

Permit

Environmental Protection Act 1994

Environmental authority EPML00863313

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

Environmental authority number: EPML00863313

Environmental authority takes effect on 06 March 2020

Environmental authority holder(s)

Name(s)	Registered address
MALACO LEICHHARDT PTY LTD	Suite 2 Level 2 45 Grenfell St ADELAIDE SA 5000 Australia

Environmentally relevant activity and location details

Environmentally relevant activity/activities	Location(s)
Schedule 3 17: Mining copper ore	ML2492
Ancillary 08 - Chemical Storage 3: Storing more than 500 cubic metres of chemicals of class C1 or C2 combustible liquids under AS 1940 or dangerous goods class 3 under subsection (1)(c)	ML2494 ML2514 ML2515
Ancillary 31 - Mineral processing 2: Processing, in a year, the following quantities of mineral products, other than coke (a) 1000t to 100,000t	ML2635 ML2636 ML2705
Ancillary 60 - Waste disposal 2: Operating a facility for disposing of, in a year, the following quantity of waste mentioned in subsection (1)(b) (a) less than 2000t	ML2706 ML2708
Ancillary 08 - Chemical Storage 5: storing 200 cubic metres or more of chemicals that are liquids, other	ML2715

Environmentally relevant activity/activities	Location(s)
than chemicals mentioned in items 1 to 3, under subsection (1)(d)	ML2747 ML100152
Ancillary 60 - Waste disposal 1: Operating a facility for disposing of, in a year, the following quantity of waste mentioned in subsection (1)(a) (d) more than 200,000t	ML2748 ML2784 ML7520
Ancillary 63 - Sewage Treatment 1: Operating sewage treatment works, other than no-release works, with a total daily peak design capacity of (b-i) more than 100 but not more than 1500EP if treated effluent is discharged from the works to an infiltration trench or through an irrigation scheme	ML90066 ML90090 ML90091 ML90092
Ancillary 62 - Resource recovery and transfer facility operation 1: Operating a facility for receiving and sorting, dismantling, baling or temporarily storing- (c) category 2 regulated waste	ML90101 ML90141 ML90142
Ancillary 15 - Fuel burning Using fuel burning equipment that is capable of burning at least 500kg of fuel in an hour	ML90154

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.

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

Date issued: 06 March 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

The environmentally relevant activity(ies) conducted at the location as described above must be conducted in accordance with the following site specific conditions of approval.

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

Schedule A -	General
Schedule B -	Air
Schedule C -	Water
Schedule D -	Noise and vibration
Schedule E -	Waste
Schedule F -	Land
Schedule G -	Regulated structures
Schedule H -	Definitions
Schedule I -	Maps/plans

Schedule A - General**Activity**

- 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** The environmental authority holder must ensure that the activity is carried out in accordance with Schedule A – Table 1.

Schedule A – Table 1 (Authorised disturbance)

Disturbance type	Maximum disturbance area (hectares)	Reference site identification central peg
Mount Cuthbert¹		
Mine pit	4	386452 7789377
Overburden dumps	6	386274 7789413
Old Kalkadoon workings and laydown	2	386562 7789479
Topsoil dumps and borrow pits	7	386948 7788222
Roads/tracks	7	N/A
ROM and crushing area	6.5	386416 7789203
Plant area	1	386712 7788795
Plant laydown areas	1	386725 7788911
Process water ponds	0.6	386559 7788818
Stormwater dam	3.1	386559 7788703
Stormwater dam 2	8.0	386649 7788573
Offices, workshops and fuel areas	0.6	386784 7788819
Mining contractor workshop and laydown	1.5	386886 7788784
Leach pads	16	386439 7789003
Septic systems/treatment plant	0.1	387146 7788517
Sediment and seepage ponds	2	386383 7788909

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Disturbance type	Maximum disturbance area (hectares)	Reference site identification central peg
Freshwater dam	1	386113 7789065
Diversion channels	4.5	386169 7788909
Pipelines and powerlines	0.5	N/A
Rubbish dumps	1.0	386891 7788427
Air strip	3.0	386959 7788001
Accommodation village	3.2	387194 7788328
Core shed	0.1	386543 7790104
Exploration	2	386454 7789380
Total	81.7	
Mighty Atom		
Mine pit	12.5	394320 7794382
Overburden dumps	32	394357 7794387
Topsoil dumps	4	394320 7794382
Silt traps	0.5	394320 7794382
Roads/tracks	6.0	N/A
Stockpiles	3	394333 7794337
Total	58	
Hidden Treasure		
Mine pit	3.0	375282 7823764
Diversions	0.1	375282 7823764
Overburden dumps	4.5	375282 7823764
Topsoil dumps	0.2	375282 7823764
Silt traps	0.1	375282 7823764
Roads/tracks	1.0	N/A
Workshop areas	0.2	375282 7823764

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Disturbance type	Maximum disturbance area (hectares)	Reference site identification central peg
Storage areas	0.2	375282 7823764
Stockpiles	0.9	375282 7823764
Total	10.2	
Dobbyn		
Mine pit	3.0	395116 7810599
Diversions	0.1	395119 7810471
Overburden dumps	6.5	394962 7810703
Topsoil dumps	0.5	395152 7810726
Silt traps	0.1	395226 7810449
Roads/tracks	0.4	N/A
Workshop areas	0.2	395071 7810718
Storage areas	0.2	395000 7810472
Stockpiles	0.5	394964 7810443
Total	11.5	
Ned Kelly		
Mine pit	1.2	393571 7785656
Diversions	0.1	393571 7785656
Overburden dumps	3.5	393571 7785656
Topsoil dumps	0.5	393571 7785656
Silt traps	0.1	393571 7785656
Roads/tracks	0.5	N/A
Storage areas	0.1	393571 7785656
Stockpiles	0.5	393571 7785656
Total	6.5	
Leichhardt		

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Disturbance type	Maximum disturbance area (hectares)	Reference site identification central peg
Mine pit	3	388884 7749972
Overburden dumps	4.5	388884 7749972
Topsoil dumps	0.5	388884 7749972
Silt traps	0.1	388884 7749972
Roads/tracks	0.5	N/A
Storage areas	0.1	388884 7749972
Stockpiles	0.5	388884 7749972
Total	9.2	
Warwick Castle		
Mine pit	3	384474 7798403
Diversions	0.3	384718 7798522
Overburden dumps	5.0	384567 7798466
Topsoil dumps	0.2	384639 7798281
Silt traps	0.1	384507 7798724
Roads/tracks	1.0	N/A
Storage areas	0.5	384621 7798382
Total	10.1	
Crusader		
Mine pit	5.12	400176 7808076
Diversions and Silt Traps	0.7	400178 7807860
Overburden dumps	10.0	400184 7807924
Topsoil dumps	1.5	400205 7807939
Roads/tracks	1.5	N/A
Workshop and Storage Areas	0.6	400047 7807981
ROM Pad	4.5	400040 7808040

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Disturbance type	Maximum disturbance area (hectares)	Reference site identification central peg
Exploration	3.8	N/A
Water Storage	0.3	400090 7808116
Laydown	0.6	400237 7807834
Total	28.62	
Orphan		
Mine pit	1.2	397696 7811869
Overburden dumps	1.5	397839 7811706
Topsoil stockpiles	1	397788 7811933
Silt traps	0.1	397833 7811817
Rom pad	1	397767 7811708
Roads/tracks	0.5	N/A
Workshop areas	0.5	397574 7811862
Total	5.8	
Dinkum Digger/Scotchman		
Mine pit	5	404514 7806075
Overburden dumps	5	404514 7806075
Topsoil stockpiles	1	404514 7806075
Silt traps	0.1	404514 7806075
Rom pad	0.5	404514 7806075
Roads/tracks	0.1	N/A
Workshop areas	0.25	404514 7806075
Total	11.95	
Standby		
Mine pit	10	393990 7785560
Overburden dumps	10	393990 7785560

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Disturbance type	Maximum disturbance area (hectares)	Reference site identification central peg
Topsoil stockpiles	2	393990 7785560
Silt trap	0.2	393990 7785560
ROM pad	1	393990 7785560
Roads/tracks	0.5	N/A
Workshop areas	0.25	393990 7785560
Total	23.95	
Sparklet		
Mine pit	3	401340 7807300
Overburden dumps	3	401340 7807300
Topsoil stockpiles	0.5	401340 7807300
Silt trap	0.1	401340 7807300
ROM pad	0.25	401340 7807300
Roads/tracks	0.1	N/A
Workshop areas	0.25	401340 7807300
Total	7.2	
Borefield		
Gravel excavations	10	391840 7781300
Topsoil stockpiles	1	391840 7781300
Gravel stockpiles	1	391840 7781300
Roads/tracks	5	N/A
Total	17	
Mount Watson		
Watson pit	21.2	383311 7813699
Waste rock dump	18	383093 7813538
Low grade stockpile	5	383749 7813170

Disturbance type	Maximum disturbance area (hectares)	Reference site identification central peg
Topsoil dumps	1.5	382715 7813320
Roads/tracks	5	N/A
Workshops	1	384135 7813056
ROM pads	3	383866 7813147
Explosives magazine	0.5	382859 7813242
Turkeys nest dam	0.5	383451 7813678
Sediment dams	0.5	383043 7813291
Helipad	0.2	383859 7813066
Heap leach facility (heap leach pad, launder drains, and associated disturbance)	31.2	384327 7812854
Process water ponds	0.9	384240 7813048
Stormwater pond	9.8	384445 7813206
Clean water diversion drain	1.2	N/A
Total	99.5	

Notes:

1. Disturbance area of Mount Cuthbert depicted in Schedule I – Map 1A (Project Infrastructure Layout – Mount Cuthbert)

A3 The environmental authority holder 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.

A4 Except where specified in another condition of this environmental authority, 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;
- (b) kept for a period of not less than five (5) years;

- (c) provided to the administering authority in the specified format within 10 business days of a request;
- (d) undertaken in accordance with the most recent version of any applicable standard or guideline for the activity; and
- (e) any laboratory testing must be undertaken using a laboratory accredited for the method of analysis being used.

Financial assurance

- A5** The activity must not be carried out until the environmental authority holder has given financial assurance to the administering authority as security for compliance with this environmental authority and any costs or expenses, or likely costs or expenses, mentioned in section 298 of the *Environmental Protection Act 1994*.
- A6** 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

- A7** The environmental authority holder must develop, maintain 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.

Notification of emergencies, incidents and exceptions

- A8** The environmental authority holder must notify the administering authority by written notification within twenty-four (24) hours, after becoming aware of:
- (a) any emergency or incident which results in the release of contaminants not in accordance, or reasonably expected to be not in accordance with the conditions of this environmental authority; or
 - (b) any monitoring result that indicates an exceedance of any environmental authority release limit.
- A9** Within ten (10) business days following the initial notification of an emergency or incident, or receipt of monitoring results, whichever is the latter, further written advice must be provided to the administering authority, including the following:
- (a) results and interpretation of any samples taken and analysed;
 - (b) outcomes 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

- A10** The environmental authority holder must record all environmental complaints received about the mining activities including:
- (a) name, address and contact number for complainant;
 - (b) time and date of complaint;
 - (c) reasons for the complaint;
 - (d) investigations undertaken;
 - (e) conclusions formed;
 - (f) actions taken to resolve complaint;
 - (g) any abatement measures implemented; and
 - (h) person responsible for resolving the complaint.
- A11** The environmental authority holder must, when requested by the administering authority, undertake relevant specified monitoring within a reasonable timeframe nominated or agreed by the administering authority to investigate any complaint of environmental harm. The results of the investigation (including an analysis and interpretation of the monitoring results) and abatement measures, where implemented, must be provided to the administering authority within ten (10) business days of completion of the investigation, or no longer than ten (10) business days after the end of the timeframe nominated by the administering authority to undertake the investigation.

Heap leach pads

- A12** The environmental authority holder must install and maintain a leak detection system for the heap leach pads.
- A13** Contaminants must not be released outside the lined area of the heap leach pads.
- A14** Prior to the construction of the heap leach facility at Mount Watson (ML90154), an appropriately qualified person must submit a design report and certify that the proposed liner of the heap leach pad and associated process ponds is chemically compatible with the fluids it will be exposed to, and that the integrity of the liner will be maintained throughout its proposed operational use as a heap leach liner for the life of the facility.

Heap leach operational plan

- A15** The environmental authority holder must:
- (a) develop and implement a Heap Leach Operational Plan certified by suitably qualified and experienced person;
 - (b) include in the current and any amended/replacement plan of operations; and
 - (c) undertake a review of the Heap Leach Operational Plan at a minimum frequency of every three (3) years.

A16 The Heap Leach Operational Plan (as required under condition **A15**) must address as a minimum the following:

- (a) regular inspections of the heap leach liner and an assessment of its ability to contain contaminants;
- (b) sizing of launders, perimeter drains and containment bunds to prevent the release of contaminants or potentially contaminated waters;
- (c) diversion of uncontaminated stormwater away from the heap leach pads and minimising catchment size;
- (d) procedures to prevent tears in the liner including but not limited to equipment on the pads, fly rock and the placement of ore;
- (e) contingency plans in the event of the release of contaminants;
- (f) records of as constructed and design plans, all pipes and infrastructure associated with the heap leach operation; and
- (g) procedures to minimise erosion of the heap leach pads and exclude ore from entering the launders and/or perimeter drains.

Third party compliance reporting

A17 The environmental authority holder must:

- (a) obtain from an appropriately qualified person a report on compliance with the conditions of this environmental authority, at regular intervals, not exceeding three (3)- yearly intervals, from 11 February 2013;
- (b) ensure the third party auditor certifies the independent findings of the audit in the compliance report; and
- (c) provide each report to the administering authority within ninety (90) days of its completion.

Storage and handling of flammable, combustible and corrosive liquids

A18 All explosive, hazardous chemicals, corrosive substances, toxic substances, gases and dangerous goods must be stored and handled in accordance with the relevant Australian Standard where such is available.

A19 Flammable and combustible liquids, including petroleum products and associated piping and infrastructure must be stored and handled in accordance with the latest edition of Australian Standard 1940 – *The Storage and Handling of Flammable and Combustible Liquids*.

A20 Notwithstanding the requirements of any Australian Standard, any liquids stored on site that have the potential to cause environmental harm must be stored in or serviced by an effective containment system that is impervious to the materials stored and managed to prevent the release of liquids to waters or land.

A21 All containment systems for chemicals and flammable or combustible liquids must be designed to minimise rainfall collection within the system.

A22 Spillage of any contaminant must be contained and rectified to prevent environmental harm.

Transition to new standards

- A23** Where a condition of this environmental authority requires compliance with a standard, policy or guideline published externally to this environmental authority and the standard is amended or changed subsequent to the issue of this environmental authority, the environmental authority holder must:
- (a) comply with the amended or changed standard within two (2) years of the amendment or change being made, unless a different period is specified in the amended standard or relevant legislation, or where the amendment or change relates specifically to regulated structures referred to in condition **G3**, the time specified in that condition; and
 - (b) until compliance with the amended or changed standard, policy or guideline is achieved; continue to remain in compliance with the corresponding provision that was current immediately prior to the relevant amendment or change.

Exploration

- A24** All exploration activities carried out on the mining leases must comply with each of the Standard Environmental Conditions contained in the most recent version of the *Code of Environmental Compliance for Exploration and Mineral Development Projects*.

Cultural heritage

- A25** In the carrying out of the mining activity the environmental authority holder must not adversely impact on the cultural heritage values of any place registered on the Queensland Heritage Register.

END CONDITIONS FOR SCHEDULE A

Schedule B - Air

General

- B1** The release of noxious or offensive odor or any other airborne contaminant resulting from the mining activities must not cause environmental harm at any sensitive place or commercial place.

Nuisance

- B2** The environmental authority holder must ensure that dust generated by the mining activities does not cause exceedances of the following levels when measured at any sensitive or commercial place:
- (a) dust deposition of 120 milligrams per square metre per day, averaged over one month, when monitored in accordance with the most recent version of Australian Standard AS3580.10.1 Methods for sampling and analysis of ambient air—Determination of particulate matter—Deposited matter – Gravimetric method; and
 - (b) a concentration of particulate matter with an aerodynamic diameter of less than 10 micrometres (PM₁₀) suspended in the atmosphere of 50 micrograms per cubic metre over a 24-hour averaging time, for no more than five exceedances recorded each year, when monitored in accordance with the most recent version of either:
 - (i) Australian Standard AS3580.9.6 Methods for sampling and analysis of ambient air—Determination of suspended particulate matter—PM₁₀ high volume sampler with size-selective inlet – Gravimetric method; or
 - (ii) Australian Standard AS3580.9.9 Methods for sampling and analysis of ambient air—Determination of suspended particulate matter—PM₁₀ low volume sampler—Gravimetric method.
 - (c) a concentration of particulate matter with an aerodynamic diameter of less than 2.5 micrometres (PM_{2.5}) suspended in the atmosphere of 25 micrograms per cubic metre over a 24-hour averaging time, when monitored in accordance with the most recent version of AS/NZS3580.9.10 Methods for sampling and analysis of ambient air—Determination of suspended particulate matter—PM (sub)_{2.5}(/sub) low volume sampler—Gravimetric method; and
 - (d) a concentration of particulate matter suspended in the atmosphere of 90 micrograms per cubic metre over a 1 year averaging time, when monitored in accordance with the most recent version of AS/NZS3580.9.3:2003 Methods for sampling and analysis of ambient air—Determination of suspended particulate matter—Total suspended particulate matter (TSP)—High volume sampler gravimetric method.

Meteorological monitoring

- B3** The environmental authority holder must establish an automatic weather station to continuously measure and record wind speed, wind direction, temperature and rainfall. The automatic weather station must be installed in accordance with the latest edition of the Bureau of Meteorology guideline: Guidelines for the positioning and exposure of meteorological instruments and observing facilities.

END CONDITIONS FOR SCHEDULE B

Schedule C - Water

Release to waters

- C1** Contaminants that will, or have the potential to cause environmental harm must not be released directly or indirectly to any waters except as permitted under the conditions of this environmental authority.
- C2** The release of contaminants to waters must only occur from the release points specified in Schedule C - Table 1.
- C3** The release of contaminants to waters in accordance with condition **C2** must not exceed the release limits stated in Schedule C - Table 2 when measured at the release monitoring points specified in Schedule C - Table 1 for each quality characteristic.
- C4** The release of contaminants to waters from the release points must be monitored at the locations and frequency specified in Schedule C - Table 1 for each quality characteristics specified in Schedule C - Table 2.
- C5** The holder must ensure a stream flow gauging station/s is installed, operated and maintained to determine and record stream flows at the locations and flow recording frequency specified in Schedule C - Table 3 for any receiving water into which a release occurs.
- C6** The daily quantity of waters released from each release point specified in Schedule C - Table 1 must be measured and recorded.
- C7** Notwithstanding any other condition of this environmental authority, the release of contaminants to waters in accordance with condition **C2** must only take place during periods of natural flow events specified as minimum flow in Schedule C - Table 3 for the contaminant release point(s) specified in Schedule C - Table 1.
- C8** At the time of release the flow rate in the receiving water must be at least twenty (20) times the rate at which contaminated waters are released.
- C9** In the event that water in Stormwater Dam 2, Crusader Pit and Mount Watson Stormwater Pond meets trigger levels as specified in Schedule C Table 2, the environmental authority holder may release during a period of natural creek flow.
- C10** 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.
- C11** The environmental authority holder must take all reasonable and practicable measures to install all weather access and a safe sampling location at the authorised release points, and take reasonable action to provide all weather access to the receiving environment and background monitoring locations defined in Schedule C – Table 1.

*Note: the administering authority will take into consideration any extenuating circumstances prior to determining an appropriate enforcement response in the event condition **C11** is contravened due to a temporary lack of safe or practical access*

Receiving waters contaminant levels

- C12** The quality of the receiving waters must be monitored at the locations and frequency specified in Schedule C - Table 1 for each quality characteristic stated in Schedule C - Table 2.

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C13 If quality characteristics of the receiving water at any of the downstream monitoring points specified in Schedule C – Table 1 exceed any of the trigger levels specified in Schedule C - Table 2 during a release event, the environmental authority holder must compare the downstream results to the applicable upstream background monitoring site and:

- (a) where the downstream result is the same or a lower value than the upstream background value for the quality characteristic then no further action is to be taken; or
- (b) where the downstream result measured at the monitoring point is greater than the contaminant concentration measured at the applicable upstream background monitoring site:
 - (i) complete an investigation in accordance with the ANZECC (2000) methodology into the potential for environmental harm and provide a written report to the administering authority within 3 months, outlining:
 - (ii) details of the investigations carried out; and
 - (iii) actions taken to prevent environmental harm.

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

C14 If an exceedance in accordance with condition **C13** is identified, the holder of the authority must notify the administering authority within 14 days of receiving the result.

Schedule C - Table 1 (Contaminant release points, upstream background monitoring points and downstream receiving water monitoring points, receiving waters description and monitoring frequency)

Monitoring point	Northing GDA94 MGA Zone 54	Easting GDA94 MGA Zone 54	Contaminant source and location	Receiving waters description	Monitoring frequency
Release points ¹					
Release point 1	7788596	386831	Release from Stormwater Dam 2 spillway	Ephemeral creek	Daily during release (the first sample must be taken within 2 hours of commencement of release).
Release point 2	7807818	400270	Release from Crusader Pit	Ephemeral creek	
Release point 3	7813395	384554	Release from Mount Watson Stormwater Pond spillway	Ephemeral creek	
Reference sites					
Upstream background monitoring points					
US1 – US Mount Cuthbert	7790019	386431	-	Ephemeral creek	Upon commencement of release and thereafter weekly during release.
US2 – US Mount Cuthbert	7791535	386567		Ephemeral creek	
RC3 – US Mount Cuthbert	7790315	386499		Ephemeral creek	

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Monitoring point	Northing GDA94 MGA Zone 54	Easting GDA94 MGA Zone 54	Contaminant source and location	Receiving waters description	Monitoring frequency
MW1 - Reference Site Mount Watson	7810181	387358		Ephemeral creek	Upon commencement of flow of river/creek and weekly thereafter whilst river/creek is flowing.
MW2 – Reference Site Mount Watson	7811905	386238		Ephemeral creek	
MW6 – Reference Site Mount Watson	7812901	380717		Ephemeral creek	
CUS – Reference Site Crusader	7807345	398755		Ephemeral creek	
CUS2 – Reference Site Crusader	7806840	398510		Ephemeral creek	
CUS3 – Reference Site Crusader	7807830	400290	-	Ephemeral creek	
Compliance sites Downstream monitoring points²					
RC1 – DS Mount Cuthbert	7789489	386986	-	Ephemeral creek (may need further information on receiving waters and what it is monitoring)	Upon commencement of release and there after weekly during release. Upon commencement of flow of river/creek and weekly thereafter whilst river/creek is flowing.
RO1 - Six Mile Creek Dam	7789047	388001		Ephemeral creek	
RO5 – DS Mount Cuthbert	7789373	393540		Ephemeral creek	
RO6 – DS Mount Cuthbert	7789595	392186		Ephemeral creek	
RC6 – DS Mount Cuthbert	7789132	387110		Ephemeral creek	
MW3 – DS Mount Watson	7813939	384605		Ephemeral creek	
MW4 – DS Mount Watson	7813802	382352		Ephemeral creek	
MW5 – DS Mount Watson	7813974	382096		Ephemeral creek	
CDS3 – DS Crusader	7807805	398555		Ephemeral creek	
CDS4 – DS Crusader	7811510	397976		Ephemeral creek	

Monitoring point	Northing GDA94 MGA Zone 54	Easting GDA94 MGA Zone 54	Contaminant source and location	Receiving waters description	Monitoring frequency
CDS5 – DS Crusader	7807682	398690		Ephemeral creek	

Notes:

Reference sites must:

- (a) be from the same bio-geographic and climatic region; and
 - (b) have similar geology, soil types and topography; and
 - (c) contain a range of habitats similar to those at the test sites; and
 - (d) have a similar flow regime; and
 - (e) not be so close to the test sites that any disturbance at the test site also results in a change at the reference site.
1. Release points are depicted in Schedule I - Map 2A, Map 2B and Map 2C
 2. Receiving points depicted in Schedule I - Map 3A and Map 3B

Schedule C - Table 2 (Contaminant release limits and trigger levels)

Quality characteristic	Contaminant release limit (for metals (mg/L) based on total metal concentrations)	Trigger levels (for metals (µg/L) based on filtered samples)
Electrical conductivity (uS/cm)	1000 ⁽¹⁾	435 ⁽⁶⁾
pH (pH Unit)	6.0 (minimum)	6.0 (minimum)
	9.0 (maximum)	7.5 (maximum)
Turbidity (NTU)	NA*	15 ⁽³⁾
Suspended solids (mg/L)	Same as reference ⁽⁴⁾ data or 50mg/L, whichever is the highest	-
Hardness	Interpretational purposes	
Sulphate (SO ₄ ²⁻) (mg/L)	1000 ⁽⁵⁾	80 th percentile of the reference ⁽⁴⁾
Aluminium	5 (mg/L) ⁽⁵⁾	55 (µg/L) ⁽²⁾
Arsenic	0.5 (mg/L) ⁽⁵⁾	13 (µg/L) ⁽²⁾
Boron	5 (mg/L) ⁽⁵⁾	370 (µg/L) ⁽²⁾
Cadmium	0.01 (mg/L) ⁽⁵⁾	0.2 (µg/L) ⁽²⁾
Chromium	1 (mg/L) ⁽⁵⁾	1 (µg/L) ⁽²⁾
Cobalt	1 (mg/L) ⁽⁵⁾	90 (µg/L) ⁽²⁾
Copper	1 (mg/L) ⁽⁵⁾	1.4 (µg/L) ⁽²⁾
Lead	0.1 (mg/L) ⁽⁵⁾	3.4 (µg/L) ⁽²⁾
Manganese	not sufficiently toxic ⁽⁵⁾	1900 (µg/L) ⁽²⁾

Quality characteristic	Contaminant release limit (for metals (mg/L) based on total metal concentrations)	Trigger levels (for metals (µg/L) based on filtered samples)
Mercury	0.002 (mg/L) ⁽⁵⁾	0.6 (µg/L) ⁽²⁾
Molybdenum	0.15 (mg/L) ⁽⁵⁾	NA*
Nickel	1 (mg/L) ⁽⁵⁾	11 (µg/L) ⁽²⁾
Selenium	0.02 (mg/L) ⁽⁵⁾	11 (µg/L) ⁽²⁾
Zinc	20 (mg/L) ⁽⁵⁾	8 (µg/L) ⁽²⁾

Notes:

*NA – not available, * local trigger and values need to be developed and provided to the administering authority when a suitable number of data sets have been collected, in accordance with ANZECC (2000) methodology

1. Contaminant limit based on ANZECC (2000) default trigger values for conductivity (Table 3.3.9)
2. Default trigger values – from ANZECC (2000) trigger levels for aquatic ecosystems 95th percentile protection
3. Trigger level based on ANZECC (2000) Table 3.3.3
4. Reference sites are defines in Schedule C - Table 1
5. Contaminant limit based on ANZECC (2000) stock water quality guideline
6. Based on Queensland Water Quality Guidelines (Table G.4)

Schedule C - Table 3 (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
Ephemeral creek being Six Mile Creek	Release point 1	Gauging station 1	7788469	386709	During natural creek flow. <i>For release of contaminants in accordance with the contaminant limits specified in Schedule C – Table 2, natural flow must be at least twenty (20) times the rate at which contaminated water is released.</i>	Continuous (minimum daily)
Ephemeral unnamed creek	Release point 2	Gauging station 2	7807818	400270	During natural creek flow. <i>For release of contaminants in accordance with the</i>	Daily

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
					<i>contaminant limits specified in Schedule C – Table 2, natural flow must be at least twenty (20) times the rate at which contaminated water is released.</i>	
Ephemeral creek	Release point 3	Gauging station 3	7813395	384554	During natural creek flow. <i>For release of contaminants in accordance with the contaminant limits specified in Schedule C – Table 2, natural flow must be at least twenty (20) times the rate at which contaminated water is released.</i>	Daily

Note: Due to the remote location of Crusader, upstream flow will be approximated by daily height levels observed at Gauging station 2 when safe access permits.

Notification of release event

C15 The environmental authority holder must notify the administering authority as soon as practicable and no later than 24 hours after commencing to release mine affected water to the receiving environment. Notification must include the submission of written advice to the administering authority of the following information:

- (a) release commencement date/time;
- (b) details regarding the compliance of the release with the conditions of Schedule C - Water of this environmental authority (that is, contaminant limits, natural flow, discharge volume);
- (c) release point/s;
- (d) release rate;
- (e) release salinity; and
- (f) receiving water/s including the natural flow rate.

- C16** The environmental authority holder must notify the administering authority as soon as practicable and nominally no later than 24 hours after cessation of a release event of the cessation of a release notified under condition **C15** and within 28 days provide the following information in writing:
- (a) release cessation date/time;
 - (b) natural flow rate in receiving water;
 - (c) volume of water released;
 - (d) details regarding the compliance of the release with the conditions Schedule C - Water of this environmental authority (i.e. contaminant limits, natural flow, discharge volume);
 - (e) all in-situ water quality monitoring results; and
 - (f) any other matters pertinent to the water release event.

*Note: Successive or intermittent releases occurring within 24 hours of the cessation of any individual release can be considered part of a single release event and do not require individual notification for the purpose of compliance with conditions **C15** and **C16**, provided the relevant details of the release are included within the notification provided in accordance with conditions **C15** and **C16**.*

Stream sediment contaminant levels

- C17** Sediment quality of receiving waters and upstream background reference waters must be monitored twice a year (once at the end of the wet season and once at the end of the dry season) at the monitoring locations defined in Schedule C - Table 1 and for the parameters defined in Schedule C - Table 4.
- C18** If quality characteristics of sediment at any of the downstream monitoring points specified in Schedule C – Table 1 exceed any of the trigger levels specified in Schedule C – Table 4 during a release event, the environmental authority holder must compare the downstream results to the applicable upstream background reference site and:
- (a) where the downstream result is the same or a lower value than the upstream background reference value for the quality characteristic then no further action is to be taken; or
 - (b) where the downstream result measured at the monitoring point is greater than the contaminant concentration measured at the applicable upstream background monitoring site:
 - (i) complete an investigation in accordance with the ANZECC (2000) methodology into the potential for environmental harm and provide a written report to the administering authority within 3 months, outlining:
 - (ii) details of the investigations carried out; and
 - (iii) actions taken to prevent environmental harm.

*Note: Where an exceedance of a trigger level has occurred and is being investigated, in accordance with **C18 (b)** of this condition, no further reporting is required for subsequent trigger events for that quality characteristic within the investigation period.*

- C19** If an exceedance in accordance with condition **C18** is identified, the holder of the authority must notify the administering authority within 14 days of receiving the result.

- C20** The release of contaminants to water must not result in an exceedance of sediment contaminant limits stated in Schedule C - Table 4 when measured at the monitoring points specified in Schedule C - Table 1 or Schedule C – Table 5 for each quality characteristic.

Schedule C - Table 4 (Stream sediment trigger and contaminant levels)

Parameter	Unit	Trigger level	Contaminant limit
Arsenic	mg/kg	Reference value ⁽¹⁾ or 20 ⁽²⁾ , whichever is higher.	70 ⁽³⁾ or twice the reference value ⁽¹⁾ , whichever is higher
Boron	mg/kg	Reference value ⁽¹⁾	Twice the reference value ⁽¹⁾
Cadmium	mg/kg	Reference value ⁽¹⁾ or 1.5 ⁽²⁾ , whichever is higher.	10 ⁽³⁾ or twice the reference value ⁽¹⁾ , whichever is higher
Chromium	mg/kg	Reference value ⁽¹⁾ or 80 ⁽²⁾ , whichever is higher.	370 ⁽³⁾ or twice the reference value ⁽¹⁾ , whichever is higher.
Cobalt	mg/kg	Reference value ⁽¹⁾	Twice the reference value ⁽¹⁾
Copper	mg/kg	Reference value ⁽¹⁾ or 65 ⁽²⁾ , whichever is higher.	270 ⁽³⁾ or twice the reference value ⁽¹⁾ , whichever is higher.
Lead	mg/kg	Reference value ⁽¹⁾ or 50 ⁽²⁾ , whichever is higher.	220 ⁽³⁾ or twice the reference value ⁽¹⁾ , whichever is higher.
Manganese	mg/kg	Reference value ⁽¹⁾	Twice the reference value ⁽¹⁾
Mercury	mg/kg	Reference value ⁽¹⁾ or 0.15 ⁽²⁾ , whichever is higher.	1 ⁽³⁾ or twice the reference value ⁽¹⁾ , whichever is higher.
Molybdenum	mg/kg	Reference value ⁽¹⁾	Twice the reference value ⁽¹⁾
Nickel	mg/kg	Reference value ⁽¹⁾ or 21 ⁽²⁾ , whichever is higher.	52 ⁽³⁾ or twice the reference value ⁽¹⁾ , whichever is higher.
Selenium	mg/kg	Reference value ⁽¹⁾	Twice the reference value ⁽¹⁾
Zinc	mg/kg	Reference value ⁽¹⁾ or 200 ⁽²⁾ or, whichever is higher.	410 ⁽³⁾ or twice the reference value ⁽¹⁾ , whichever is higher.

1. Reference sites are defined in Schedule C - Table 1.
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 sediments

Haul road dust suppression

- C21** Water from Satellite Pits¹ may be used for dust suppression and stock watering to the area defined as the Mount Watson / Mount Cuthbert Haul Road and the Crusader Haul Road identified in Schedule I – Map 3D, where water quality in Satellite Pits does not exceed on-site water storage quality contaminant limits defined in Schedule C - Table 7.

¹ Satellite Pit water is defined as water from Warwick Castle Pit, Crusader Pit, Orphan Pit, Mount Watson Pit and Dobbyn Pit as described in Schedule C- Table 6 (Water Storage Monitoring)

Haul road receiving waters

- C22** Receiving waters affected by the release of Satellite Pit Water for dust suppression along Mount Watson / Mount Cuthbert Haul Road and Crusader Haul Road must be monitored at the locations and frequencies defined in Schedule C - Table 5.

Schedule C - Table 5 (Haul road dust suppression receiving waters and monitoring frequency)

Monitoring point ¹	Northing GDA94 MGA Zone 54	Easting GDA94 MGA Zone 54	Receiving waters description	Monitoring frequency
Hare creek crossing downstream	7807283	387955	Ephemeral creek	If Satellite Pit water is being used for dust suppression of the Crusader Haul Road and Mount Watson / Mount Cuthbert Haul Road, monitoring must occur upon commencement of flow of the river/creek and weekly thereafter whilst river/creek is flowing.
St Pauls creek crossing downstream	7801145	386339	Ephemeral creek	
Warwick Castle crossing downstream	7797811	386079	Ephemeral creek	
MW1 – Downstream	7810302	387556	Ephemeral creek	
MW2 – Downstream	7811980	386245	Ephemeral creek	
Crusader 2 - Downstream	7807433	398729	Ephemeral creek	
Coppermine Creek 2 - Downstream	7803259	394991	Ephemeral creek	
Coppermine Creek 3 - Downstream	7800941	393955	Ephemeral creek	
Crusader 4 - Downstream	7796299	390708	Ephemeral creek	
Hare creek crossing reference ²	7807207	387617	Ephemeral creek	
St Pauls creek crossing reference ²	7800919	386085	Ephemeral creek	
Warwick Castle crossing reference ²	7797775	386154	Ephemeral creek	
Crusader 1 - Upstream	7807100	398680	Ephemeral creek	
Coppermine Creek 1 - Upstream	7803064	395153	Ephemeral creek	
Coppermine Creek 4 - Upstream	7800934	393301	Ephemeral creek	
Crusader 3 - Upstream	7795950	390514	Ephemeral creek	

1. Monitoring points depicted in Schedule I –Map 3C and Schedule I –Map 3D

2. Reference sites are defined in Schedule C – Table 1.

Haul road receiving waters contaminant levels

- C23** If quality characteristics of the waters affected by the release of Satellite Pit Water for dust suppression along Mount Watson/ Mount Cuthbert Haul Road and Crusader Haul Road, when monitored at the locations specified in Schedule C – Table 5, exceed any of the trigger levels specified in Schedule C – Table 2, then the environmental authority holder must compare the downstream results to the applicable upstream background monitoring sites and:
- (a) where the downstream result is the same or a lower value than the applicable upstream background site for the quality characteristic then no further action is to be taken; or
 - (b) where the downstream result measured at the monitoring point is greater than the contaminant concentration measured at the applicable upstream background monitoring site:
 - (i) complete an investigation in accordance with the ANZECC (2000) methodology into the potential for environmental harm and provide a written report to the administering authority within 3 months, outlining:
 - (ii) details of the investigations carried out; and
 - (iii) actions taken to prevent environmental harm.

*Note: Where an exceedance of a trigger level has occurred and is being investigated, in accordance with condition **C23 (b)** of this condition, no further reporting is required for subsequent trigger events for that quality characteristic within the investigation period.*

- C24** If an exceedance in accordance with condition **C23** is identified, the holder of the authority must notify the administering authority within 14 days of receiving the result.
- C25** Receiving waters affected by the release of Satellite Pit Water for dust suppression from along Mount Watson / Mount Cuthbert Haul Road and Crusader Haul Road must not exceed the contaminant limits defined in Schedule C - Table 2.

Haul road stream sediment contaminant levels

- C26** Sediment quality of reference waters and receiving waters affected by the release of Satellite Pit water for dust suppression along the Mount Watson / Mount Cuthbert Haul Road and Crusader Haul Road must be monitored twice a year (once at the end of the wet season and once at the end of the dry season) at the monitoring locations defined in Schedule C – Table 5 and for the parameters defined in Schedule C – Table 4.
- C27** If quality characteristics of the sediments within receiving waters affected by the release of Satellite Pit Water for dust suppression along Mount Watson/ Mount Cuthbert Haul Road and Crusader Haul Road, when monitored at the locations specified in Schedule C – Table 5, exceed any of the trigger levels specified in Schedule C – Table 4, then the environmental authority holder must compare the downstream results to the applicable upstream background monitoring sites and:
- (a) where the downstream result is the same or a lower value than the applicable upstream background monitoring site for the quality characteristic then no further action is to be taken; or
 - (b) where the downstream result measured at the monitoring point is greater than the contaminant concentration measured at the applicable upstream background monitoring site:

- (i) complete an investigation in accordance with the ANZECC (2000) methodology into the potential for environmental harm and provide a written report to the administering authority within 3 months, outlining:
 - i. details of the investigations carried out; and
 - ii. actions taken to prevent environmental harm.

Note: Where an exceedance of a trigger level has occurred and is being investigated, in accordance with condition C27 (b) of this condition, no further reporting is required for subsequent trigger events for that quality characteristic within the investigation period.

C28 If an exceedance in accordance with condition **C27** is identified, the holder of the authority must notify the administering authority within 14 days of receiving the result.

Receiving environment monitoring program (REMP)

C29 The environmental authority holder must develop and implement a REMP to monitor, identify and describe any adverse impacts to surface water environmental values, quality and flows due to the authorised mining activity. This must include monitoring the effects of the mine on the receiving environment periodically (under natural flow conditions) and while mine affected water is being discharged from the site. For the purposes of the REMP, the receiving environment is the waters of the Leichhardt River catchment, and connected or surrounding waterways within five (5) kilometres downstream of the release. The REMP should encompass any sensitive receiving waters or environmental values downstream of the authorised mining activity that will potentially be directly affected by an authorised release of mine affected water.

C30 A REMP Design Document that addresses the requirements of the REMP must be prepared and made available to the administering authority upon request.

C31 A report outlining the findings of the REMP, including all monitoring results and interpretations must be prepared annually and made available on request to the administering authority. This must include an assessment of background reference water quality, the condition of downstream water quality compared against water quality objectives, and the suitability of current discharge limits to protect downstream environmental values.

Monitoring of water storage quality

C32 Water storages stated in Schedule C - Table 6 must be monitored for the water quality characteristics specified in Schedule C - Table 7 at the monitoring locations and at the monitoring frequency specified in Schedule C - Table 6.

C33 In the event that waters storages defined in Schedule C - Table 6 exceed the contaminant limits defined in Schedule C - Table 7, the holder of the environmental authority must implement measures to prevent access to waters by all livestock and minimise access by native fauna.

Schedule C - Table 6 (Water storage monitoring)

Water storage description	Latitude or northing (GDA94)	Longitude or easting (GDA94)	Monitoring location	Frequency of monitoring
PLS Pond (High hazard dam)	7788816	0386561	Within PLS Pond	Annually, March
ILS Pond (High hazard dam)	7788790	0386505	Within ILS Pond	Annually, March
Raffinate Pond (High hazard dam)	7788845	0386619	Within Raffinate Pond	Annually, March
Stormwater Dam (High hazard dam)	7788727	0386584	Within Stormwater Dam	Annually, March
Stormwater Dam 2 (High hazard dam)	7788603	386712	Within Stormwater Dam 2	Annually, March
Mount Watson PLS Pond	7813005	384252	Within PLS Pond	Annually, March
Mount Watson ILS Pond	7813048	384241	Within ILS Pond	Annually, March
Mount Watson Raffinate Pond	7813090	384230	Within Raffinate Pond	Annually, March
Mount Watson Stormwater Pond	7813179	384512	Within Stormwater Pond	Annually, March
Mount Cuthbert Pit	7789383	0386456	Within Mount Cuthbert Pit	Monthly
Dobbyn Pit	7810602	0395117	Within Dobbyn Pit	Monthly
Warwick Castle Pit	7798439	0384467	Within Warwick Castle Pit	Monthly

Water storage description	Latitude or northing (GDA94)	Longitude or easting (GDA94)	Monitoring location	Frequency of monitoring
Crusader Pit	7808043	0400162	Within Crusader Pit	Monthly
Orphan Pit	7811868	0397717	Within Orphan Pit	Monthly
Mount Watson Pit	N/A	N/A	Within Mount Watson Pit	Monthly

Note: Water storage monitoring points depicted in Schedule I – Map 4A and Map 4B.

Schedule C - Table 7 (Onsite water storage contaminant limits)

Quality characteristic	Test value	Contaminant limit
pH (pH unit)	Range	Greater than 4, less than 9 ⁽²⁾
EC (µS/cm)	Maximum	5970 ⁽¹⁾
Sulphate (mg/L)	Maximum	1000 ⁽¹⁾
Boron(mg/L)	Maximum	5 ⁽¹⁾
Aluminium (mg/L)	Maximum	5 ⁽¹⁾
Arsenic (mg/L)	Maximum	0.5 ⁽¹⁾
Cadmium (mg/L)	Maximum	0.01 ⁽¹⁾
Cobalt (mg/L)	Maximum	1 ⁽¹⁾
Copper (mg/L)	Maximum	1 ⁽¹⁾
Lead (mg/L)	Maximum	0.1 ⁽¹⁾
Manganese (mg/L)	Maximum	3.6 ⁽¹⁾
Nickel (mg/L)	Maximum	1 ⁽¹⁾
Zinc (mg/L)	Maximum	20 ⁽¹⁾

Notes: Total measurements (unfiltered) must be taken and analysed

1. Contaminant limit based on ANZECC & ARMICANZ (2000) stock water quality guidelines.
2. Page 4.2-15 of ANZECC & ARMICANZ (2000) "Soil and animal health will not generally be affected by water with pH in the range of 4–9".

Groundwater

C34 The environmental authority holder must not release contaminants to groundwater.

C35 Groundwater quality and level must be monitored at the locations and frequencies defined in Schedule C - Table 8 for parameters identified in Schedule C - Table 9.

Schedule C - Table 8 (Groundwater monitoring locations and frequency)

Monitoring point ²	Easting MGA (GDA94)	Northing MGA (GDA94)	Surface RL ¹ (m)	Monitoring frequency
Compliance bores				
MB3 ⁵ – Mount Cuthbert	386660	7788785	255.40	Monthly
MB4 – Mount Cuthbert	386792	7788928	252.37	
MB5 – Mount Cuthbert	386893	7788603	245.57	
MB6 – Mount Cuthbert	387110	7789132	236.17	
MB7 ⁵ – Mount Cuthbert	386468	7789528	258.10	
MB8 ⁵ – Mount Cuthbert	386574	7789297	259.65	
MB9 – Mount Cuthbert	386986	7789489	238.77	
MB16 – Mount Cuthbert	387017	7788839	242.26	
MB17 – Mount Cuthbert	387166	7788675	250.4	
MB18 – Mount Cuthbert	386907	7788853	243.75	
MB19 – Mount Cuthbert	386885	7788351	255.65	
MB20 ⁶ – Mount Cuthbert	386818	7789524	247.52	
MB21 ⁶ – Mount Cuthbert	386904	7789215	252.96	
LMB1 – Mount Watson	382817	7813273	252.76	
LMB4 ³ – Mount Watson	384262	7813113	259.64	
LMB5 – Mount Watson	384581	7813856	250.24	
LMB6 – Mount Watson	384710	7812760	262.76	
LMB7 – Mount Watson	384157	7813173	265.96	
LMB8 – Mount Watson	384553	7813414	253.88	
Observation bores				
LRPB1 – Mount Cuthbert	391471	7781036	161.67	Yearly
RN118985 – Mount Cuthbert	390677	7781559	168.71	
Reference bores ⁴				
MB10 – Mount Cuthbert	386425	7789972	247.19	Monthly
MB11 – Mount Cuthbert	386872	7787707	250.71	
LMB2 – Mount Watson	382327	7813903	244.02	
LMB3 – Mount Watson	383442	7814173	281.40	

Notes:

1. RL measurement to be taken from top of bore casing.
2. Monitoring points depicted in Schedule I – Map 5A and Map 5B.
3. Monitoring bore lies within footprint of Mount Watson Heap Leach Facility and will be decommissioned. Monthly monitoring will continue until bore is decommissioned.
4. Reference sites are defined in Schedule C – Table 1.
5. Condition C36 and C38 do not apply to monitoring bores MB3, MB7 and MB8 until **1 July 2021**.
6. Condition C36 and C38 do not apply to monitoring bores MB20 and MB21 until **3 October 2018**.

Schedule C - Table 9 (Groundwater contaminant limits and trigger levels)

Quality characteristic	Contaminant limit (mg/L) (for metals (mg/L) based on total metal concentrations)	Trigger levels (µg/L) (for metals (µg/L) based on filtered samples)
Electrical conductivity (uS/cm)	1000 ⁽¹⁾	250 ⁽⁵⁾
pH (pH Unit)	6.0 (minimum)	6.0 (minimum)
	9.0 (maximum)	7.5 (maximum)
Level of groundwater	(interpretational purposes)	(interpretational purposes)
Chloride	(interpretational purposes)	(interpretational purposes)
Sulphate (SO ₄ ²⁻) (mg/L)	1000 ⁽⁴⁾	80 th percentile of the reference ⁽³⁾
Aluminium	5 (mg/L) ⁽⁴⁾	55 (µg/L) ⁽²⁾
Arsenic	0.5 (mg/L) ⁽⁴⁾	13 (µg/L) ⁽²⁾
Boron	5 (mg/L) ⁽⁴⁾	370 (µg/L) ⁽²⁾
Cadmium	0.01 (mg/L) ⁽⁴⁾	0.2 (µg/L) ⁽²⁾
Chromium	1 (mg/L) ⁽⁴⁾	1 (µg/L) ⁽²⁾
Cobalt	1 (mg/L) ⁽⁴⁾	90 (µg/L) ⁽²⁾
Copper	1 (mg/L) ⁽⁴⁾	1.4 (µg/L) ⁽²⁾
Lead	0.1 (mg/L) ⁽⁴⁾	3.4 (µg/L) ⁽²⁾
Manganese	not sufficiently toxic ⁽⁴⁾	1900 (µg/L) ⁽²⁾
Mercury	0.002 (mg/L) ⁽⁴⁾	0.6 (µg/L) ⁽²⁾
Molybdenum	0.15 (mg/L) ⁽⁴⁾	NA*
Nickel	1 (mg/L) ⁽⁴⁾	11 (µg/L) ⁽²⁾
Selenium	0.02 (mg/L) ⁽⁴⁾	11 (µg/L) ⁽²⁾
Zinc	20 (mg/L) ⁽⁴⁾	8 (µg/L) ⁽²⁾

Notes:

*NA – not available, local trigger and values need to be developed no later than **22 August 2016**.

1. Contaminant limit based on ANZECC (2000) default trigger values for conductivity (Table 3.3.9)
2. Default trigger values – from ANZECC (2000) trigger levels for aquatic ecosystems 95th percentile protection
3. Reference sites are defined in Schedule C - Table 1
4. Contaminant limit based on ANZECC (2000) stock water quality guideline
5. Based on Queensland Water Quality Guidelines (Table G.4)

C36 If quality characteristics of groundwater at a compliance bore specified in Schedule C - Table 8 exceeds any of the groundwater quality trigger levels specified in Schedule C - Table 9, the environmental authority holder must compare the compliance monitoring bore results to the relevant reference site and:

- a) if the level of contaminants at the compliance site does not exceed the reference monitoring site data, then no action is to be taken; and
- b) if the level of contaminants at the compliance site is greater than the reference monitoring site data, complete an investigation in accordance with the ANZECC (2000) methodology, into the potential for environmental harm and provide a written report to the administering authority within ninety (90) days, outlining:
 - (i) details of the investigations carried out; and
 - (ii) actions taken to prevent environmental harm.

*Note: Where an exceedance of a trigger level has occurred and is being investigated, in accordance with **C36 (b)** of this condition, no further reporting is required for subsequent trigger events for that quality characteristic within the investigation period.*

- C37** If an exceedance in accordance with condition **C36** is identified, the holder of the authority must notify the administering authority within 14 days of receiving the result.
- C38** Groundwaters from compliance bores identified in Schedule C - Table 8, must not exceed any of the limits defined in Schedule C - Table 9.
- C39** The construction, maintenance and management of groundwater bores (including groundwater monitoring bores) must be undertaken in a manner that prevents or minimises impacts to the environment and ensures the integrity of the bores to obtain accurate monitoring.
- C40** Annual groundwater monitoring reports must be prepared and submitted to the administering authority with each annual return, and include the following:
- a) analysis of groundwater chemistry;
 - b) the hydro-geological status of all groundwater bores;
 - c) groundwater conditions; and
 - d) until **1 July 2021**, for the Mount Cuthbert pit, include:
 - (i) the pit water level; and
 - (ii) actions taken to date to achieve compliance with conditions C41 to C44.
- C41** By **5 December 2016**, an appropriately qualified person(s) must design and install a minimum of two (2) additional groundwater compliance bores (MB20 and MB21), in accordance with, but not limited to, the following requirements:
- a) be installed in locations hydraulically down-gradient of monitoring points MB7 and MB8, but hydraulically up-gradient of the existing monitoring points MB6 and MB9; and
 - b) be installed at locations and depths which yield representative groundwater samples from the uppermost aquifer so as to:
 - (i) detect any seepage of contaminants to groundwater from the site; and
 - (ii) establish the quality of groundwater affected by any seepage of contaminants.
- C42** By **12 December 2016**, provide data for easting, northing and surface RL to the administering authority, for the additional groundwater compliance bores (MB20 and MB21), required by **condition C41**.

- C43** By **1 July 2018**, the environmental authority holder must dewater the Mount Cuthbert Pit to 140m AHD.
- C44** The environmental authority holder must take action to reduce the Mount Cuthbert pit water level when the level reaches 175m AHD.
- C45** From **1 July 2018**, the Mount Cuthbert pit water level must not exceed 193m AHD.

Mount Cuthbert Pit operational plan

- C46** The environmental authority holder must:
- (a) develop and implement a Mount Cuthbert Pit Operational Plan to prevent any contaminated waters from recharging from the Mount Cuthbert Pit into the receiving environment;
 - (b) address, as a minimum, the following:
 - (i) diversion of uncontaminated stormwater away from the Mount Cuthbert Pit and minimising catchment size;
 - (ii) monitoring of groundwater/water levels surrounding and within the Mount Cuthbert Pit; and
 - (iii) contingency plans to prevent the release of contaminated waters from the Mount Cuthbert Pit into the receiving environment, particularly groundwater;
 - (iv) undertake a review of the Mount Cuthbert Pit Operational Plan at a minimum frequency of every three (3) years; and
 - (v) provide the Mount Cuthbert Pit Operational Plan to the administering authority upon request.

Water monitoring reporting

- C47** The following information must be recorded in relation to all water monitoring required under the conditions of this environmental authority and submitted to the administering authority in the specified format when requested:
- (a) the date on which the sample was taken;
 - (b) the time at which the sample was taken;
 - (c) the monitoring point at which the sample was taken;
 - (d) the measured or estimated daily quantity of the contaminants released from all release points;
 - (e) the release flow rate at the time of sampling for each release point;
 - (f) the results of all monitoring and details of any exceedances with the conditions of this environmental authority; and
 - (g) water quality monitoring data must be provided to the administering authority in the specified electronic format upon request.
- C48** The release of contaminants directly or indirectly to waters:
- (a) must not produce any visible discolouration of receiving waters; or

- (b) must not 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.

Water management plan

- C49** A Water Management Plan must be developed by an appropriately qualified person and implemented no later than **22 August 2016**.

Saline, acid rock and metalliferous drainage

- C50** The environmental authority holder must ensure proper and effective measures are taken to avoid or otherwise minimise the generation and/or release of saline, acid rock and/or metalliferous mine drainage.

Stormwater, sediment and erosion controls

- C51** 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 prevent or minimise erosion and the release of sediment to receiving waters and the contamination of stormwater.
- C52** 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.

Sewage effluent

- C53** All effluent released from the treatment plant must be monitored at the frequency and for the parameters specified in Schedule C - Table 10.

Schedule C - Table 10 (Sewage effluent quality targets for dust suppression and irrigation)

Quality characteristics	Release limit	Units	Limit type	Monitoring frequency
pH	6.5- 8	pH	Range	Quarterly
Faecal Coliforms, based on the average of a minimum of five samples collected	1000	Colonies per 100ml	Max	Quarterly
5 day Biochemical Oxygen Demand (BOD)	20	mg/L	Max	Quarterly
Total Suspended Solids	30	mg/L	Max	Quarterly

- C54** Sewage effluent must not exceed sewage effluent release limits defined in Schedule C - Table 10.
- C55** Sewage effluent used for dust suppression or irrigation must not cause spray drift or over spray to any sensitive or commercial place, and must not be applied at a rate that causes pooling, ponding and/or runoff of any effluent irrigated.
- C56** Sewage effluent from sewage treatment facilities must be reused or evaporated and must not be released from the sewage treatment plant to any waterway or drainage line.

END CONDITIONS FOR SCHEDULE C

Schedule D - Noise and vibration

Noise and vibration nuisance

- D1** Noise and vibration from the mining activity must not cause an environmental nuisance, at any sensitive or commercial place.

END CONDITIONS FOR SCHEDULE D

Schedule E - Waste

Storage and disposal of tyres

- E1** Storage and disposal of scrap tyres resulting from the mining activities authorised under this environmental authority must be undertaken in accordance with the Operational Policy 'Disposal and storage of scrap tyres at mine sites (EM729)', and any updates made to the document from time to time.
- E2** The environmental authority holder may burn vegetation cleared in the course of carrying out extraction activities provided the activity does not cause environmental harm at any sensitive place or commercial place.

Waste management

- E3** The environmental authority holder must develop, implement and maintain a Waste Management Plan. The plan must include a program for safe recycling or disposal of all wastes; a program for the disposal procedure for hazardous wastes, and re-using and recycling where possible.
- E4** Unless otherwise permitted by the conditions of this environmental authority or with prior approval from the administering authority and in accordance with a relevant standard operating procedure, waste must not be burnt.

Regulated waste

- E5** Regulated waste, other than that authorised to be disposed of on site under this authority, must be removed from the site that is over 250kg in weight, must be transported by a person who holds a current authority to transport such wastes to a facility that is lawfully able to accept the waste under the provisions of the *Environmental Protection Act 1994*.

General waste disposal

- E6** General waste must only be disposed of into the waste disposal trench facility of ML90090 as identified in Schedule I, Map 1A (Project Infrastructure Layout – Mount Cuthbert), and be in accordance with the Waste Management Plan under condition **E3**.
- E7** The environmental authority holder must not cause, allow or permit any waste generated outside the mine to be received at the mine for storage, treatment, processing or disposal.

END CONDITIONS FOR SCHEDULE E

Schedule F - Land

Rehabilitation landform criteria

F1 Land disturbed by mining activities must be rehabilitated in accordance with Schedule F - Table F1 (Final Land Use and Rehabilitation Approval Schedule), Schedule F –Table 2 (Landform design) and the objectives of the Post Mine Land Use Plan required under condition **F9**.

Schedule F - Table 1 (Final land use and rehabilitation approval schedule)

Disturbance type	Projective Surface Area (ha)	Pre-mine land use or description	Post-mine land description	Post mine land classification	Reference site identification central peg
Mount Cuthbert					
Mine pit	4	LIG	Water Storage	VIII	386452 7789377
Overburden dumps	6	LIG	LIG	VII/VIII	386274 7789413
Old Kalkadoon workings and Laydown	2	LIG	LIG	VII/VIII	386562 7789479
Topsoil dumps and borrow pits	7	LIG	LIG	VII/VIII	386948 7788222
Roads/tracks	7	LIG	LIG	VII/VIII	N/A
ROM and crushing area	6.5	LIG	LIG	VII/VIII	386416 7789203
Plant area	1	LIG	LIG	VII/VIII	386712 7788795
Plant laydown areas	1	LIG	LIG	VII/VIII	386725 7788911
Process water ponds	0.6	LIG	LIG	VII/VIII	386559 7788818
Stormwater dam	3.1	LIG	LIG	VII/VIII	386559 7788703
Stormwater dam 2	8.0	LIG	LIG	VII/VIII	386649 7788573
Offices, workshops and fuel areas	0.6	LIG	LIG	VII/VIII	386784 7788819
Mining contractor workshop and laydown	1.5	LIG	LIG	VII/VIII	386886 7788784
Leach pads	16	LIG	LIG	VII/VIII	386439 7789003
Septic systems/treatment plant	0.1	LIG	LIG	VII/VIII	387146 7788517
Sediment and seepage ponds	2	LIG	LIG	VII/VIII	386383 7788909
Freshwater dam	1	LIG	LIG	VII/VIII	386113 7789065

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Disturbance type	Projective Surface Area (ha)	Pre-mine land use or description	Post-mine land description	Post mine land classification	Reference site identification central peg
Diversion channels	4.5	LIG	LIG	VII/VIII	386169 7788909
Pipelines and powerlines	0.5	LIG	LIG	VII/VIII	N/A
Rubbish dumps	1.0	LIG	LIG	VII/VIII	386891 7788427
Air strip	3.0	LIG	LIG	VII/VIII	386959 7788001
Accommodation village	3.2	LIG	LIG	VII/VIII	387194 7788328
Core shed	0.1	LIG	LIG	VII/VIII	386543 7790104
Exploration	2	LIG	LIG	VII/VIII	386454 7789380
Total	81.7				
Mighty Atom					
Mine pit	12.5	LIG	Water Storage	VIII	394320 7794382
Overburden dumps	32	LIG	LIG	VII/VIII	394357 7794387
Topsoil dumps	4	LIG	LIG	VII/VIII	394320 7794382
Silt traps	0.5	LIG	LIG	VII/VIII	394320 7794382
Roads/tracks	6.0	LIG	LIG	VII/VIII	N/A
Stockpiles	3	LIG	LIG	VII/VIII	394333 7794337
Total	58				
Hidden Treasure					
Mine pit	3.0	LIG	Water Storage	VIII	375282 7823764
Diversions	0.1	LIG	LIG	VII/VIII	375282 7823764
Overburden dumps	4.5	LIG	LIG	VII/VIII	375282 7823764
Topsoil dumps	0.2	LIG	LIG	VII/VIII	375282 7823764
Silt traps	0.1	LIG	LIG	VII/VIII	375282 7823764
Roads/tracks	1.0	LIG	LIG	VII/VIII	N/A
Workshop areas	0.2	LIG	LIG	VII/VIII	375282 7823764

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Disturbance type	Projective Surface Area (ha)	Pre-mine land use or description	Post-mine land description	Post mine land classification	Reference site identification central peg
Storage areas	0.2	LIG	LIG	VII/VIII	375282 7823764
Stockpiles	0.9	LIG	LIG	VII/VIII	375282 7823764
Total	10.2				
Dobbyn					
Mine pit	3.0	LIG	Water Storage	VIII	395116 7810599
Diversions	0.1	LIG	LIG	VII/VIII	395119 7810471
Overburden dumps	6.5	LIG	LIG	VII/VIII	394962 7810703
Topsoil dumps	0.5	LIG	LIG	VII/VIII	395152 7810726
Silt traps	0.1	LIG	LIG	VII/VIII	395226 7810449
Roads/tracks	0.4	LIG	LIG	VII/VIII	N/A
Workshop areas	0.2	LIG	LIG	VII/VIII	395071 7810718
Storage areas	0.2	LIG	LIG	VII/VIII	395000 7810472
Stockpiles	0.5	LIG	LIG	VII/VIII	394964 7810443
Total	11.5				
Ned Kelly					
Mine pit	1.2	LIG	Water Storage	VIII	393571 7785656
Diversions	0.1	LIG	LIG	VII/VIII	393571 7785656
Overburden dumps	3.5	LIG	LIG	VII/VIII	393571 7785656
Topsoil dumps	0.5	LIG	LIG	VII/VIII	393571 7785656
Silt traps	0.1	LIG	LIG	VII/VIII	393571 7785656
Roads/tracks	0.5	LIG	LIG	VII/VIII	N/A
Storage areas	0.1	LIG	LIG	VII/VIII	393571 7785656
Stockpiles	0.5	LIG	LIG	VII/VIII	393571 7785656
Total	6.5				

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Disturbance type	Projective Surface Area (ha)	Pre-mine land use or description	Post-mine land description	Post mine land classification	Reference site identification central peg
Leichhardt					
Mine pit	3	LIG	Water Storage	VIII	388884 7749972
Overburden dumps	4.5	LIG	LIG	VII/VIII	388884 7749972
Topsoil dumps	0.5	LIG	LIG	VII/VIII	388884 7749972
Silt traps	0.1	LIG	LIG	VII/VIII	388884 7749972
Roads/tracks	0.5	LIG	LIG	VII/VIII	N/A
Storage areas	0.1	LIG	LIG	VII/VIII	388884 7749972
Stockpiles	0.5	LIG	LIG	VII/VIII	388884 7749972
Total	9.2				
Warwick Castle					
Mine pit	3	LIG	Water Storage	VIII	384474 7798403
Diversions	0.3	LIG	LIG	VII/VIII	384718 7798522
Overburden dumps	5.0	LIG	LIG	VII/VIII	384567 7798466
Topsoil dumps	0.2	LIG	LIG	VII/VIII	384639 7798281
Silt traps	0.1	LIG	LIG	VII/VIII	384507 7798724
Roads/tracks	1.0	LIG	LIG	VII/VIII	N/A
Storage areas	0.5	LIG	LIG	VII/VIII	384621 7798382
Total	10.1				
Crusader					
Mine pit	5.12	LIG	Water Storage	VIII	400176 7808076
Diversions and Silt Traps	0.7	LIG	LIG	VII/VIII	400178 7807860
Overburden dumps	10.0	LIG	LIG	VII/VIII	400184 7807924
Topsoil dumps	1.5	LIG	LIG	VII/VIII	400205 7807939
Roads/tracks	1.5	LIG	LIG	VII/VIII	N/A

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Disturbance type	Projective Surface Area (ha)	Pre-mine land use or description	Post-mine land description	Post mine land classification	Reference site identification central peg
Workshop and Storage areas	0.6	LIG	LIG	VII/VIII	400047 7807981
Rom Pad	4.5	LIG	LIG	VII/VIII	400040 7808040
Exploration	3.8	LIG	LIG	VII/VIII	N/A
Water Storage	0.3	LIG	LIG	VII/VIII	400090 7808116
Laydown	0.6	LIG	LIG	VII/VIII	400237 7807834
Total	28.62				
Orphan					
Mine pit	1.2	LIG	Water Storage	VIII	397696 7811869
Overburden dumps	1.5	LIG	LIG	VII/VIII	397839 7811706
Topsoil stockpiles	1	LIG	LIG	VII/VIII	397788 7811933
Silt traps	0.1	LIG	LIG	VII/VIII	397833 7811817
Rom pad	1	LIG	LIG	VII/VIII	397767 7811708
Roads/tracks	0.5	LIG	Roads/Tracks for Landowner	VIII	N/A
Workshop areas	0.5	LIG	LIG	VII/VIII	397574 7811862
Total	5.8				
Dinkum Digger/Scotchman					
Mine pit	5	LIG	Water Storage	VIII	404514 7806075
Overburden dumps	5	LIG	LIG	VII/VIII	404514 7806075
Topsoil stockpiles	1	LIG	LIG	VII/VIII	404514 7806075
Silt traps	0.1	LIG	LIG	VII/VIII	404514 7806075
Rom pad	0.5	LIG	LIG	VII/VIII	404514 7806075
Roads/tracks	0.1	LIG	Roads/Tracks for Landowner	VIII	N/A
Workshop areas	0.25	LIG	LIG	VII/VIII	404514 7806075

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Disturbance type	Projective Surface Area (ha)	Pre-mine land use or description	Post-mine land description	Post mine land classification	Reference site identification central peg
Total	11.95				
Standby					
Mine pit	10	LIG	Water Storage	VIII	393990 7785560
Overburden dumps	10	LIG	LIG	VII/VIII	393990 7785560
Topsoil stockpiles	2	LIG	LIG	VII/VIII	393990 7785560
Silt trap	0.2	LIG	LIG	VII/VIII	393990 7785560
ROM pad	1	LIG	LIG	VII/VIII	393990 7785560
Roads/tracks	0.5	LIG	Roads/Tracks	VIII	N/A
Workshop areas	0.25	LIG	LIG	VII/VIII	393990 7785560
Total	23.95				
Sparklet					
Mine pit	3	LIG	Water Storage	VIII	401340 7807300
Overburden dumps	3	LIG	LIG	VII/VIII	401340 7807300
Topsoil stockpiles	0.5	LIG	LIG	VII/VIII	401340 7807300
Silt trap	0.1	LIG	LIG	VII/VIII	401340 7807300
ROM pad	0.25	LIG	LIG	VII/VIII	401340 7807300
Roads/tracks	0.1	LIG	Roads/Tracks for Landowner	VIII	N/A
Workshop areas	0.25	LIG	LIG	VII/VIII	401340 7807300
Total	7.2				
Borefield					
Gravel excavations	10	LIG	Water Storage	VIII	391840 7781300
Topsoil stockpiles	1	LIG	LIG	VII/VIII	391840 7781300
Gravel Stockpiles	1	LIG	LIG	VII/VIII	391840 7781300
Roads/Tracks	5	LIG	Roads/Tracks	VIII	N/A

Environmental authority EPML00863313

Disturbance type	Projective Surface Area (ha)	Pre-mine land use or description	Post-mine land description	Post mine land classification	Reference site identification central peg
Total	17				
Mount Watson					
Watson pit	21.2	LIG	Water Storage	VIII	383311 7813699
Waste rock dump	18	LIG	LIG	VII/VIII	383093 7813538
Low grade stockpile	5	LIG	LIG	VII/VIII	383749 7813170
Topsoil dumps	1.5	LIG	LIG	VII/VIII	382715 7813320
Roads/tracks	5	LIG	LIG	VII/VIII	N/A
Workshops	1	LIG	LIG	VII/VIII	384135 7813056
ROM pads	3	LIG	LIG	VII/VIII	383866 7813147
Explosives magazine	0.5	LIG	LIG	VII/VIII	382859 7813242
Turkeys nest dam	0.5	LIG	Water Storage	VIII	383451 7813678
Sediment dams	0.5	LIG	Water Storage	VIII	383043 7813291
Helipad	0.2	LIG	LIG	VII/VIII	383859 7813066
Heap leach facility (heap leach pad, launder drains, and associated disturbance)	31.2	LIG	LIG	VII/VIII	384327 7812854
Process water ponds	0.9	LIG	LIG	VII/VIII	384240 7813048
Stormwater pond	9.8	LIG	LIG	VII/VIII	384445 7813206
Clean water diversion drain	1.2	LIG	LIG	VII/VIII	N/A
Total	99.5				

Notes:

LIG- Low Intensity Grazing

Schedule F - Table 2 (Landform design)

Disturbance type	Slope range (%)	Projective surface area (ha)
Waste rock dumps	33%-76%	88.5
Heap leach pads	<33%	36.2
ROM area(s)	33%-76%	9.5

- F2** All land subject to mining activities must be rehabilitated to:
- (a) a stable landform and with a self-sustaining vegetation cover and species that are similar to adjoining undisturbed areas;
 - (b) a safe landform, which is non-polluting, geo-chemically and geo-technically stable;
 - (c) ensure that all land is reinstated to the pre-disturbed land use and suitability class;
 - (d) ensure that the maintenance requirements for rehabilitated land is no greater than that required for the land prior to its disturbance by mining activities; and
 - (e) ensure that the water quality of any residual void or water bodies constructed by mining activities meets criteria for subsequent uses and does not have potential to cause environmental harm.
- F3** Maintenance of rehabilitated areas must take place to ensure and demonstrate:
- (a) stability of landforms;
 - (b) erosion control measures remain effective;
 - (c) stormwater runoff and seepage from rehabilitated areas does not negatively affect the environmental values of any waters;
 - (d) plants show healthy growth and recruitment is occurring; and
 - (e) rehabilitated areas are free of any declared pest plants.
- F4** Rehabilitation can be considered successful when:
- (a) the site can be managed for its designated land-use (e.g. similar to that of surrounding undisturbed areas);
 - (b) no greater management input than for other land in the area being used for a similar purpose is required and there is evidence that the rehabilitation has been successful for at least three (3) years;
 - (c) the rehabilitation is carried out in accordance with the goals, objectives indicators and completion criteria as specified in Schedule F - Table 1 (Final Land Use and Rehabilitation Approval Schedule), Schedule F – Table 2 (Landform design) and in the post mine land use plan; and
 - (d) written agreement is obtained from the landowner/holder and administering authority.
- F5** Areas that are available for rehabilitation must be identified in the current plan of operations.

- F6** Rehabilitation must commence progressively as soon as areas become available and in accordance with the plan of operations.
- F7** Topsoil and subsoils must be stripped separately and stockpiled ahead of mining and used in rehabilitation.
- F8** When topsoil is stored in stockpiles it should be in a manner that ensures stability. Measures must include:
- (a) vegetating stockpiles;
 - (b) minimising the height of stockpiles; and
 - (c) re-using stockpiles as soon as possible.

Post mine land use plan

- F9** The post mine land use plan must be included in the plan of operations and updated with each subsequent plan of operations, describing how the rehabilitation objectives in Schedule F - Table 1 (Final Land Use and Rehabilitation Approval Schedule), Schedule F – Table 2 (Landform design) will be achieved. The Post Mine Land Use Plan must include:
- (a) schematic representation of final land form inclusive of drainage features;
 - (b) slope designs;
 - (c) cover design;
 - (d) drainage design;
 - (e) erosion controls proposed on reformed land;
 - (f) description of experimental design for monitoring of analogue and rehabilitated areas inclusive of statistical design;
 - (g) proposed revegetation criteria including:
 - (i) species diversity, abundance and composition;
 - (ii) projective cover;
 - (iii) dry matter production and
 - (iv) stocking rates to ensure self sustaining vegetation is maintained;
 - (h) proposed revegetation methods inclusive of plant species selection, re-profiling, respreading soil, soil ameliorants/amendments, surface preparation and method of propagation;
 - (i) materials balance including available top soil and low permeability capping material;
 - (j) research program and associated milestones;
 - (k) geotechnical, geochemical and hydrological studies;
 - (l) chemical, physical and biological properties of soil and water;
 - (m) clear objectives and success criteria for the each land unit including establishment in accordance with outcomes stipulated in the administering authority's guideline for *Rehabilitation Requirements for Mining Projects*;

- (n) measurable completion criteria for each rehabilitation indicator (for each land unit) that enables determination of rehabilitation success for each disturbance type (or land unit); and
- (o) rehabilitation monitoring program which includes sufficient replication to enable statistical analysis of results at an acceptable power.

Post closure management plan

- F10** A post closure management plan for the site must be developed and implemented for a nominal period of:
- (a) at least thirty (30) years following final ore processing on-site; or
 - (b) a shorter period if the site is proven to be geotechnically and geochemically stable and it can be demonstrated to the satisfaction of the administering authority that no release of contaminants for the site will result in environmental harm.
- F11** The Post Closure Management Plan must include the following elements:
- (a) operation and maintenance of:
 - (i) wastewater collection and reticulation systems;
 - (ii) wastewater treatment systems;
 - (iii) the groundwater monitoring network;
 - (iv) final cover systems; and
 - (v) vegetative cover.
 - (b) monitoring of:
 - (i) surface water quality;
 - (ii) groundwater quality;
 - (iii) seepage rates;
 - (iv) erosion rates;
 - (v) the integrity and effectiveness of final cover systems; and
 - (vi) the health and resilience of vegetative cover.

Environmental offsets

- F12** An environmental offset must be made in accordance with the *Environmental Offsets Act 2014* and Queensland Environmental Offsets Policy, where a significant residual impact occurs to a prescribed environmental matter.
- F13** Prior to the commencement of any impacts to a prescribed environmental matter for which an environmental offset is required by condition **F12**, an analysis of the estimated maximum extent of impact to each prescribed environmental matter must be provided to the administering authority, consistent with Schedule F – Table Three and Schedule I – Map 6.

Schedule F – Table 3 (Authorised impacts to prescribed environmental matters)

Prescribed environmental matter	Location of prescribed environmental matter (GDA94 – Zone 54)	Maximum extent of impact	Environmental offset required		
Regulated vegetation (riparian)					
Regional ecosystem (not in an urban area) within a defined distance from the defining banks of a relevant watercourse – Regional Ecosystems 1.3.6x1a and 1.5.4d	Two ephemeral order one watercourses located at the top of the catchment area on Mount Watson ML90154.		5.5 ha	Yes	
	Coordinates:				
		Easting (MGA GDA94, Z54)			Northing (MGA GDA94, Z54)
	Creek 1				
	Upstream extent	384294.26			7812606.89
	Downstream extent	384491.57			7813509.86
	Creek 2				
	Upstream extent	383997.39			7812846.34
	Downstream extent	383933.18			7812898.43

F14 The analysis required by condition **F13** must be approved by the administering authority before the notice of election, if applicable, is given to the administering authority.

F15 The notice of election for the environmental offset required by condition **F12**, if applicable, must be provided to the administering authority no less than three months before the proposed commencement of the significant residual impacts for which the environmental offset is required.

Rehabilitation monitoring program

F16 The holder of the environmental authority must conduct a rehabilitation monitoring program on at least a yearly basis, which must include sufficient spatial and temporal replication to enable scientifically justifiable conclusions as established under the rehabilitation program or other methodology to the satisfaction of the administering authority.

F17 The rehabilitation monitoring program must be developed and included in the plan of operations and be implemented by a person nominated by the environmental authority holder possessing appropriate qualifications and experience in the field of mine site rehabilitation.

Residual void outcome

F18 Residual voids must not cause any serious environmental harm to land, surface waters or any recognised groundwater aquifer, other than the environmental harm constituted by the existence of the residual void itself, and subject to any other condition within this environmental authority.

F19 Mining voids must be managed during the operation and decommissioning phases to maximise the potential post mine beneficial uses, by consideration of the following:

- (a) managing catchment into the void; and
- (b) ensuring geotechnical stability of final void.

F20 Decommissioning strategies for the final voids must be provided in the plan of operations, and updated with each update of the plan of operations, including the following information:

- (a) management options for maximising final void water quality; and
- (b) assessment of potential final void water quality.

Infrastructure

F21 All infrastructure, mining equipment and plant erected and/or used for the mining activities, including water storage structures, must be removed from the licensed place prior to surrender, except where agreed in writing by the administering authority.

Waste rock characterisation

F22 Waste rock and spoil disposal must not occur on the site unless:

- (a) the environmental authority holder has submitted to the administering authority a waste rock and spoil disposal plan, together with the certification of an appropriately qualified person that the plan has addressed the requirements of condition **F23** in accordance with best practice environmental management; and
- (b) the administering authority has approved the plan.

F23 The waste rock and spoil disposal plan must include at least:

- (a) effective characterisation of the waste rock and spoil to predict under the proposed placement and disposal strategy the quality of runoff and seepage generated concerning potentially environmentally significant effects including salinity, acidity, alkalinity and dissolved metals, metalloids and non metallic organic substances and nutrients;
- (b) a program of progressive sampling and characterisation to identify dispersive and non dispersive spoil, and the salinity, acid and alkali producing potential, metal and nutrient concentrations of waste rock;
- (c) a materials balance and disposal plan;
- (d) where relevant, a sampling program to verify encapsulation and/or placement of potentially acid forming and acid forming waste rock;
- (e) how often the performance of the plan will be assessed;
- (f) the indicators or other criteria on which the performance of the plan will be assessed;
- (g) rehabilitation strategy; and
- (h) research trials to verify the requirements and methods for decommissioning and final rehabilitation of the placed materials, including the prevention and management of acid mine drainage, nutrient rich drainage, erosion minimisation and establishment or vegetation cover.

Contaminated lands

- F24** Before applying for surrender of a mining lease, the holder must (if applicable) provide to the administering authority a site investigation report under the Act, in relation to any part of the mining lease which has been used for notifiable activities or which the holder is aware is likely to be contaminated land, and also carry out any further work that is required as a result of that report to ensure that the land is suitable for its final land use.
- F25** Before applying for progressive rehabilitation certification for an area, the holder must (if applicable) provide to the administering authority a site investigation report under the Act, in relation to any part of the area the subject of the application which has been used for notifiable activities or which the holder is aware is likely to be contaminated land, and also carry out any further work that is required as a result of that report to ensure that the land is suitable for its final land use under condition **G3**.
- F26** Minimise the potential for contamination of land by hazardous contaminants.

Off-site transport

- F27** The environmental authority holder must take all action necessary to prevent any materials discharging from vehicles or other transport infrastructure.

END CONDITIONS FOR SCHEDULE F

Schedule G – Regulated structures

All dams – location and limits

G1 The construction or operation of any dam containing hazardous waste within the operational land must comply with Schedule G - Table 1.

Schedule G — Table 1 (Size and purpose of dams containing hazardous waste)

Name of dam containing hazardous waste ¹	Maximum surface area of dam (ha)	Maximum volume of dam (m ³)	Maximum depth of dam (m) ²	Purpose of dam ³
Mt Cuthbert				
Pregnant Leachate Solution (PLS) Pond	0.2	6,000	3.0	Storage of pregnant leach solution
Intermediate Leachate Solution (ILS) Pond	0.2	6,000	3.0	Storage of intermediate leach solution
Raffinate Pond	0.2	6,000	3.0	Storage of raffinate solution
Stormwater Dam	3.1	150,000	5.0	Storage of storm water runoff from processing area
Stormwater Dam 2	8.0	188,000	11.2	Additional storage capacity for stormwater runoff from processing area.
Mt Watson				
Mount Watson PLS Pond	0.3	6,000	3.0	Storage of pregnant leach solution
Mount Watson ILS Pond	0.3	6,000	3.0	Storage of intermediate leach solution
Mount Watson Raffinate Pond	0.3	6,000	3.0	Storage of raffinate solution
Mount Watson Stormwater Pond	9.8	391,000	8.0	Storage of storm water runoff from heap leach area

1. The name of the dam containing hazardous waste should refer to the name of the dam e.g. process residue facility and decant dam.
2. For dams that do not require a dam wall, input the maximum void depth e.g. where dams are formed by excavating below the land surface or backfilling a residual void.
3. Purpose of the dam should outline the designed function, e.g. "the permanent containment of tailings resulting from the extraction of nickel, cobalt and other metals at the XYZ Refinery".

Location of dam

G2 The location of any dam containing hazardous waste within the licensed place must be located within the polygonal area defined by the co-ordinates defined in Schedule G - Table 2.

Schedule G — Table 2 (Location of dams containing hazardous waste)

Name of dam containing hazardous waste ¹	Northing (Zone 54, AMG 84) ²	Easting (Zone 54, AMG 84) ²
PLS Pond	7788829	386522
	7788854	386573
	7788804	386598
	7788781	386551
ILS Pond	7788805	386468
	7788827	386517
	7788777	386534
	7788752	386493
Raffinate Pond	7788857	386581
	7788881	386631
	7788832	386656
	7788807	386548
Stormwater Dam	7788664	386474
	7788819	386641
	7788721	386695
	7788595	386548
Stormwater Dam 2	7788593	386438
	7788779	386787
	7788528	386926
	7788378	386586
Mount Watson PLS Pond	7813016	384210
	7813036	384282
	7812998	384293
	7812978	384221
Mount Watson ILS Pond	7813058	384199
	7813078	384271
	7813039	384282
	7813019	384209
Mount Watson Raffinate Pond	7813099	384187
	7813119	384260
	7813081	384270
	7813061	384198
Mount Watson Stormwater Pond	7813427	384633
	7813132	384740
	7813005	384310
	7813118	384263
	7813096	384189
	7813129	384175
	7813265	384396
	7813387	384478

1. The name of the dam containing hazardous waste should refer to the name of the dam e.g. process residue facility and decant dam.

2. A minimum of 3 control points is required to constrain the location of all activities associated with the dam containing hazardous waste. Additional infrastructure which forms part of any dam containing hazardous waste may include appurtenant works consisting of tailings discharge pipelines, seepage collection systems, runoff diversion bunds, containment systems, pressure relief wells, decant and recycle water systems.

- G3** The consequence category of any structure must be assessed by a suitably qualified and experienced person in accordance with the *Manual for Assessing Consequence Categories and Hydraulic Performance of Structures (EM635)* at the following times:
- (a) prior to the construction of the structure, if it is not an existing structure; or
 - (b) if it is an existing structure, by **22 August 2016**; or
 - (c) prior to any change in its purpose or the nature of its stored contents.
- G4** 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.
- G5** Certification must be provided by the suitably qualified and experienced person who undertook the assessment, in the form set out in the *Manual for Assessing Consequence Categories and Hydraulic Performance of Structures (EM635)*.

Design and construction of a regulated structure

- G6** Conditions **G7** to **G11** inclusive do not apply to existing structures.
- G7** All regulated structures must be designed by, and constructed under the supervision of, a suitably qualified and experienced person in accordance with the requirements of the *Manual for Assessing Consequence Categories and Hydraulic Performance of Structures (EM635)*.
- G8** Construction of a regulated structure is prohibited unless the environmental authority holder has submitted to the administering authority and ten (10) business days have elapsed, the following:
- (a) a consequence category assessment report, as required by condition **G4**;
 - (b) the suitably qualified and experienced person certified design and design plan; and
 - (c) the associated suitably qualified and experienced person certified operating procedures.
- G9** Certification must be provided by the suitably qualified and experienced person who oversees the preparation of the design plan in the form set out in the *Manual for Assessing Consequence Categories and Hydraulic Performance of Structures (EM635)*, and must be recorded in the Regulated Structures register.
- G10** Regulated structures must:
- (a) be designed and constructed in accordance with and conform to the requirements of the *Manual for Assessing Consequence Categories and Hydraulic Performance of Structures (EM635)*;
 - (b) be designed and constructed with due consideration given to ensuring that the design integrity 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.

G11 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; and
- (b) construction of the regulated structure is in accordance with the design plan.

Operation of a regulated structure

G12 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 **G9**;
- (b) a set of 'as constructed' drawings and specifications;
- (c) certification of those 'as constructed drawings and specifications' in accordance with condition **H9**;
- (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; and
- (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.

G13 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.

G14 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

- G15** Conditions **G16** to **G19** inclusive only apply to Regulated Structures which have not been certified as low consequence category for 'failure to contain – overtopping'.
- G16** The Mandatory Reporting Level (the MRL) specified in Schedule G – Table 3 must be marked on a regulated structure in such a way that during routine inspections of that structure, it is clearly observable.
- G17** 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.
- G18** 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.
- G19** The environmental authority holder must record any changes to the MRL in Schedule G – Table 3 and in the Register of Regulated Structures.

Design storage allowance

- G20** 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.
- G21** 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 Schedule G – Table 3.
- G22** 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.
- G23** 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

- G24** Each regulated structure must be inspected each calendar year by a suitably qualified and experienced person no later than **1 November** each year.
- G25** 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.
- G26** The suitably qualified and experienced person who prepared the annual inspection report must certify the report in accordance with the *Manual for Assessing Consequence Categories and Hydraulic Performance of Structures (EM635)*.

- G27** The environmental authority holder must within twenty (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

- G28** 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

- G29** Regulated structures and structures must not be abandoned. They must be decommissioned and rehabilitated to achieve compliance with conditions **F1** and **F9**.

Register of regulated structures

- G30** A Register of Regulated Structures must be established and maintained by the environmental authority holder for each regulated structure.
- G31** The environmental authority holder must provisionally enter the required information in the Register of Regulated Dams when a design plan for a regulated dam is submitted to the administering authority.
- G32** The environmental authority holder must make a final entry of the required information in the Register of Regulated Structures once compliance with condition **G12** and **G13** has been achieved.
- G33** The environmental authority holder must ensure that the information contained in the Register of Regulated Structures is current and complete on any given day.
- G34** All entries in the Register of Regulated Structures must be approved by the chief executive officer for the holder of this authority, or their delegate, as being accurate and correct.
- G35** The environmental authority holder must, at the same time as providing the annual return, supply to the administering authority a copy of the records contained in the Register of Regulated Structures, in the electronic format required by the administering authority.
- G36** All existing structures that have not been assessed in accordance with the *Manual for Assessing Consequence Categories and Hydraulic Performance of Structures (EM635)* must be assessed and certified in accordance with the *Manual for Assessing Consequence Categories and Hydraulic Performance of Structures (EM635)* by **22 August 2016**.

Hydraulic performance of regulated structures

- G37** Each regulated structure authorised by this environmental authority as specified in Schedule A – Table A1, must meet the hydraulic performance criteria listed in Schedule G – Table 3 for that structure.

Schedule G - Table 3 (Hydraulic performance criteria)

Name of regulated structure	Consequence category	Spillway capacity		Design storage allowance		Mandatory reporting level		Purpose of structure
		Design criteria	mAHD	Design criteria	mAHD	Design Criteria	mAHD	
Mt Cuthbert								
PLS Pond	Significant	1: 100 Year ARI (0.001 AEP)	N/A	1:100 Year ARI 2 month wet season plus process inputs for the 2 month wet season	N/A	1:10 AEP 72 hr storm event	N/A	Storage of pregnant leach solution
ILS Pond								Storage of intermediate leach solution
Raffinate Pond								Storage of raffinate solution
Stormwater Dam			254.0		251.2		Additional storage capacity for stormwater runoff from processing area.	
Stormwater Dam 2 – Combined system (Process water ponds and Stormwater Dam overflow to Stormwater Dam 2)			253.8					

Name of regulated structure	Consequence category	Spillway capacity		Design storage allowance		Mandatory reporting level		Purpose of structure
		Design criteria	mAHD	Design criteria	mAHD	Design Criteria	mAHD	
Mt Watson								
Mount Watson PLS Pond	TBA ¹	TBA ¹	TBA ¹	TBA ¹	TBA ¹	TBA ¹	TBA ¹	Storage of pregnant leach solution
Mount Watson ILS Pond	TBA ¹	TBA ¹	TBA ¹	TBA ¹	TBA ¹	TBA ¹	TBA ¹	Storage of intermediate leach solution
Mount Watson Raffinate Pond	TBA ¹	TBA ¹	TBA ¹	TBA ¹	TBA ¹	TBA ¹	TBA ¹	Storage of raffinate solution
Mount Watson Stormwater Pond	High	1: 1000 Year ARI (0.001 AEP)	TBA ¹	1:100 Year ARI 2 month wet season plus process inputs for the 2 month wet season	TBA ¹	1:100 AEP 72 hr storm event	TBA ¹	Storage of storm water runoff from heap leach area

1. TBA – To be provided to the administering authority prior to construction.

Transitional arrangements

- G38** All existing structures that have not been assessed in accordance with the *Manual for Assessing Hazard Categories and Hydraulic Performance of Structures (EM635)* must be assessed and certified in accordance with the *Manual for Assessing Consequence Categories and Hydraulic Performance of Structures (EM635)* by **22 August 2016**.
- G39** Certification of the transitional assessment required by **G38** must be provided to the administering authority within ten (10) business days of completion of the requirements of condition **G38**.
- G40** All existing structures identified in Schedule G – Table 4 must comply with conditions **G42** to **G43** until the assessment and certification required under conditions **G38** and **G39** has been completed, submitted to the administering authority, and an amendment to the environmental authority to include existing structures into Schedule G – Table 3 has occurred.

- G41** The construction and operation of existing regulated structures specified in Schedule G – Table 4 must comply with Schedule G – Table 4.
- G42** All existing high hazard dams containing hazardous waste must comply with the *Code of Environmental Compliance for High Hazard Dams Containing Hazardous Waste*.
- G43** All low hazard dams containing hazardous waste must comply with the criteria outlined in Appendix B of the *Code of Environmental Compliance for Mining Leases*.

Schedule G – Table 4 (Storage design* criteria for high hazard dams)

Storage type	Design storage allowance** critical wet period	Spillway capacity critical design storm***	Mandatory**** reporting level
Storm Water Dam (Process water ponds overflow to the Stormwater dam) Effective for the period	1:100 Year ARI 2 month wet season plus process inputs for the 2 month wet season	1: 100 Year ARI	1:100 year ARI

* Calculations are to be carried out in accordance with the *Site Water Management Guideline in the Technical Guidelines for Environmental Management of Exploration and Mining in Queensland (DME 1995)*.

** The design storage allowance on **1st November** of each year for any regulated dam constructed within the operational land must be sufficient to contain the run-off from the critical wet period - plus the volume of any other inputs to the storage facility during that critical wet period, as part of operations. Such inputs could be tailings, contaminated site waters, process waters, and any other materials.

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

**** The level below spillway crest that can accommodate runoff from a 72 hour storm at the specified AEP, or the wave allowance at the specified AEP - whichever level is lower.

END CONDITIONS FOR SCHEDULE G

Schedule H - Definitions

Words and phrases used throughout this environmental authority are defined below. Where a definition for a term used in this environmental authority is not provided within this environmental authority, the definitions in the *Environmental Protection Act 1994* or subordinate legislation must be used.

“20th percentile flow” means the 20th percentile of all daily flow measurements (or estimations) of daily flow over a 10 year period for a particular site. The 20th percentile calculation should only include days where flow has been measured (or estimated), i.e. not dry weather days.

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

- (a) vegetation establishment, survival and succession;
- (b) vegetation productivity, sustained growth and structure development;
- (c) fauna colonisation and habitat development;
- (d) 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;
- (e) microbiological studies including recolonisation by mycorrhizal fungi, microbial biomass and respiration;
- (f) effects of various establishment treatments such as deep ripping, topsoil handling, seeding and fertiliser application on vegetation growth and development;
- (g) resilience of vegetation to disease, insect attack, drought and fire;
- (h) vegetation water use and effects on ground water levels and catchment yields.

“administering authority” means the Department of Environment and Heritage Protection or its successors or predecessors.

“AEP” means annual exceedance probability - being the probability that at least one event as specified will occur in a particular year.

“AHD” means Australian height datum.

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

- (a) against recommendations contained in previous annual inspections reports;
- (b) against recognised dam safety deficiency indicators;
- (c) for changes in circumstances potentially leading to a change in consequence category;
- (d) for conformance with the conditions of this authority;
- (e) for conformance with the ‘as constructed’ drawings;

(f) for the adequacy of the available storage in each regulated dam, based on an actual observation or observations taken after 31 May each year but prior to **1 November** of that year, of accumulated sediment, state of the containment barrier and the level of liquids in the **dam** (or network of linked containment systems);

(g) for evidence of conformance with the current operational plan.

“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.

“annual exceedance probability” or “AEP” the probability that at least one event in excess of a particular magnitude will occur in any given year.

“appropriately qualified person” means any person who has professional qualification, 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.

“ARD” is acid rock drainage and means any contaminated discharge emanating from a mining activity formed through a series of chemical and biological reactions, when geological strata is disturbed and exposed to oxygen and moisture.

“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.

“blasting” means the use of explosive materials to fracture:

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

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

“competent person” means a person with the demonstrated skill and knowledge required to carry out the task to a standard necessary for the reliance upon collected data or protection of the environment.

“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 (EM635)*.

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

“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.

“design storage allowance” or “DSA” means an available volume, estimated in accordance with the *Manual for Assessing Consequence Categories and Hydraulic Performance of Structures (EM635)* 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.

“environmental authority” means an environmental authority granted in relation to an environmentally relevant activity under the *Environmental Protection Act 1994*.

“environmental authority holder” means the holder of this environmental authority.

“environmental nuisance” as defined in the *Environmental Protection Act 1994*.

“environmental value” as defined in the *Environmental Protection Act 1994*.

“existing structure” means a structure that was in existence prior to the adoption of Schedule G –Regulated Structures under the environmental authority.

“flow event” means a flow event producing sufficient water to permit a monitoring creek bed flow of 30cm or more at the sampling station.

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

“general waste” means waste other than regulated waste.

“Haul Road Verge” means the edge, rim or margin of the Mount Watson / Mount Cuthbert Haul Road

“hazardous waste” means any substance, whether liquid, solid or gaseous, derived by or resulting from, the processing of minerals 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 the design criteria specified for the relevant consequence category in the *Manual for Assessing Consequence Categories and Hydraulic Performance of Structures (EM635)*.

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

“L_A 10, adj, 10 mins” means the A-weighted sound pressure level, (adjusted for tonal character and impulsiveness of the sound) exceeded for 10% of any 10-minute measurement period, using Fast response.

“L_A 1, adj, 10 mins” means the A-weighted sound pressure level, (adjusted for tonal character and impulsiveness of the sound) exceeded for 1% of any 10-minute measurement period, using Fast response.

“**L_{A, max adj, T}**” means the average maximum A-weighted sound pressure level, adjusted for noise character and measured over any 10 minute period, using Fast response.

“**land**” in the “land schedule” of this document means land excluding waters and the atmosphere.

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

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

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

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

“**low consequence dam**” means any dam that is not a high or significant consequence category as assessed using the *Manual for Assessing Consequence Categories and Hydraulic Performance of Structures (EM635)*

“**mandatory reporting level**” means a warning and reporting level determined in accordance with the criteria in the *Manual for Assessing Consequence Categories and Hydraulic Performance of Structures (EM635)* published by the administering authority. “**manual**” means the *Manual for Assessing Consequence Categories and Hydraulic Performance of Structures (EM635)* published by the administering authority.

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

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

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

- (a) clay if mined for use for its ceramic properties, kaolin and bentonite;
- (b) foundry sand;
- (c) hydrocarbons and other substances or matter occurring in association with shale or coal and necessarily mined, extracted, produced or released by or in connection with mining for shale or coal or for the purpose of enhancing the safety of current or future mining operations for coal or the extraction or production of mineral oil therefrom;
- (d) limestone if mined for use for its chemical properties;
- (e) marble;
- (f) mineral oil or gas extracted or produced from shale or coal by in situ processes;
- (g) peat;
- (h) salt including brine;

- (i) shale from which mineral oil may be extracted or produced;
- (j) silica, including silica sand, if mined for use for its chemical properties;
- (k) 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.

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

“noxious” means harmful or injurious to health or physical wellbeing, other than trivial harm.

“non-standard” means a mining operation that if in the opinion of the administering authority does not have a low risk of serious environmental harm and the activities can not comply with the criteria for standard mining activities prescribed in schedule 1A of the *Environmental Protection Regulation 1998*. The standard mining activity trigger criteria are as follows;

- (a) The mining activities do not or will not cause more than 10 ha of land to be significantly disturbed at any one time;
- (b) The mining activities do not or will not cause more than 5 ha of land to be significantly disturbed at any one time;
- (c) In a riverine area;
- (d) Because of mine workings;
- (e) the mining activities are not or will not be carried out in, or within 2 km of a category A Environmentally Sensitive Area;
- (f) the mining activities are not or will not be carried out in, or within 1 km of a category B environmentally sensitive area;
- (g) the mining activities do not include a level 1 environmentally relevant activity
- (h) no more than 20 persons are carrying out or will, at any one time, carry out the mining activities;

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

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

“protected area” means –

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

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

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

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

“reference site” (or analogue site) may reflect the original location, adjacent area or another area where rehabilitation success has been completed for a similar biodiversity. Details of the reference site may be as photographs, computer generated images and vegetation models etc.

“Register of Regulated Dams” includes:

- (a) Date of entry in the register;
- (b) Name of the dam, its purpose and intended/actual contents;
- (c) The consequence category of the dam as assessed using the Manual for Assessing Consequence Categories and Hydraulic Performance of Structures (EM635);
- (d) Dates, names, and reference for the design plan plus dates, names, and reference numbers of all document(s) lodged as part of a design plan for the dam;
- (e) Name and qualifications of the suitably qualified and experienced person who certified the design plan and 'as constructed' drawings;
- (f) For the regulated dam, other than in relation to any levees –
 - i. The dimensions (metres) and surface area (hectares) of the dam measured at the footprint of the dam;
 - ii. Coordinates (latitude and longitude in GDA94) within five metres at any point from the outside of the dam including its storage area
 - iii. Dam crest volume (megalitres);
 - iv. Spillway crest level (metres AHD).
 - v. Maximum operating level (metres AHD);
 - vi. Storage rating table of stored volume versus level (metres AHD);
 - vii. Design storage allowance (megalitres) and associated level of the dam (metres AHD);
 - viii. Mandatory reporting level (metres AHD);
- (g) The design plan title and reference relevant to the dam;
- (h) The date construction was certified as compliant with the design plan;
- (i) The name and details of the suitably qualified and experienced person who certified that the constructed dam was compliant with the design plan;
- (j) Details of the composition and construction of any liner;
- (k) The system for the detection of any leakage through the floor and sides of the dam;
- (l) Dates when the regulated dam underwent an annual inspection for structural and operational adequacy, and to ascertain the available storage volume for **1 November** of any year;

- (m) Dates when recommendations and actions arising from the annual inspection were provided to the administering authority;
- (n) Dam water quality as obtained from any monitoring required under this authority as at **1 November** of each year.

“regulated 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 (EM635)* published by the administering authority.

“regulated structure” includes land-based containment structures, levees, bunds and voids, but not a tank or container designed and constructed to an Australian Standard that deals with strength and structural integrity.

“regulated waste” means non domestic waste mentioned in Schedule 7 of the *Environmental Protection Regulation 2008* (whether or not it has been treated or immobilised), and includes –

- (a) for an element – any chemical compound containing the element; and
- (b) anything that has contained the waste.

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

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

“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.

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

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

“sensitive place” means;

- (a) 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 center or hospital; or a protected area under the *Nature Conservation Act 1992*, the *Marine Parks Act 1992* or a World Heritage Area; or
- (e) a public park or gardens.

“significant disturbance” – includes land

- (a) if it is contaminated land; or
- (b) it has been disturbed and human intervention is needed to rehabilitate it.

- i. to a state required under the relevant environmental authority; or
- ii. if the environmental authority does not require the land to be rehabilitated to a particular state – to its state immediately before the disturbance.

Some examples of disturbed land include:

- areas where soil has been compacted, removed, covered, exposed or stockpiled;
- areas where vegetation has been removed or destroyed to an extent where the land has been made susceptible to erosion; (vegetation & topsoil)
- areas where land use suitability or capability has been diminished;
- areas within a watercourse, waterway, wetland or lake where mining activities occur;
- areas submerged by tailings or hazardous contaminant storage and dam walls in all cases;
- areas under temporary infrastructure. Temporary infrastructure includes any infrastructure (roads, tracks, bridges, culverts, dams, bores, buildings, fixed machinery, hardstand areas, airstrips, helipads etc.) which is to be removed after mining activities have ceased; or
- areas where land has been contaminated and a suitability statement has not been issued.

However, the following areas are not included:

- areas off lease (e.g. roads or tracks which provide access to the mining lease);
- areas previously significantly disturbed which have achieved the rehabilitation outcomes;
- by agreement with the EPA, areas previously significantly disturbed which have not achieved the rehabilitation objective(s) due to circumstances beyond the control of the mine operator (such as climatic conditions);
- areas under permanent infrastructure. Permanent infrastructure includes any infrastructure (roads, tracks, bridges, culverts, dams, bores, buildings, fixed machinery, hardstand areas, airstrips, helipads etc.) which is to be left by agreement with the landowner. The agreement to leave permanent infrastructure must be recorded in the Landowner Agreement and lodged with the administering authority;
- disturbances that pre-existed the grant of the tenure unless those areas are disturbed during the term of the tenure.

“spillway” means passage or outlet from the dam through which surplus water flows.

“stable” means land form dimensions are or will be stable within tolerable limits now and in the foreseeable future. Stability includes consideration of geotechnical stability, settlement and consolidation allowances, bearing capacity (traffic ability), erosion resistance and geochemical stability with respect to seepage and contaminant generation.

“structure” means dam or levee.

“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.

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

- 1) for regulated dams, an RPEQ who is a civil engineer with the required qualifications in dam safety and dam design.
- 2) 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.

“tolerable limits” means that a range of values could be accepted to achieve an overall environmental management objective (eg a range of settlement of a tailing capping could still meet the objective of draining the cap quickly, preventing pondage and limiting infiltration and percolation).

“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.

“watercourse” has the same meaning given in the *Water Act 2000*.

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

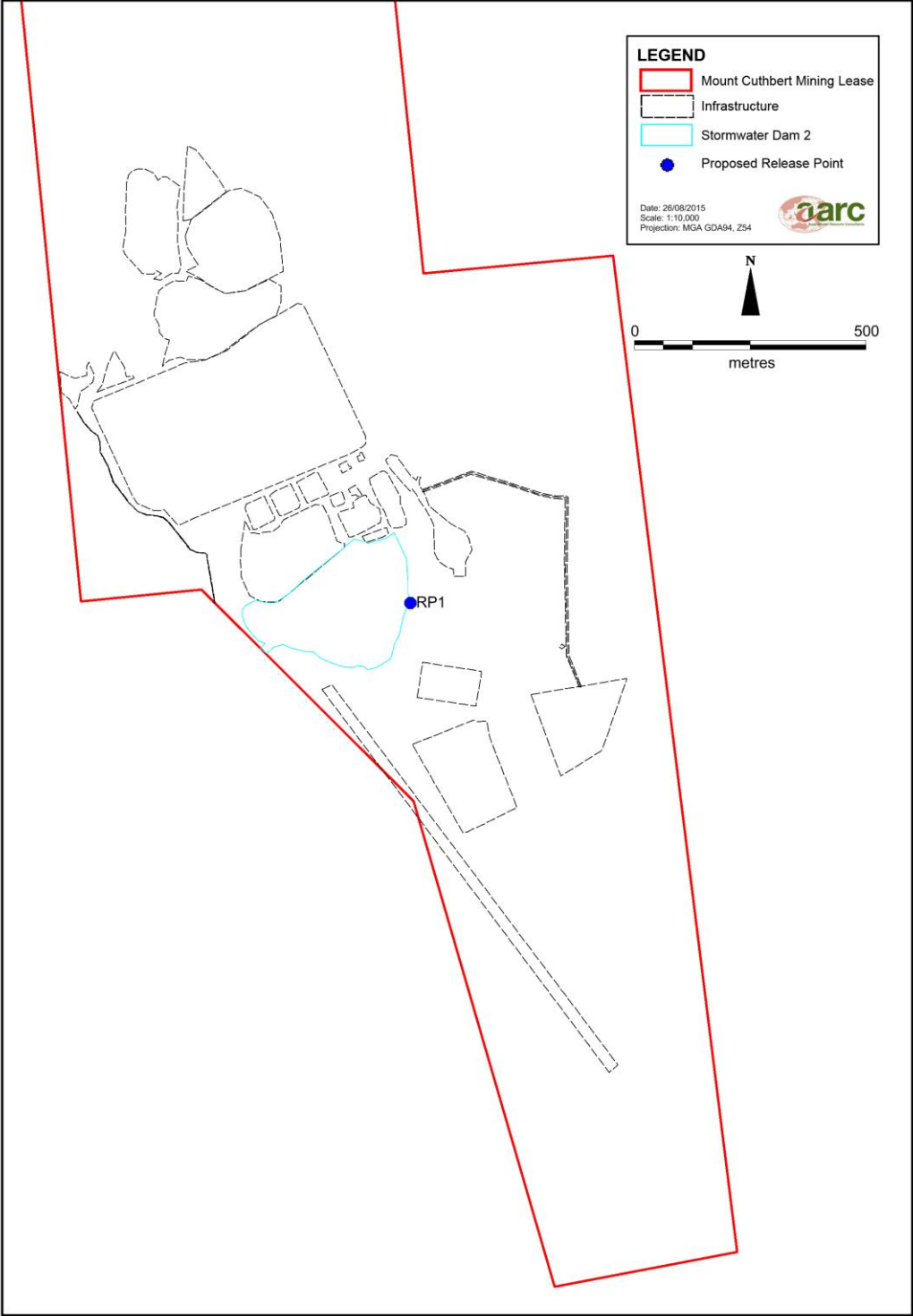
“water release event” means release of any waters that are or maybe contaminated by the mining activity.

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

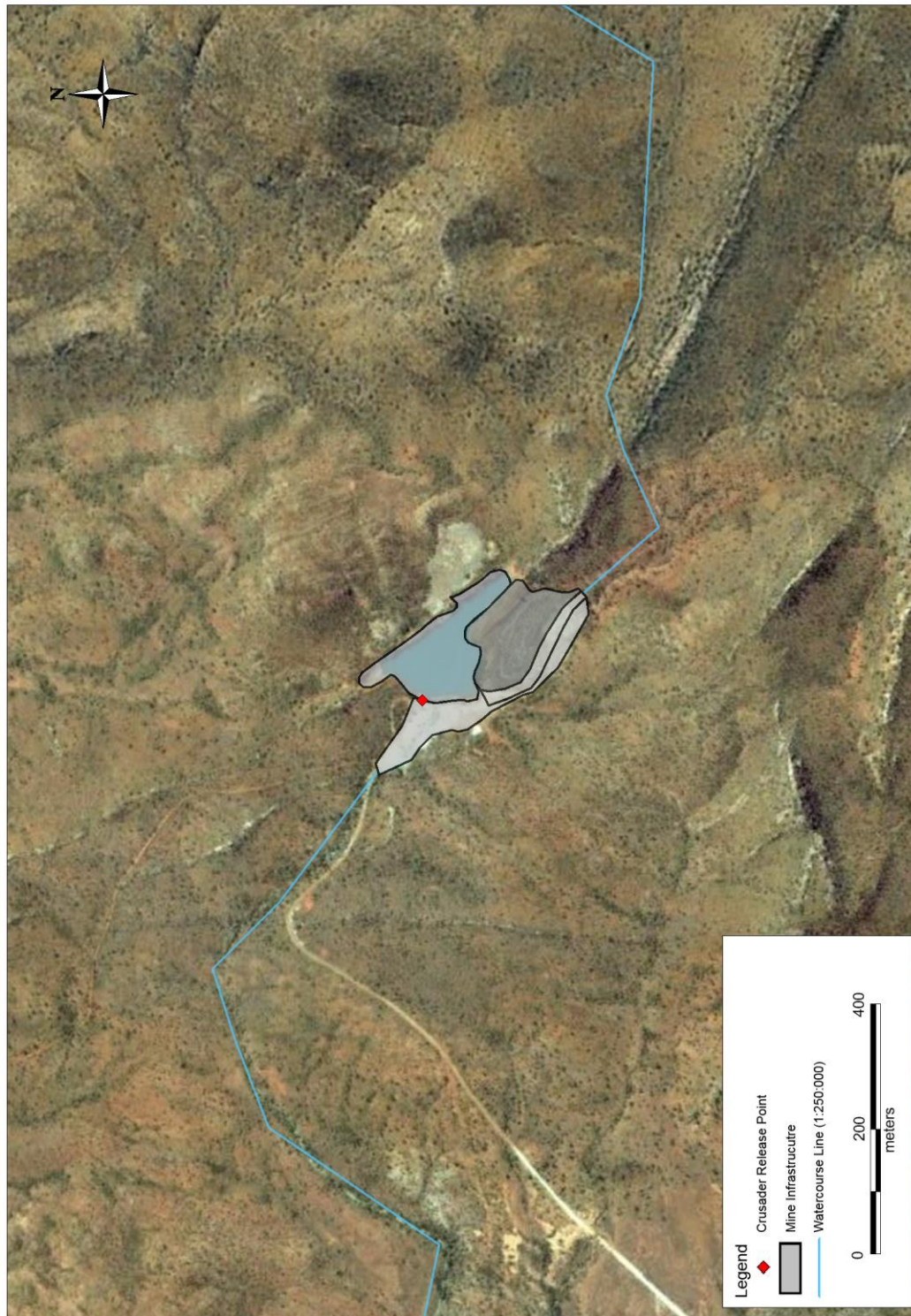
END CONDITIONS FOR SCHEDULE H

Schedule I - Maps/plans**Map 1A (Project infrastructure layout – Mount Cuthbert)**

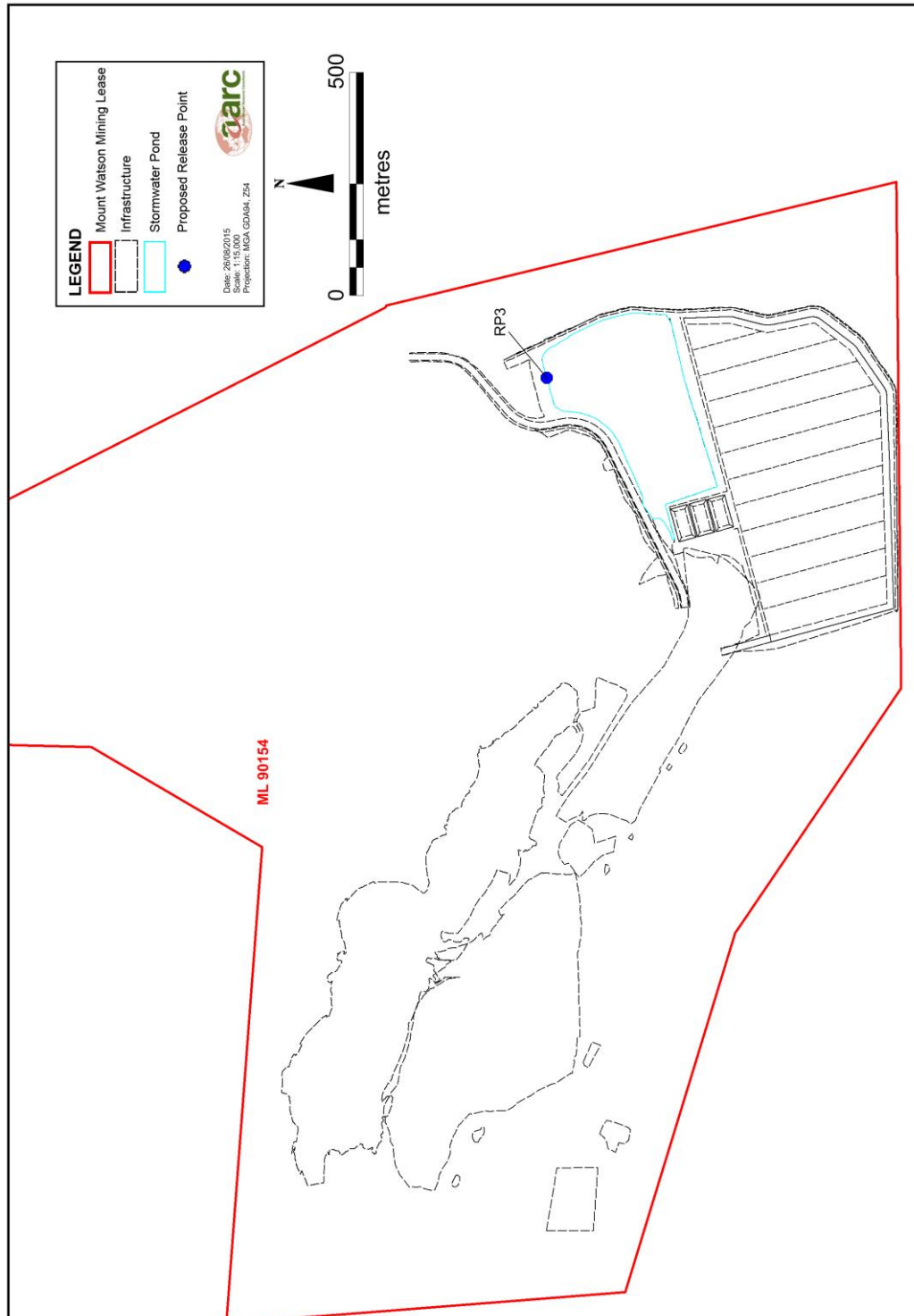
Map 2A - Contaminant release point for Mount Cuthbert



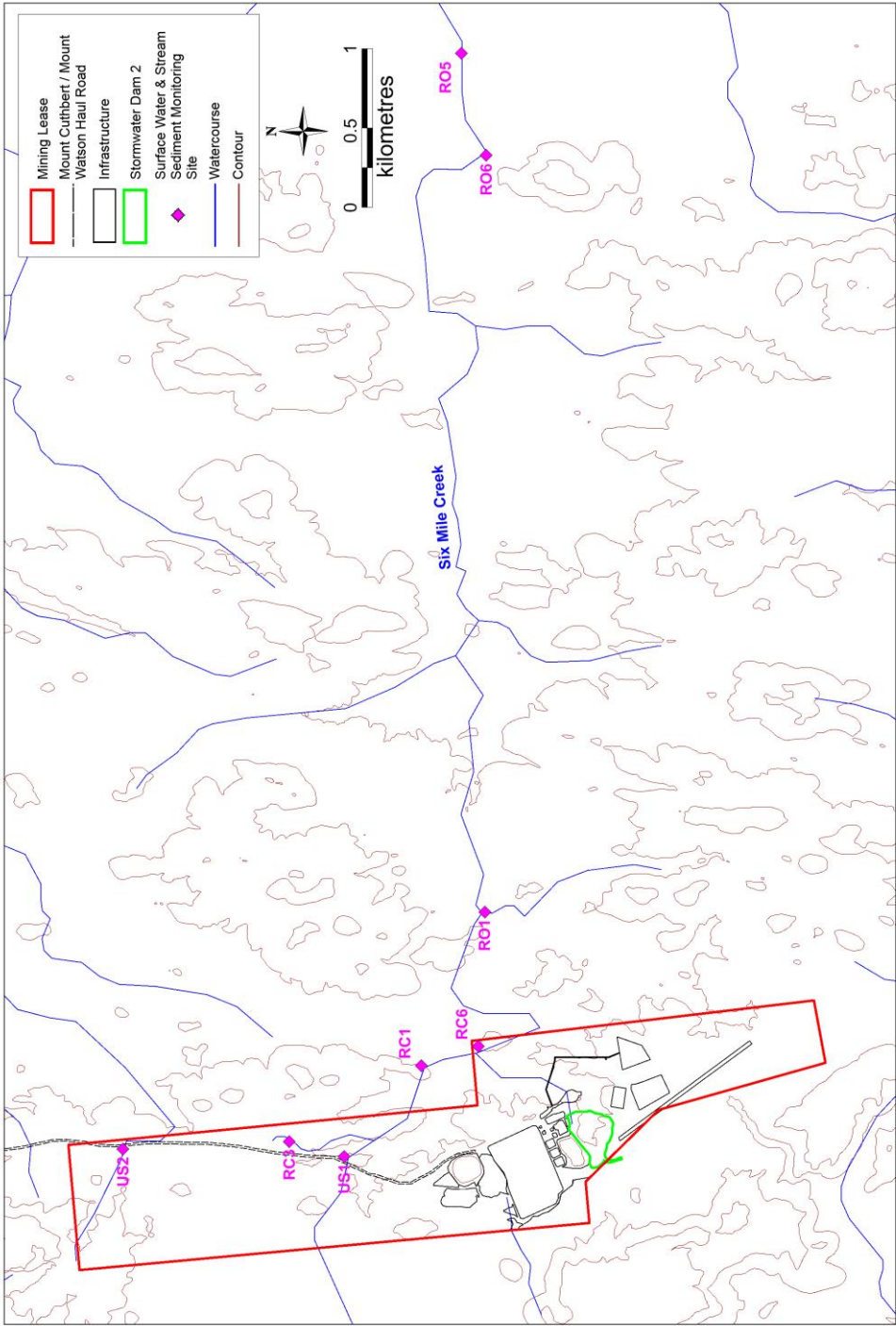
Map 2B – Contaminant release point (RP2) for Crusader



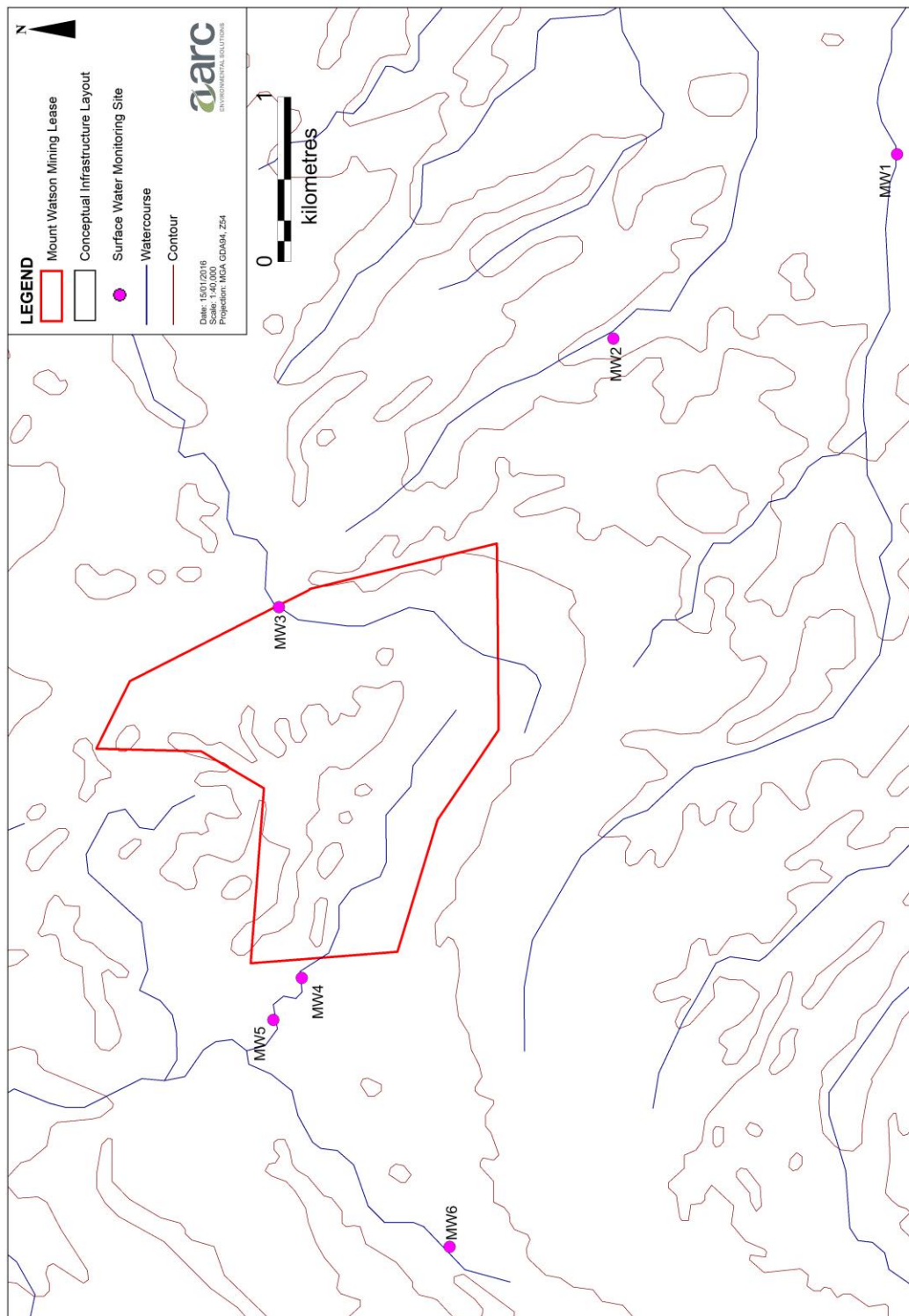
Map 2C – Contaminant release point for Mount Watson



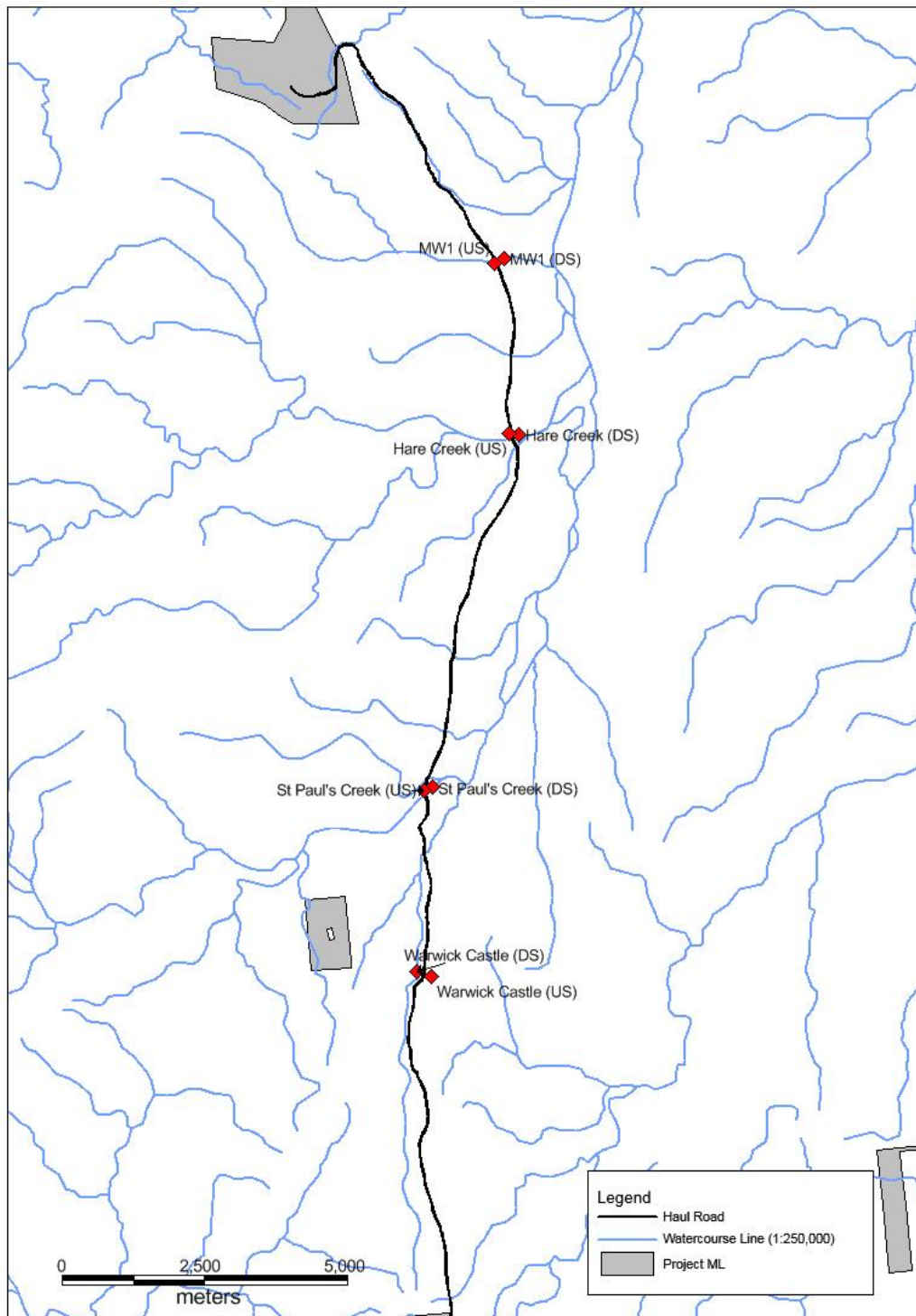
Map 3A - Stream sediment and receiving water monitoring locations for Mount Cuthbert



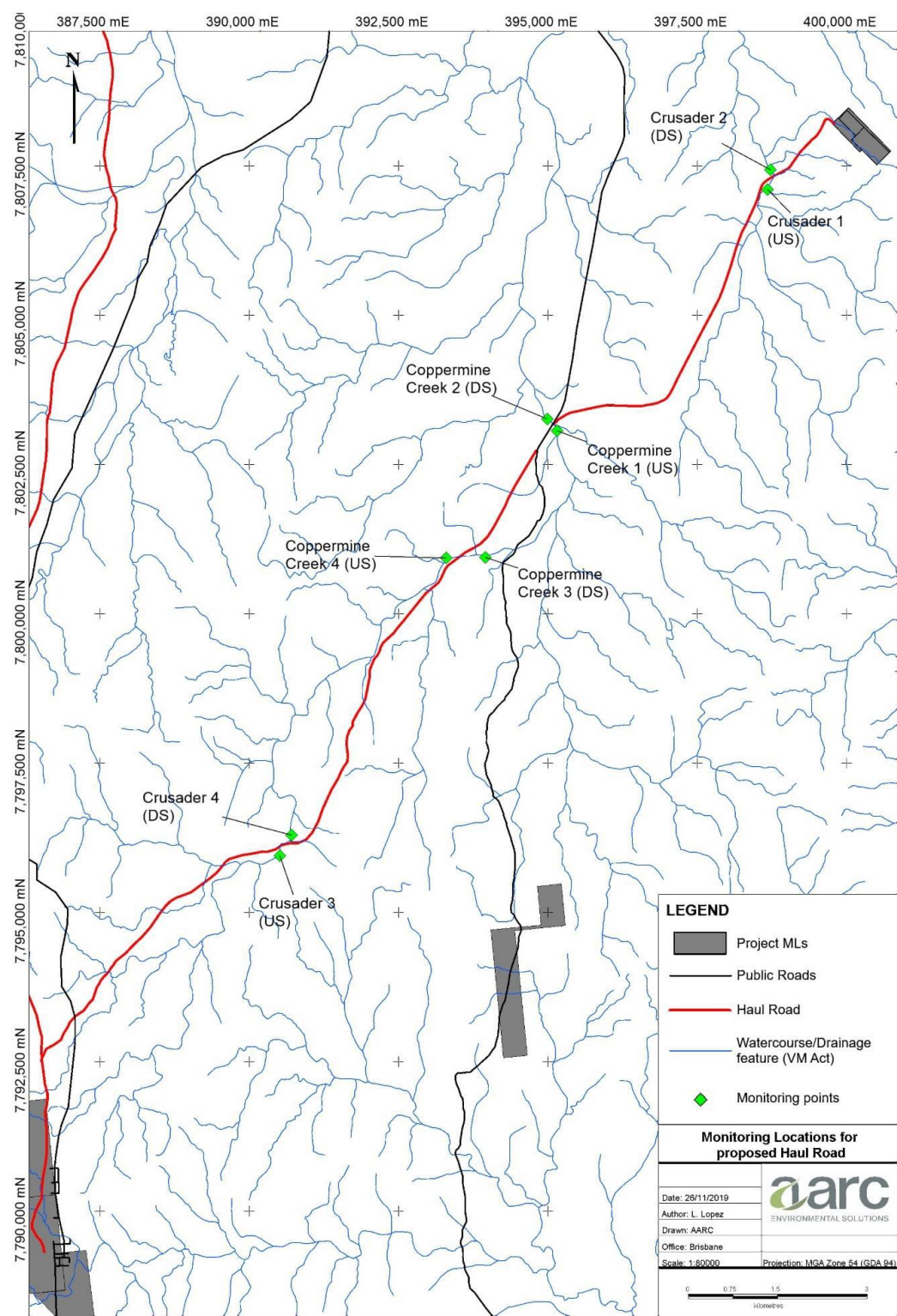
Map 3B - Stream sediment and receiving water monitoring locations for Mount Watson



Map 3C – Receiving water and stream sediment monitoring locations for Mount Cuthbert/Mount Watson haul road



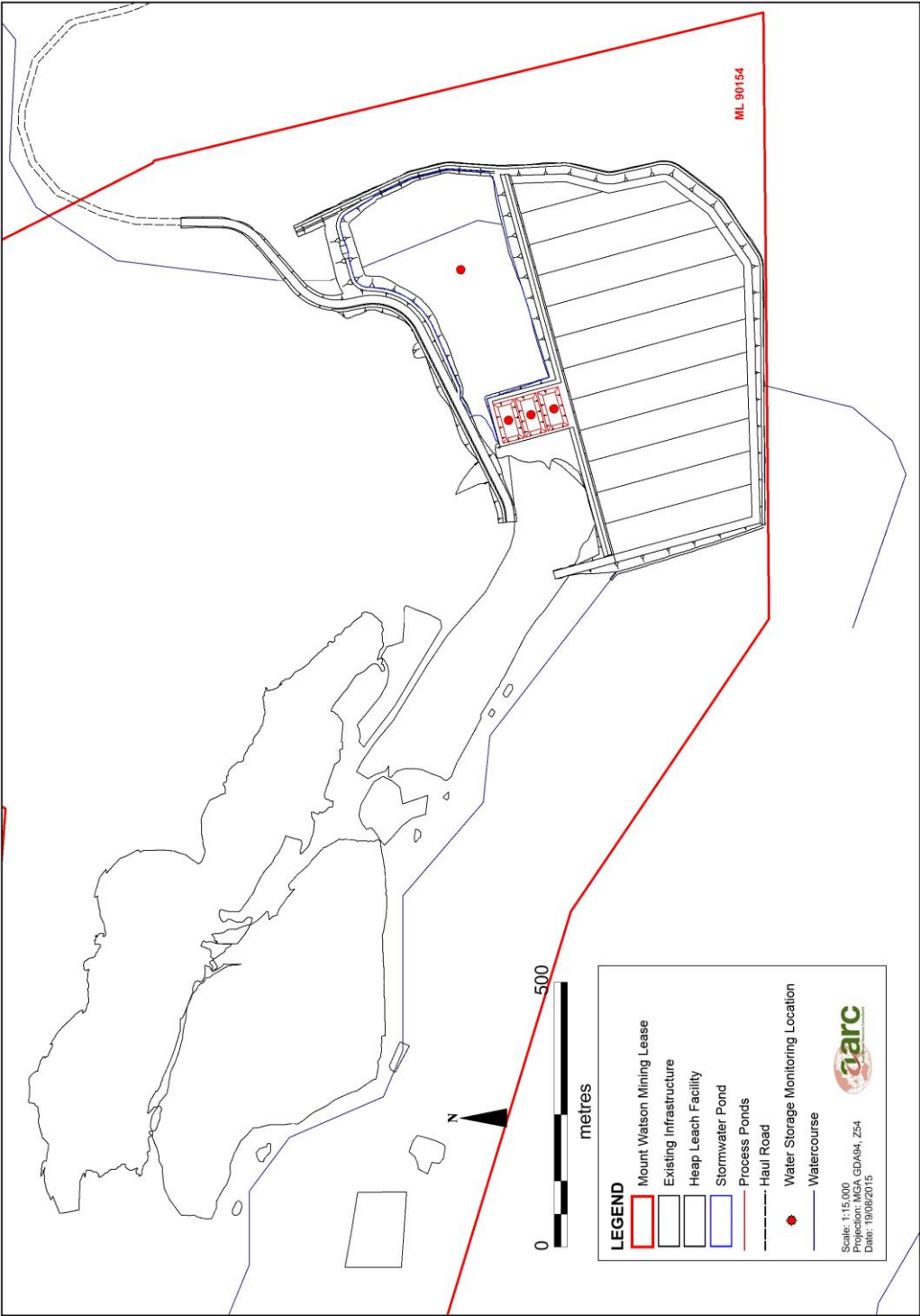
Map 3D – Crusader Haul Road



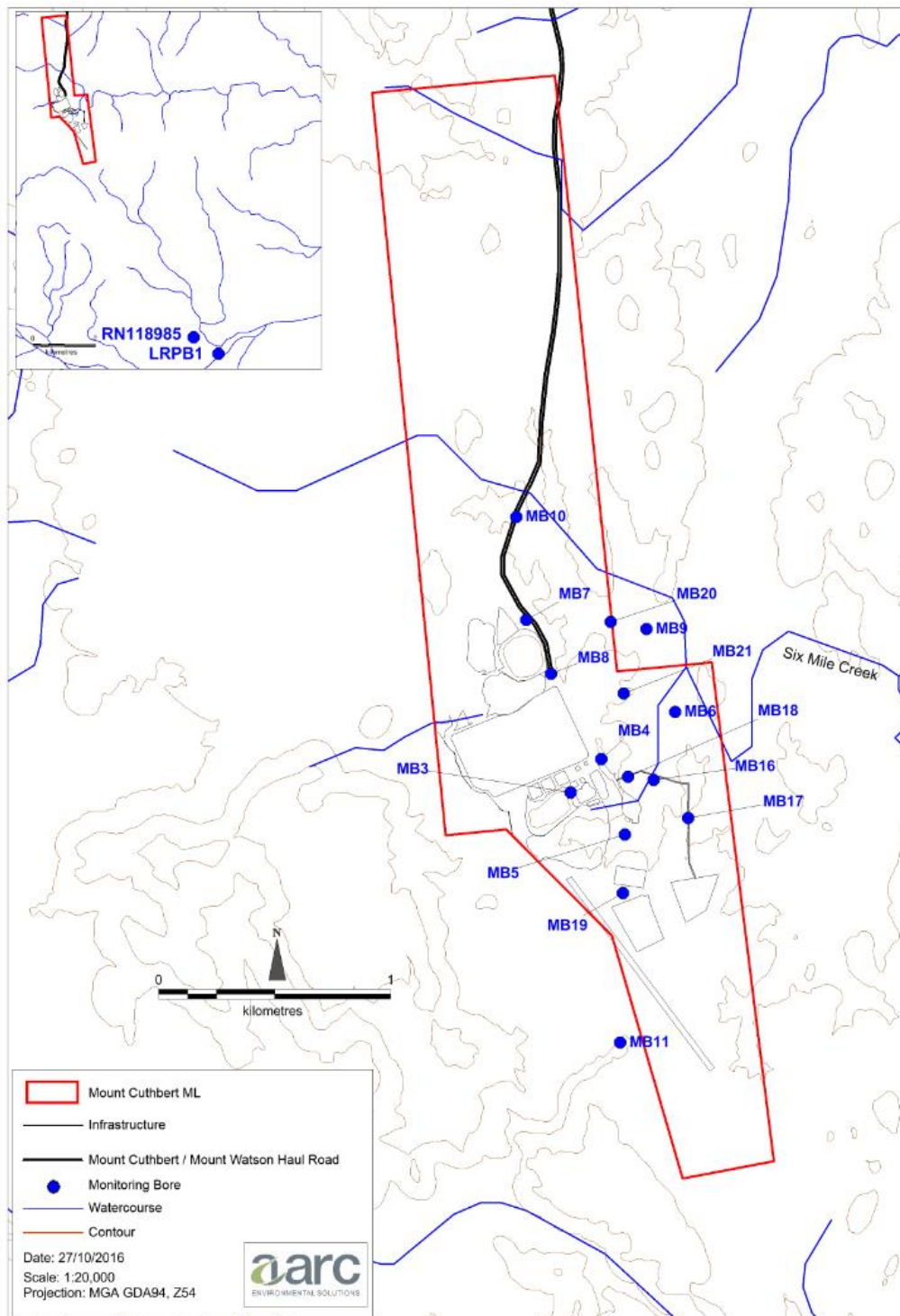
Map 4A - Water storage monitoring locations of hazardous dams at Mount Cuthbert



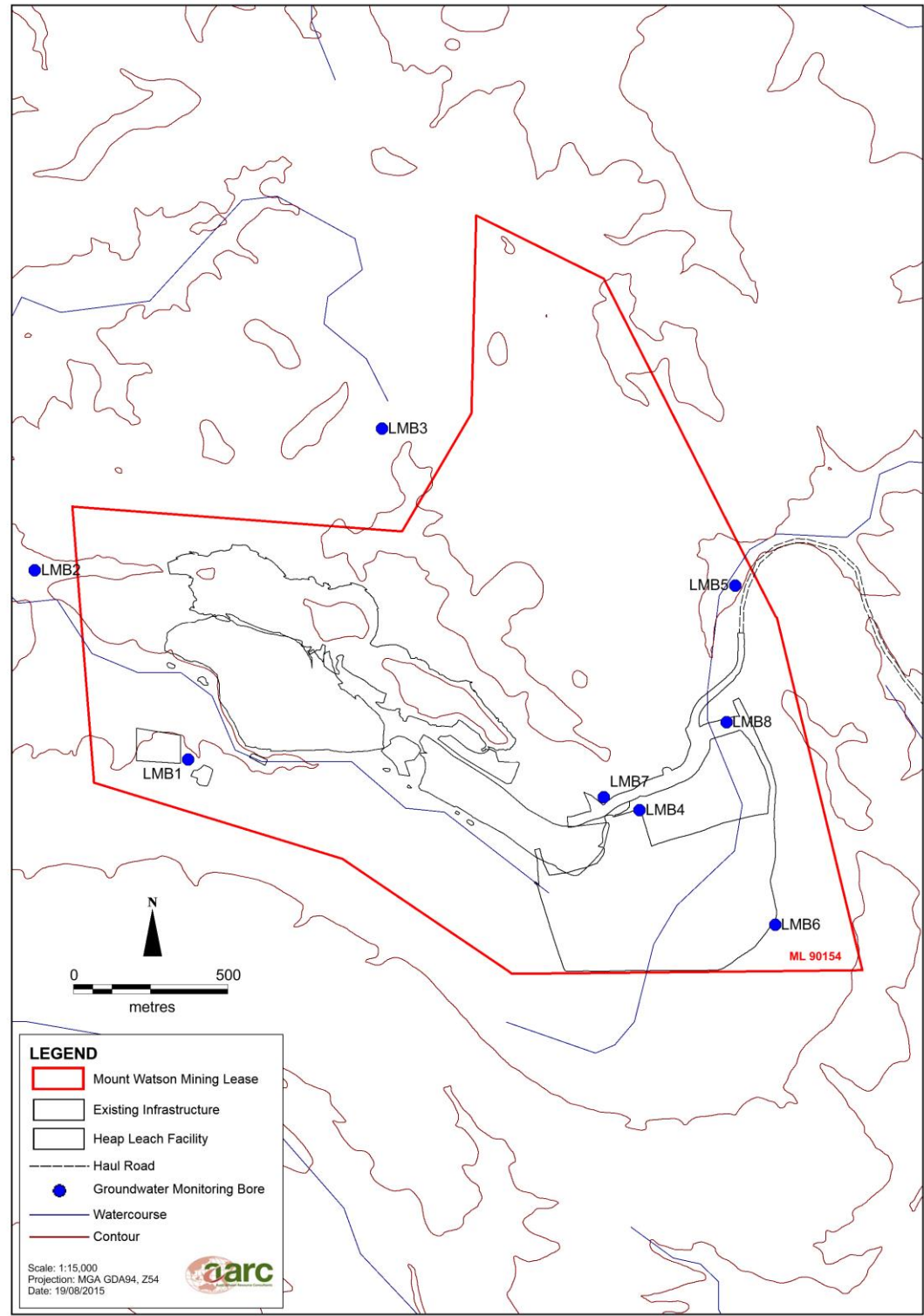
Map 4B – Water storage monitoring locations of hazardous dams at Mount Watson



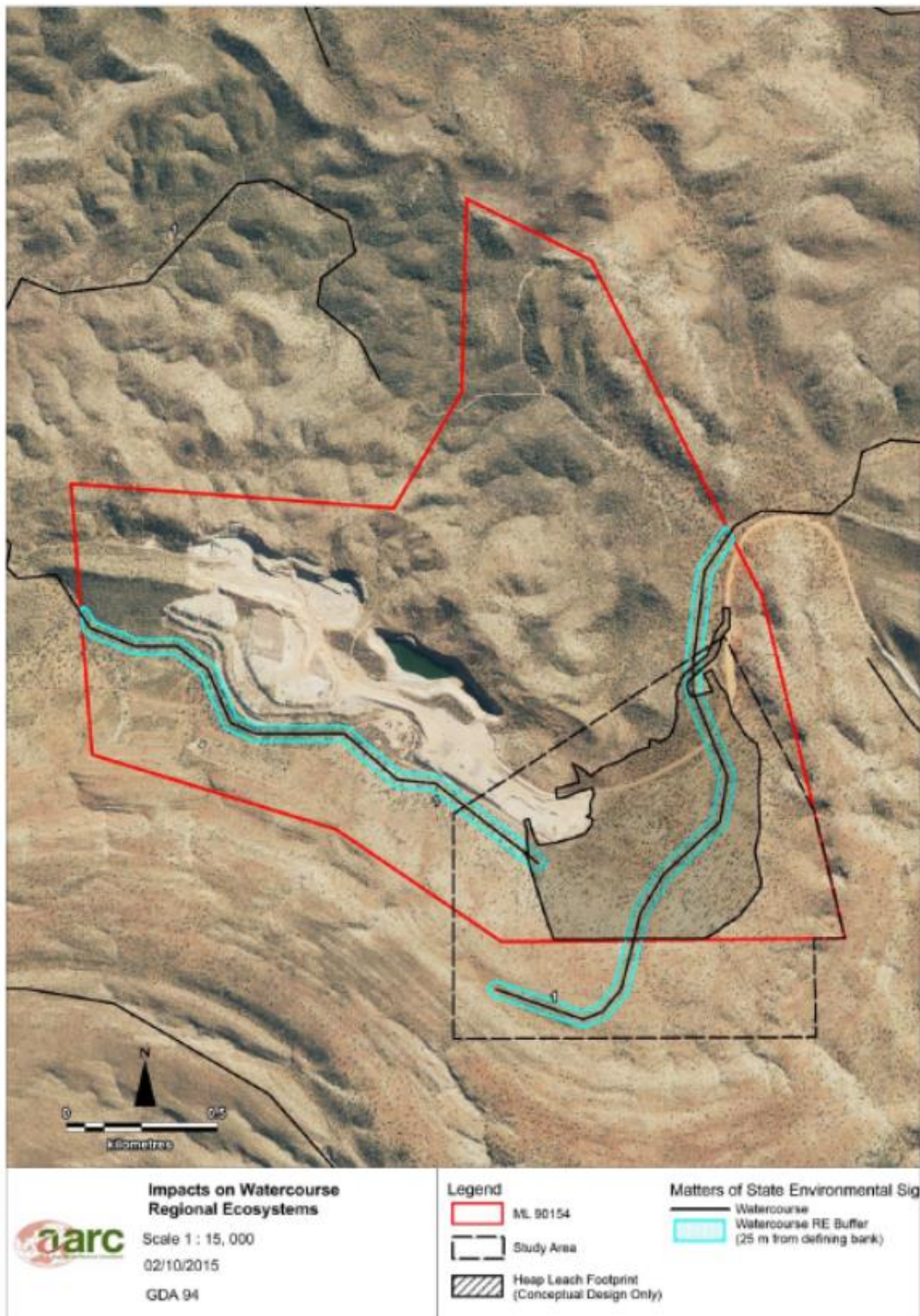
Map 5A - Groundwater monitoring locations at Mount Cuthbert



Map 5B - Groundwater monitoring locations at Mount Watson



Map 6 – Matters of State Environmental Significance (regulated vegetation associated with a watercourse)



END OF SCHEDULE I

END OF PERMIT