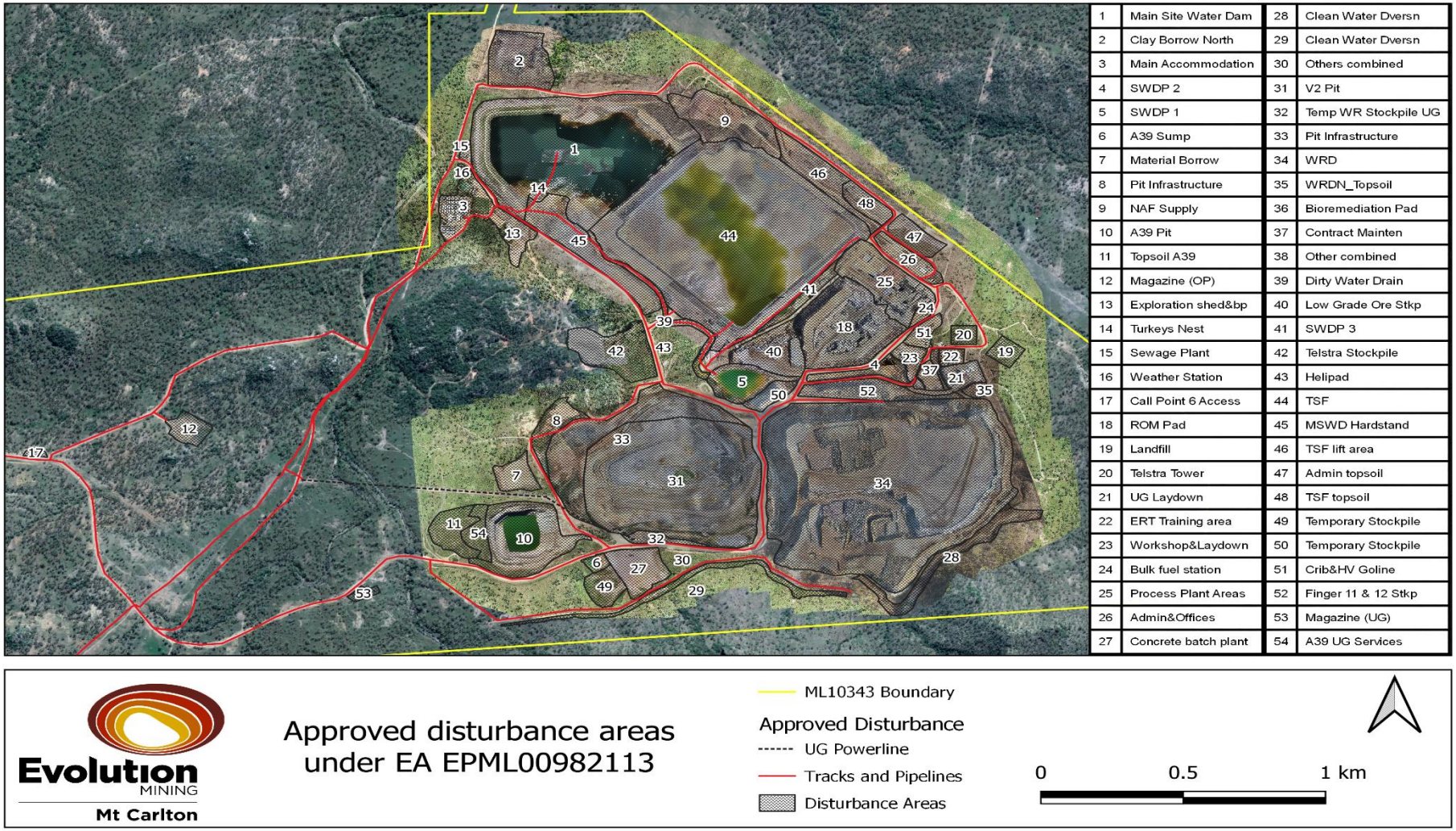
Water quality means the chemical, physical and biological condition of water.

Waters includes river, stream, lake, lagoon, pond, swamp, wetland, unconfined surface water, unconfined water in natural or artificial watercourses, bed and bank of any waters, dams, non-tidal or tidal waters (including the sea), stormwater channel, stormwater drain, roadside gutter, stormwater run-off, and groundwater or any part-thereof.

END OF CONDITIONS FOR SCHEDULE I

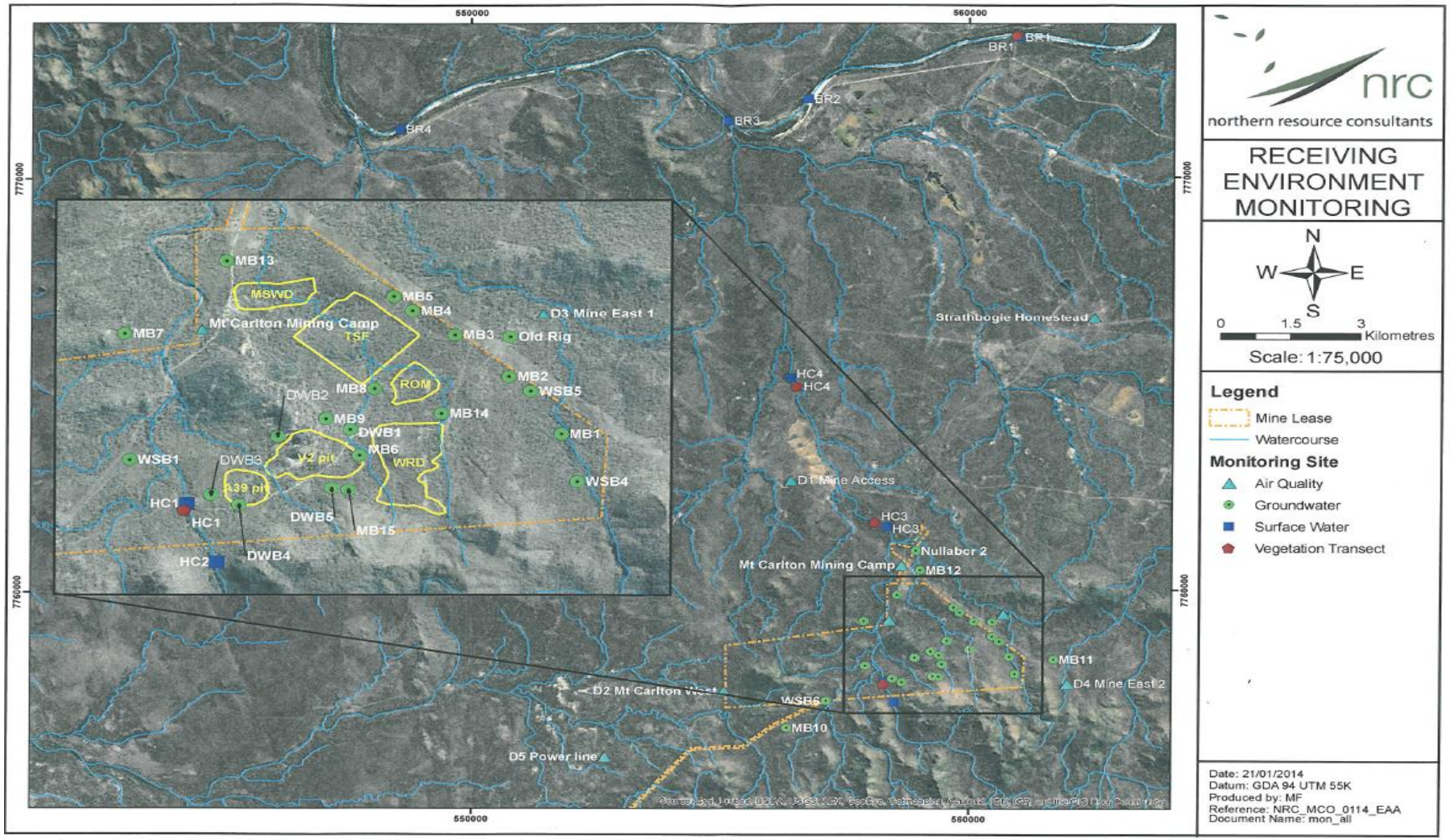
Schedule J – Maps and Plans

Map 1 - Location of authorised disturbance



1	Main Site Water Dam	28	Clean Water Dversn
2	Clay Borrow North	29	Clean Water Dversn
3	Main Accommodation	30	Others combined
4	SWDP 2	31	V2 Pit
5	SWDP 1	32	Temp WR Stockpile UG
6	A39 Sump	33	Pit Infrastructure
7	Material Borrow	34	WRD
8	Pit Infrastructure	35	WRDN_Topsoil
9	NAF Supply	36	Bioremediation Pad
10	A39 Pit	37	Contract Mainten
11	Topsoil A39	38	Other combined
12	Magazine (OP)	39	Dirty Water Drain
13	Exploration shed&bp	40	Low Grade Ore Stkp
14	Turkeys Nest	41	SWDP 3
15	Sewage Plant	42	Telstra Stockpile
16	Weather Station	43	Helipad
17	Call Point 6 Access	44	TSF
18	ROM Pad	45	MSWD Hardstand
19	Landfill	46	TSF lift area
20	Telstra Tower	47	Admin topsoil
21	UG Laydown	48	TSF topsoil
22	ERT Training area	49	Temporary Stockpile
23	Workshop&Laydown	50	Temporary Stockpile
24	Bulk fuel station	51	Crib&HV Goline
25	Process Plant Areas	52	Finger 11 & 12 Stkp
26	Admin&Offices	53	Magazine (UG)
27	Concrete batch plant	54	A39 UG Services

Map 2 - Monitoring locations



Map 3 – Location of Landfill Facility

END OF SCHEDULE J

END OF ENVIRONMENTAL AUTHORITY