Permit

Environmental Protection Act 1994

Environmental Authority EPML00516813 Jellinbah Coal Mine

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

Environmental authority number: EPML00516813

Environmental authority takes effect on 6 March 2026

An annual return will be due each year on 1 April.

Environmental authority holder(s)

Name(s)	Registered address
Jellinbah Group Pty Ltd	Level 20, 66 Eagle Street, BRISBANE QLD 4000
Tremell Pty. Ltd.	Level 20, 66 Eagle Street, BRISBANE QLD 4000
Marubeni Resources Development Pty Ltd	'Riverside Centre,' Level 37, Suite 3705, 123 Eagle Street, BRISBANE QLD 4000
Sojitz Development Pty Limited	'Central One Plaza', Level 27, 345 Queen Street, BRISBANE QLD 4000

Environmentally relevant activity and location details

Environmentally relevant activity/activities	Location(s)
Schedule 3 13 – Mining black coal	ML2418, ML6992, ML70445, ML70446, ML70448, ML70449, ML80018, ML80053, ML80068, ML80108, ML80129, ML80140, ML80165, ML80184, ML700011, ML700012, ML700013
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)	
Ancillary 15 – Fuel burning, Using fuel burning equipment that is capable of burning at least 500kg of fuel in an hour	
Ancillary 16 – Extraction and Screening 2: Extracting, other than by dredging, in a year, the following quantity of material, (c) more than 1,000,000t	

Environmentally relevant activity/activities	Location(s)
Ancillary 16 – Extraction and Screening 3: Screening, in a year, the following quantity of material, (c) more than 1,000,000t	
Ancillary 31 – Mineral processing 2: Processing, in a year, the following quantities of mineral products, other than coke (b) more than 100,000t	
Ancillary 33 – Crushing, milling, grinding or screening Crushing, grinding, milling or screening more than 5000t of material in a year	
Ancillary 38 – Surface Coating 1: Anodising, electroplating, enamelling or galvanising using, in a year, the following quantity of surface coating materials, (a) 1t to 100t	
Ancillary 60 – Waste disposal 1: Operating a facility for disposing of, in a year, the following quantity of waste mentioned in subsection (1)(a) (a) less than 50,000t	

Additional information for applicants

Environmentally relevant activities

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

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

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

Mobile and temporary activities

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

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

Contaminated land

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

- the presence of, or happening of an event involving, a hazardous contaminant on the land that is causing, or is reasonably likely to cause, serious or material environmental harm (notice must be given within 24 hours); or

- if the land is contaminated land – a change in the condition of the land that is causing, or is reasonably likely to cause, serious or material environmental harm (notice must be given within 24 hours); or
- a notifiable activity (as defined in Schedule 3) having been carried out, or is being carried out, on the land (notice must be given within 20 business days).

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

Take effect

Please note that, in accordance with section 200(1) of the EP Act, an EA has effect:

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

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

(c) otherwise—on the day the authority is issued.

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

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

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

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

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

The anniversary day of this EA is the same day each year as the effective date. The payment of the annual fee will be due each year on this day.

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

	6 March 2026
Signature	Date

Alison Cummings

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

Enquiries:

Business Centre (Coal)
PO Box 3028, Emerald QLD 4720
Phone: (07) 4987 9320
Email: CRMining@detsi.qld.gov.au

Obligations under the *Environmental Protection Act 1994*

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

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

Other permits required

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

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

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

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

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

Conditions of environmental authority

The environmentally relevant 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 consists of the following Schedules and Appendices:

Schedule A	General
Schedule B	Air
Schedule C	Water
Schedule D	Regulated Structures
Schedule E	Noise and Vibration
Schedule F	Waste
Schedule G	Land
Schedule H	Watercourse Diversions
Schedule I	Groundwater
Definitions	
Figure 1	Authorised Disturbance
Figure 2a	Authorised Release Points and Receiving Environment Monitoring Locations – Mackenzie River
Figure 2b	Authorised Release Points and Receiving Environment Monitoring Locations – Blackwater Creek
Figure 3	Eastern Dump Extension
Figure 4	Mackenzie South Levee
Figure 5	Location of Significant Residual Impacts to Prescribed Environmental Matters
Figure 6	Groundwater Monitoring Bore Locations – Water Quality
Figure 7	Groundwater Monitoring Bore Locations – Water Level

Schedule A: General	
Condition number	**Condition**
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	In carrying out the mining activities authorised by this environmental authority, the environmental authority holder must comply with the approved disturbance footprint in **Figure 1 Authorised Disturbance**.
A3	The environmental authority holder must ensure: (a) that all measures, plant and equipment necessary to ensure compliance with the conditions of this environmental authority are installed; (b) that such measures, plant and equipment are maintained in a proper condition; and (c) that such measures, plant and equipment are operated in a proper manner.
A4	The environmental authority holder is approved for a coal extraction rate of up to **7.5 million tonnes per annum (Mtpa)** of run-of-mine (ROM) ore in accordance with this environmental authority.
A5	**Monitoring** Record, compile and keep for a minimum of **five (5) years** all monitoring results required by this environmental authority and make available for inspection all or any of these records upon request by the administering authority.
A6	Monitoring and determinations required under any condition of this environmental authority must be conducted by an appropriately qualified person.
A7	Monitoring results for rehabilitation will need to be kept until final surrender is accepted.
A8	**Management Plan, Monitoring programs and Reports** Management plans, monitoring programs and reports required under any condition of this environmental authority must be developed by an appropriately qualified person.
A9	Upon request from the administering authority, copies of monitoring results, records, registers, monitoring programs, management plans and reports required by the conditions of this environmental authority must be made available and provided to the administering authority within: (a) **ten (10) business days**; or (b) an alternative timeframe agreed between the administering authority and the environmental authority holder.
A10	**Flammable and Combustible Liquids** Spillage of all flammable and combustible liquids must be contained within an on-site containment system and controlled in a manner that prevents environmental harm (other than trivial harm) and maintained in accordance with Section 5.8 of *AS 1940 – Storage and Handling of Flammable and Combustible Liquids of 2004*.
A11	**Definitions** Words and phrases used throughout this environmental authority are defined in the Definitions. Where a definition for a term used in this environmental authority is sought and the term is not defined within this environmental authority, the definitions in the Environmental Protection Act 1994, its Regulations and Environmental Protection Policies must be used.

A12	**Notification of Emergencies, Incidents and Exceptions** As soon as practicable after becoming aware of any emergency or incident which results in the release of contaminants not in accordance, or reasonably expected to be not in accordance with the conditions of this environmental authority, the administering authority must be notified of the release by telephone or email (CRMining@detsi.qld.gov.au).
A13	The notification of emergencies or incidents as required by condition **A12** must include but not be limited to the following: (a) the holder of the environmental authority; (b) the location of the emergency or incident; (c) the number of the environmental authority; (d) the name and telephone number of the designated contact person; (e) the time of the release; (f) the time the holder of the environmental authority became aware of the release; (g) the suspected cause of the release; (h) the environmental harm caused, threatened, or suspected to be caused by the release; and (i) actions taken to prevent any further release and mitigate any environmental harm caused by the release.
A14	Not more than **fourteen (14) days** following the initial notification of an emergency or incident, written advice must be provided of the information supplied in accordance with condition **A13** in relation to: (a) proposed actions to prevent a recurrence of the emergency or incident; and (b) outcomes of actions taken at the time to prevent or minimise environmental harm.
A15	As soon as practicable, but not more than **six (6) weeks** following the conduct of any environmental monitoring performed in relation to the 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, written advice must be provided of the results of any such monitoring performed to the administering authority.
A16	**Complaint Response** All complaints received must be recorded including details of the complainant, reasons for the complaint, investigations undertaken, conclusions formed and actions taken. This information must be made available for inspection by the administering authority on request.

Schedule B: Air	
Condition number	**Condition**
B1	Subject to conditions **B2** and **B3** the release of dust or particulate matter or both resulting from the mining activity must not cause an environmental nuisance, at any sensitive or commercial place.
B2	When requested by the administering authority, dust and particulate monitoring must be undertaken within a reasonable and practicable timeframe nominated by the administering authority to investigate any complaint (which is neither frivolous nor vexatious nor based on mistaken belief in the opinion of the authorised officer) of environmental nuisance at any sensitive or commercial place, and the results must be notified within **fourteen (14) days** to the administering authority following completion of monitoring.
B3	**Dust and Particulate Matter Monitoring** The environmental authority holder shall ensure that all reasonable and feasible avoidance and mitigation measures are employed so that the dust particulate emissions generated by the mining activities do not cause exceedances of the following levels when measured at any sensitive or commercial place. If the environmental authority holder can provide evidence through monitoring that the following limits are not being exceeded then the holder is not in breach of condition **B1**: (a) dust deposition of one-hundred and twenty (120) milligrams per square metre per day, averaged over **one (1) month**, when monitored in accordance with *AS 3580.10.1 Methods for sampling and analysis of ambient air - Determination of particulates - Deposited matter - Gravimetric method;* (b) a concentration of particulate matter with an aerodynamic diameter of less than 10 micrometre (µm) (PM_{10}) suspended in the atmosphere of one-hundred and fifty (50) micrograms per cubic metre over a twenty four (24) hour averaging time, at a sensitive or commercial place downwind of the operational land, when monitored in accordance with; (i) particulate matter - Determination of suspended particulate PM_{10} high-volume sampler with size-selective inlet - Gravimetric method, when monitored in accordance with *AS 3580.9.6 Methods for sampling and analysis of ambient air - Determination of suspended particulate matter - PM(sub)10 high volume sampler with size-selective inlet - Gravimetric method of 1990*; or (ii) Australian Standard *AS3580.9.9 Methods for sampling and analysis of ambient air – Determination of suspended particulate matter – PM10 low volume sampler – Gravimetric method.*
B4	If monitoring indicates exceedance of the relevant limits in condition **B3**, then the environmental authority holder must: (a) address the complaint including the use of appropriate dispute resolution if required; and (b) immediately implement dust abatement measures so that emissions of dust from the activity do not result in further environmental nuisance.
B5	The holder of the environmental authority must develop and implement an Air Quality Management Plan prior to the commencement of mining activities within ML70445, ML70446, ML70448 and ML70449.
B6	The Air Quality Management Plan (as required under condition **B5**) must address, as a minimum, the following:

	(a) a procedure for routine monitoring of real time meteorological conditions (rainfall, temperature, wind direction and wind speed) at Mackenzie North to identify periods when nearby sensitive receivers are at risk of elevated dust levels; (b) implementation of a Trigger Action Response Plan, which will identify and initiate appropriate air quality mitigation measures, for periods when adverse meteorological conditions combine with high mining intensity at Mackenzie North; (c) monitoring of particular matter with an aerodynamic diameter of less than 10 micrometre (µm) (PM_{10}) suspended in the atmosphere on a regular basis (as defined within the Air Quality Management Plan) to be undertaken in accordance with either: (i) Australian Standard *AS 3580.9.6 Methods for sampling and analysis of ambient air - Determination of suspended particulate matter - PM(sub)10 high volume sampler with size-selective inlet - Gravimetric method of 1990*; or (ii) any alternative method of sampling PM_{10}, which may be permitted by the *Air Quality Sampling Manual* as published from time to time by the administering authority.

Schedule C: Water	
Condition number	**Condition**
C1	**Contaminant Release** Contaminants that will or have the potential to cause environmental harm must not be released directly or indirectly to any waters as a result of the authorised mining activities, except as permitted under the conditions of this environmental authority.
C2	Unless otherwise permitted under the conditions of this environmental authority, the release of mine affected water to waters must only occur from the release points specified in: (a) **Table C1 Mine Affected Water Release Points, Sources and Receiving Waters;** and (b) **Figure 2a Authorised Release Points and Receiving Environment Monitoring Locations – Mackenzie River;** and (c) **Figure 2b Authorised Release Points and Receiving Environment Monitoring Locations – Blackwater Creek**.

Table C1: Mine Affected Water Release Points, Sources and Receiving Waters

Release Point (RP)	Easting (GDA2020, Zone 55)	Northing (GDA2020, Zone 55)	Mine Affected Water Source and Location	Monitoring Point	Receiving waters description
RP 1	148.931765	-23.377840	Max Dam Bypass	Bluff / Jellinbah Road	Blackwater Creek
RP 2	148.937436	-23.401246	South Dam Bypass	Bluff / Jellinbah Road	Blackwater Creek
RP 3	148.905739	-23.267637	Plains Bypass	Plains Bypass Channel	Mackenzie River
RP4	148.919293	-23.244988	Mackenzie North WMS	End-of-pipe at RP4	Mackenzie River
RP5	148.919841	-23.264828	Plains MAW dams	Plains Bypass Channel	Mackenzie River

C3	The release of mine affected water to waters in accordance with condition **C2** must not exceed the release limits stated in **Table C2 Mine Affected Water Release Limits** when measured at the monitoring points specified in **Table C1 Mine Affected Water Release Points, Sources and Receiving Waters** for each quality characteristic.

Table C2: Mine Affected Water Release Limits

Quality Characteristic	Release Limits	Monitoring frequency
Electrical conductivity (µS/cm)	Release limits specified in **Table C4** for variable flow criteria.	Daily during release (the first sample must be taken within 2 hours of commencement of release). For RP3 and RP5 continuous monitoring (minimum hourly).
pH (pH Unit)	6.5 (minimum) 9.3 (maximum)	Daily during release (the first sample must be taken within 2 hours of commencement of release). For RP3 and RP5 continuous monitoring (minimum hourly).
Turbidity (NTU)	<u>Blackwater Creek</u> Low flow (<2 m^3/s): 1,885 High Flow (>2 m^3/s): 2,900 <u>Mackenzie River</u> All flows: 1,000	Daily during release* (first sample within 2 hours of commencement of release)
Sulfate (SO_4^{2-}) (mg/L)	Release limits specified in **Table C4** for variable flow criteria.	Daily during release* (first sample within 2 hours of commencement of release)

C4	The release of mine affected water to waters from the release points must be monitored at the locations specified in **Table C1 Mine Affected Water Release Points, Sources and Receiving Waters** for each quality characteristic and at the frequency specified in **Table C2 Mine Affected Water Release Limits** and **Table C3 Release Contaminant Trigger Investigation Levels**. **Note:** The administering authority will take into consideration any extenuating circumstances prior to determining an appropriate enforcement response in the event condition **C5** is contravened due to a temporary lack of safe or practical access. The administering authority expects the environmental authority holder to take all reasonable and practicable measures to maintain safe and practical access to designated monitoring locations.
C5	The release of mine affected water to waters, in accordance with condition **C2**, must only take place during periods of natural flow events in accordance with the receiving water flow criteria for discharge specified in **Table C4 Mine Affected Water Release during Flow Events** for the release point(s) specified in **Table C1 Mine Affected Water Release Points, Sources and Receiving Waters**.
C6	The release of mine affected water to waters, in accordance with condition **C2**, must not exceed the Electrical Conductivity and Sulfate Release Limits or the Maximum Release Rate (for all combined release point flows) for each receiving water flow criteria for discharge specified in **Table C4 Mine Affected Water Release during Flow Events** when measured at the monitoring points specified in **Table C1 Mine Affected Water Release Points, Sources and Receiving Waters**.
C7	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 **Table C4 Mine Affected Water Release during Flow Events**.
C8	The daily quantity of mine affected water released from each release point, in accordance with condition **C2**, must be measured and recorded at the monitoring points in **Table C1 Mine Affected Water Release Points, Sources and Receiving Waters**.
C9	Releases to waters must be undertaken so as not to cause erosion of the bed and banks of the receiving waters, or cause a material build-up of sediment in such waters.
C10	**Notification of Release Event** The environmental authority holder must notify the administering authority via WaTERS 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) Expected release cessation date/time; (c) Release point/s; (d) Release volume (estimated); (e) Receiving water/s including the natural flow rate; and (f) Any details (including available data) regarding likely impacts on the receiving water(s).

Table C3: Release Contaminant Trigger Investigation Levels

Quality Characteristic	Units	Trigger Levels	Comment on Trigger Level	Monitoring Frequency
Aluminium	µg/L	55	*For aquatic ecosystem protection, based on SMD guideline*	Commencement of release and thereafter weekly during release
Arsenic	µg/L	13	*For aquatic ecosystem protection, based on SMD guideline*	
Cadmium	µg/L	0.2	*For aquatic ecosystem protection, based on SMD guideline*	
Chromium	µg/L	1	*For aquatic ecosystem protection, based on SMD guideline*	
Copper	µg/L	1.4	*For aquatic ecosystem protection, based on SMD guideline*	
Iron	µg/L	*Interpretive purposes only*		
Lead	µg/L	3.4	*For aquatic ecosystem protection, based on SMD guideline*	
Mercury	µg/L	0.06	*For aquatic ecosystem protection, based on SMD guideline*	
Nickel	µg/L	11	*For aquatic ecosystem protection, based on SMD guideline*	
Zinc	µg/L	8	*For aquatic ecosystem protection, based on SMD guideline*	
Boron	µg/L	940	*For aquatic ecosystem protection, based on SMD guideline*	
Cobalt	µg/L	1.4	For aquatic ecosystem protection, based on SMD guideline.	
Manganese	µg/L	1900	*For aquatic ecosystem protection, based on SMD guideline*	
Molybdenum	µg/L	34	*For aquatic ecosystem protection, based on low reliability guideline*	
Selenium	µg/L	5	*For aquatic ecosystem protection, based on SMD guideline*	
Silver	µg/L	0.5	*For aquatic ecosystem protection, based on SMD guideline*	
Uranium	µg/L	0.5	*For aquatic ecosystem protection, based on SMD guideline*	
Vanadium	µg/L	6	*For aquatic ecosystem protection, based on SMD guideline*	
Ammonia	mg/L	0.9	*For aquatic ecosystem protection, based on SMD guideline*	
Nitrate	mg/L	2.6	*For aquatic ecosystem protection, based on SMD guideline.*	
Total recoverable hydrocarbons (C6-C9)	µg/L	20	*For aquatic ecosystem protection, based on LOR for GCMS*	
Total recoverable hydrocarbons (C10-C36)	µg/L	100	*For aquatic ecosystem protection, based on LOR for GCMS*	
Fluoride (total)	mg/L	2.0	*Protection of livestock and short-term irrigation guideline*	

Notes:

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

b) The quality characteristics required to be monitored as per Table C3 can be reviewed once the results of two years monitoring data is available, or if sufficient data is available to adequately demonstrate negligible environmental risk, and it may be determined that certain quality characteristics can be removed from Table C3 by amendment.

c) SMD – slightly moderately disturbed level of protection, guideline refers ANZG 2018.

d) LOR – typical reporting for method stated. ICPMS/CV FIMS/GCMS – analytical method required to achieve LOR.

Table C4: Mine Affected Water Release during Flow Events

Receiving waters/ stream	Release Point (RP)	Gauging station	(GDA2020)	(GDA2020)	Receiving Water Flow Recording Frequency	Receiving Water Flow Criteria for discharge (m^3/s)	Maximum release rate (for all combined RP flows)	Electrical Conductivity and Sulfate Release Limits
Blackwater Creek	RP 1 RP 2	MP 1	148.878007	-23.373446	Continuous (minimum daily)	**Low Flow*** <2.0 m3/s for a period of 28 days after natural flow events that exceed 2 m^3/s	0.5m^3/s	Electrical conductivity 700µS/cm* Sulfate (SO_4^{2-}) 250mg/L
						Medium Flow >2.0 m3/s	0.16m^3/s	Electrical conductivity 3500µS/cm Sulfate (SO_4^{2-}) 350mg/L
						Medium Flow >5.0 m3/s	0.40m^3/s	Electrical conductivity 3500µS/cm Sulfate (SO_4^{2-}) 350mg/L
						High Flow >10.0m^3/s	0.44m^3/s	Electrical conductivity 6000µS/cm Sulfate (SO_4^{2-}) 500 mg/L
Mackenzie River	RP3 RP4 RP5	MP5	148.929507	-23.243087	Continuous (minimum hourly)	**Low Flow** >1m^3/s	0.43m^3/s	Electrical conductivity 310µS/cm Sulfate (SO_4^{2-}) 250mg/L
						Low Flow >10m^3/s	0.11m^3/s	Electrical conductivity 3000µS/cm Sulfate (SO_4^{2-}) 500mg/L
						Medium Flow >50m^3/s	0.32m^3/s	Electrical Conductivity 2500µS/cm Sulfate (SO_4^{2-}) 500mg/L
							0.26m^3/s	Electrical Conductivity 3500µS/cm Sulfate (SO_4^{2-}) 600mg/L
						High Flow >120m^3/s	0.37m^3/s	Electrical Conductivity 10000µS/cm Sulfate (SO_4^{2-}) 750mg/L
						High Flow >250m^3/s	0.51m^3/s	Electrical Conductivity 15000µS/cm Sulfate (SO_4^{2-}) 1000mg/L
	RP3 RP5					**Low Flow** >10m^3/s	2.7m^3/s	Electrical Conductivity 8000µS/cm Sulfate (SO_4^{2-}) 600mg/L
						Low Flow >10m^3/s	1.8m^3/s	Electrical Conductivity 10,000µS/cm Sulfate (SO_4^{2-}) 750mg/L
						Medium Flow >40m^3/s	2.7m^3/s	Electrical Conductivity 10,000µS/cm Sulfate (SO_4^{2-}) 750mg/L

Note:
** Concurrent release of mine affected water to both the Mackenzie River and Blackwater Creek must be controlled such that the total release from all combined Release Points does not exceed the "Maximum Release Rate" for Mackenzie River.*

C11	The environmental authority holder must notify the administering authority as soon as practicable (nominally within **twenty-four (24) hours** after cessation of a release event) of the cessation of a release notified under condition **C10.** The release cessation notification must include the following information: (a) Release cessation date/time; (b) Details of the receiving water/s including the natural flow rate; and (c) Volume of water released. **Note:** Successive or intermittent releases occurring within **twenty-four (24) hours** of the cessation of any individual release can be considered part of a single release event and do not require individual notification for the purpose of compliance with conditions **C10 and C11** provided the relevant details of the release are included within the notification provided in accordance with conditions **C10** and **C11**.
C14	Within **twenty-eight (28) days** of notification under condition **C10**, the environmental authority holder must provide the administrating authority the following information via WaTERS: (a) Confirmation of: (i) The release commencement date and time; (ii) The release cessation date and time; (iii) Details of the receiving water/s including the natural flow rate; (iv) Volume of water released; (b) All in-situ and laboratory water quality monitoring results; (c) Details regarding the compliance of the release with the conditions of Schedule C: Water of this environmental authority (i.e. contamination limits, natural flow, discharge volume); (d) Whether the release resulted in any impacts to the receiving environment; and (e) Any other matter(s) pertinent to the water release event.

C15	**Release notification – potentially affected stakeholders** The environmental authority holder must notify all potentially affected stakeholders on commencement (within **2 hours** or another timeframe as agreed to in writing with the relevant potentially affected stakeholder) of enhanced release of mine affected water to the receiving environment. Notification must be in the form agreed to by the potentially affected stakeholder. Notification must include the following information unless otherwise agreed to by the potentially affected stakeholder: (a) Release commencement date/time; (b) Release location (release point/s); (c) Release rate; (d) Receiving waters for the release; (e) Receiving water flow rate; (f) Water quality of the release including salinity and pH; and (g) Estimated duration of the release.
C16	**Cease Release** If EC recorded at Bingegang Weir exceeds **650µS/cm** during the release influence period of a release event, the environmental authority holder must immediately cease the release of mine affected water and notify the administering authority via Pollution Hotline within **24 hours**. NOTE: Release influence period is the hours of release plus the lag period from the release point to the Queensland Government gauging station 130106A Mackenzie River at Bingegang.
C17	**Recommencement of Release** The environmental authority holder must seek and receive written approval from the administering authority prior to recommencing a release which has exceeded the EC at Bingegang Weir under condition **C16.**
C18	**Notification of Release Event Exceedance** For releases under condition **C2**, if the release limits defined in **Table C2 Mine Affected Water Release Limits** are exceeded, the holder of the environmental authority must notify the administering authority within **twenty-four (24) hours** of receiving the results.
C19	The authority holder must, within **twenty-eight (28) days** of a release that exceeds the conditions of this authority, provide a report to the administering authority detailing: (a) the reason for the release; (b) the location of the release; (c) all water quality monitoring results; (d) any general observations; (e) all calculations; and (f) any other matters pertinent to the water release event.

C20	**Mine Affected Water Investigation** For releases under condition **C2**, if quality characteristics of the release exceed any of the trigger levels specified in **Table C3 Release Contaminant Trigger Investigation Levels** during a release event, the environmental authority holder must compare the downstream results in the receiving waters to the trigger values specified in **Table C3 Release Contaminant Trigger Investigation Levels** and: (a) where the trigger values are not exceeded then no action is to be taken; or (b) where the downstream results exceed the trigger values specified **Table C3 Release Contaminant Trigger Investigation Levels** for any quality characteristic, compare the results of the downstream site to the data from background monitoring sites and; (i) if the result is less than the background monitoring site data, then no action is to be taken; or (ii) if the result is greater than the background monitoring site data, complete an investigation into the potential for environmental harm and provide a written report to the administering authority in the next annual return, outlining: (1) details of the investigations carried out; and (2) actions taken to prevent environmental harm. **Note:** Where an exceedance of a trigger level has occurred and is being investigated, in accordance with **C20b(ii)** of this condition, no further reporting is required for subsequent trigger events for that quality characteristic.
C21	If any exceedance in accordance with condition **C20(b)(ii)** is identified, the holder of the authority must notify the administering authority within **fourteen (14) days** of receiving the result.
C22	**Monitoring of Water Storage Quality** Water storages defined in **Table C5 Water Storage Monitoring** which are associated with the release points must be monitored for the water quality characteristics specified in **Table C6 Onsite Water Storage Contaminant Limits** at the monitoring locations and at the monitoring frequency specified in **Table C5 Water Storage Monitoring**.
C23	In the event that water storages defined in **Table C5 Water Storage Monitoring** exceed the contaminant limits defined in **Table C6 Onsite Water Storage Contaminant Limits**, the holder of the environmental authority must implement measures, where practicable, to prevent access to waters by all livestock.
C24	**Receiving Environment Monitoring and Contaminant Trigger Levels** The quality of the receiving waters must be monitored at the locations specified in Table C8 Receiving Water Upstream Background Sites and Down Stream Monitoring Points for each quality characteristic and at the monitoring frequency stated in Table C7 Receiving Waters Contaminant Trigger Levels. Note: The administering authority will take into consideration any extenuating circumstances prior to determining an appropriate enforcement response in the event condition **C24** is contravened due to a temporary lack of safe or practical access. The administering authority expects the environmental authority holder to take all reasonable and practicable measures to maintain safe and practical access to designated monitoring locations.

Table C5: Water Storage Monitoring

Water Storage Description	Easting (GDA2020, Zone 55)	Northing (GDA2020, Zone 55)	Monitoring Location	Frequency of Monitoring
Central Release Dam	148.958847	-23.407553	Highest Bank	Bi-annually
North Mine Water Dam	148.941886	-23.3768648	Highest Bank	Bi-annually
South Clean Water Dam	148.945162	-23.405024	Highest Bank	Bi-annually

Table C6: Onsite Water Storage Contaminant Limits

Quality Characteristic	Test Value	Contaminant Limit
pH (pH unit)	Range	Greater than 4, less than 9#
EC (µS/cm)	Maximum	5970*
Sulfate (mg/L)•	Maximum	1000*
Fluoride (mg/L)•	Maximum	2*
Aluminium (mg/L)•	Maximum	5*
Arsenic (mg/L)•	Maximum	0.5*
Cadmium (mg/L)•	Maximum	0.01*
Cobalt (mg/L)•	Maximum	1*
Copper (mg/L)•	Maximum	1*
Lead (mg/L)•	Maximum	0.1*
Nickel (mg/L)•	Maximum	1*
Zinc (mg/L)•	Maximum	20*

Note:

** Contaminant limit based on ANZECC & ARMCANZ (2000) stock water quality guidelines.*

 # Page 4.2-15 of ANZECC & ARMCANZ (2000) "Soil and animal health will not generally be affected by water with pH in the range of 4–9".

- *Total measurements (unfiltered) must be taken and analysed*

Table C7: Receiving Waters Contaminant Trigger Levels

Quality Characteristic	Trigger Level	Monitoring Frequency
pH (pH units)	Blackwater Creek <6.5 or >9	Daily during releases
	Mackenzie River <6.5 or >8.5	
Electrical Conductivity (µS/cm)	Blackwater Creek >1000	
	Mackenzie River >1000	
Turbidity (NTU)	Blackwater Creek Low flow (<2 m^3/s): 1,885 High Flow (>2 m^3/s): 2,991	
	Mackenzie River N/A	
Suspended solids (mg/L)	690	
Sulfate (SO_4^{2-}) (mg/L)	250	

Table C8: Receiving Water Upstream Background Sites and Down Stream Monitoring Points

Monitoring Points	Receiving Waters Location Description	Easting (GDA2020, Zone 55)	Northing (GDA2020, Zone 55)
Upstream Background Monitoring Points			
MP2	Blackwater Creek 1360 metres upstream of RP 2	148.914496	-23.408121
MP4	Upstream Mackenzie River	148.901755	-23.263757
MP7	Upstream Mackenzie River Anabranch	148.894556	-23.255067
Downstream Monitoring Points			
MP1	Blackwater Creek 1500 metres downstream of RP1	148.905543	-23.377349
MP5	Downstream Mackenzie River	148.928269	-23.243370
MP6	Downstream Mackenzie River Anabranch	148.915202	-23.197993

Note: *Monitoring of the Mackenzie River is only required when releasing via RP3, RP5 and/or RP4.*

C25	If quality characteristics of the receiving water at the downstream monitoring points exceed any of the trigger levels specified in **Table C7 Receiving Waters Contaminant Trigger Levels** during a release event the environmental authority holder must compare the downstream results to the upstream results in the receiving waters and: (a) where the downstream result is the same or a lower value than the upstream value for the quality characteristic then no action is to be taken; or (b) where the downstream results exceed the upstream results complete an investigation into the potential for environmental harm and provide a written report to the administering authority in the next annual return, 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 **C25(b)** of this condition, no further reporting is required for subsequent trigger events for that quality characteristic.
C26	**Receiving Environment Monitoring Program (REMP)** The environmental authority holder must develop and implement a Receiving Environment Monitoring Program (REMP) to monitor, identify and describe any adverse impacts to surface water environmental values, quality and flows due to the authorised mining activity. This must include monitoring the effects of the mine on the receiving environment periodically (under natural flow conditions) and while mine affected water is being discharged from the site. For the purposes of the REMP, the receiving environment is the waters of the Mackenzie River and connected or surrounding waterways within 5km 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.

C27	The REMP must: (a) assess the condition or state of receiving waters, including upstream conditions, spatially within the REMP area, considering background water quality characteristics based on accurate and reliable monitoring data that takes into consideration temporal variation (e.g. seasonality); (b) be designed to facilitate assessment against water quality objectives for the relevant environmental values that need to be protected; (c) include monitoring from background reference sites (e.g. upstream or background) and downstream sites from the release (as a minimum, the locations specified in **Table C8 Receiving Water Upstream Background Sites and Down Stream Monitoring Points**); (d) specify the frequency and timing of sampling required in order to reliably assess ambient conditions and to provide sufficient data to derive site specific background reference values in accordance with the *Queensland Water Quality Guidelines 2009*. This should include monitoring during periods of natural flow irrespective of mine or other discharges; (e) include monitoring and assessment of dissolved oxygen saturation, temperature and all water quality parameters listed in **Tables C2 Mine Affected Water Release Limits** and **Table C3 Release Contaminant Trigger Investigation Levels**); (f) include, where appropriate, monitoring of metals/metalloids in sediments (in accordance with ANZECC & ARMCANZ 2000, BATLEY and/or the most recent version of AS5667.*1 Guidance on Sampling of Bottom Sediments*); (g) include, where appropriate, monitoring of macroinvertebrates in accordance with the AusRivas methodology; (h) apply procedures and/or guidelines from ANZECC & ARMCANZ 2000 and other relevant guideline documents; (i) describe sampling and analysis methods and quality assurance and control; and (j) incorporate stream flow and hydrological information in the interpretations of water quality and biological data.
C28	A report outlining the findings of the REMP, including all monitoring results and interpretations in accordance with conditions **C26** and **C27** must be prepared annually and made available on request to the administrating 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.
C29	**Water Reuse** Mine affected water may be piped or trucked or transferred by some other means that does not contravene the conditions of this environmental authority and deposited into artificial water storage structures, such as farm dams or tanks, or used directly at properties owned by the environmental authority holder or a third party (with the consent of the third party).

C30	**Water General** All determinations of water quality and biological monitoring must be: (a) performed by a person or body possessing appropriate experience and qualifications to perform the required measurements; (b) made in accordance with methods prescribed in the latest edition of the administering authority's Monitoring and Sampling Manual; (c) collected from the monitoring locations identified within this environmental authority, within 48 hour of each other where possible; (d) carried out on representative samples; and (e) analysed at a laboratory accredited (e.g. NATA) for the method of analysis being used. **Note:** Condition **C30** requires the Monitoring and Sampling Manual to be followed and where it is not followed because of exceptional circumstances this should be explained and reported with the results.
C31	The release of any contaminants as permitted by this environmental authority, directly or indirectly to waters, other than internal water management infrastructure that is installed and operated in accordance with a water management plan that complies with conditions **C33** to **C35** inclusive: (a) must not produce any visible discolouration of receiving waters; and (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.
C32	**Annual Water Monitoring and Reporting** 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 with each annual return: (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 mine affected water 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 of the conditions of this environmental authority; and (g) water quality monitoring data must be provided annually to the administering authority in the specified electronic format via WaTERS.
C33	**Water Management Plan** A Water Management Plan must be developed and implemented by the environmental authority holder.

C34	The Water Management Plan must: (a) provide for effective management of actual and potential environmental impacts resulting from water management associated with the mining activity carried out under this environmental authority; and (b) be developed in accordance with the administering authority's guideline *Preparation of water management plans for mining activities* and include: (i) a study of the source of contaminants; (ii) a water balance model for the site; (iii) a water management system for the site; (iv) measures to manage and prevent saline drainage; (v) measures to manage and prevent acid rock drainage; (vi) contingency procedures for emergencies; and (vii) a program for monitoring and review of the effectiveness of the water management plan.
C35	The Water Management Plan must be reviewed each calendar year and a report prepared. The report must: (a) assess the plan against the requirements under condition **C34**; (b) include recommended actions to ensure actual and potential environmental impacts are effectively managed for the coming year; and (c) identify any amendments made to the water management plan following the review.
C36	**Stormwater and Water Sediment Controls** An Erosion and Sediment Control Plan must be developed and implemented for all stages of the mining activities on the site to minimise erosion and the release of sediment to receiving waters and contamination of stormwater.
C37	Stormwater, other than mine affected water, is permitted to be released to waters from: (a) erosion and sediment control structures that are installed and operated in accordance with the Erosion and Sediment Control Plan required by condition **C36**; and (b) water management infrastructure that is installed and operated, in accordance with a Water Management Plan that complies with conditions **C33** to **C35** inclusive, for the purpose of ensuring water does not become mine affected water.
C38	**Sewage Treatment** The holder of this authority must ensure that the disposal of sewage effluent from mobile, temporary and permanent sewage treatment facilities less than 21 equivalent persons must not cause environmental nuisance or material or serious environmental harm.
C39	Treated effluent used for irrigation must not cause spray drift or over spray to any sensitive or commercial place.
C40	Treated effluent must not be reused for irrigation so as to create a likelihood of contact or exposure to persons.
C41	Treated effluent must not be released from the site to any waters or the bed and banks of any waters or to land in a manner other than that authorised in this authority.

C42	Suitable banks and/or diversion drains must be installed and maintained to exclude stormwater runoff from entering any structures used for the storage or treatment of sewage or treated effluent.

Schedule D: Regulated Structures	
Condition number	**Condition**
D1	**Assessment of consequence category** The consequence category of any structure must be assessed by a suitably qualified and experienced person in accordance with the 'Manual for assessing consequence categories and hydraulic performance of structures' (ESR/2016/1933) at the following times: (a) prior to the design and construction of the structure, if it is not an existing structure; or (b) prior to any change in its purpose or the nature of its stored contents.
D2	A consequence assessment report and certification must be prepared for each structure assessed and the report may include a consequence assessment for more than one structure.
D3	Certification must be provided by the suitably qualified and experienced person who undertook the assessment, in the form set out in the 'Manual for assessing consequence categories and hydraulic performance of structures' (ESR/2016/1933).
D4	**Design and construction of a regulated structure** Conditions **D5** to **D9** do not apply to existing structures.
D5	All regulated structures must be designed by, and constructed under the supervision of, a suitably qualified and experienced person in accordance with the requirements of the 'Manual for assessing consequence categories and hydraulic performance of structures' (ESR/2016/1933).
D6	Construction of a regulated structure is prohibited unless: (a) the holder has submitted a consequence category assessment report and certification to the administering authority; and (b) certification for the design, design plan and the associated operating procedures has been certified by a suitably qualified and experienced person in compliance with the relevant condition of this authority.
D7	Certification must be provided by the suitably qualified and experienced person who oversees the preparation of the design plan in the form set out in the 'Manual for assessing consequence categories and hydraulic performance of structures' (ESR/2016/1933), and must be recorded in the Register of Regulated Structures.

D8	Regulated structures must: (a) be designed and constructed in compliance with the 'Manual for assessing consequence categories and hydraulic performance of structures' (ESR/2016/1933); (b) be designed and constructed with due consideration given to ensuring that the design integrity would not be compromised on account of: (i) floodwaters from entering the regulated dam from any watercourse or drainage line; and (ii) wall failure due to erosion by floodwaters arising from any watercourse or drainage line. (c) have the floor and sides of the dam designed and constructed to prevent or minimise the passage of the wetting front and any entrained contaminants through either the floor or sides of the dam during the operational life of the dam and for any period of decommissioning and rehabilitation of the dam.
D9	Certification by the suitably qualified and experienced person who supervises the construction must be submitted to the administering authority on the completion of construction of the regulated structure, and state that: (a) the 'as constructed' drawings and specifications meet the original intent of the design plan for that regulated structure; and (b) construction of the regulated structure is in accordance with the design plan.
D10	**Notification of affected persons** All affected persons must be provided with a copy of the emergency action plan in place for each regulated structure (a) for existing structures that are regulated structures, within **ten (10) business days** of this condition taking effect; (b) prior to the operation of the new regulated structure; and (c) if the emergency action plan is amended, within **five (5) business days** of it being amended.

D11	**Operation of a regulated structure** Operation of a regulated structure, except for an existing structure, is prohibited unless the holder has submitted to the administering authority in respect of regulated structure, all of the following: (a) one paper copy and one electronic copy of the design plan and certification of the 'design plan' in accordance with condition **D6**; (b) a set of 'as constructed' drawings and specifications; (c) certification of the 'as constructed drawings and specifications' in accordance with condition **D9**; (d) where the regulated structure is to be managed as part of an integrated containment system for the purpose of sharing the DSA volume across the system, a copy of the certified system design plan; (e) the requirements of this authority relating to the construction of the regulated structure have been met; (f) the holder has entered the details required under this authority, into a Register of Regulated Structures; and (g) there is a current operational plan for the regulated structure.
D12	For existing structures that are regulated structures: (a) where the existing structure that is a regulated structure is to be managed as part of an integrated containment system for the purpose of sharing the DSA volume across the system, the holder must submit to the administering authority within **twelve (12) months** of the commencement of this condition a copy of the certified system design plan including that structure; and (b) there must be a current operational plan for the existing structures.
D13	Each regulated structure must be maintained and operated, for the duration of its operational life until decommissioned and rehabilitated, in compliance with the current operational plan and, if applicable, the current design plan and associated certified 'as constructed' drawings.
D14	**Mandatory reporting level** Conditions **D15** to **D16** inclusive only apply to Regulated Structures which have not been certified as low consequence category for 'failure to contain – overtopping'.
D15	The Mandatory Reporting Level (the MRL) must be marked on a regulated dam in such a way that during routine inspections of that dam, it is clearly observable.
D16	The holder must, as soon as practicable but within **forty-eight (48) hours** of becoming aware, notify the administering authority when the level of the contents of a regulated dam reaches the MRL.
D17	The holder must, immediately on becoming aware that the MRL has been reached, act to prevent the occurrence of any unauthorised discharge from the regulated dam.
D18	The holder must record any changes to the MRL in the Register of Regulated Structures.
D19	**Design storage allowance** The holder must assess the performance of each regulated dam or linked containment system over the preceding **November to May** period based on actual observations of the available storage in each regulated dam or linked containment system taken prior to **1 July** of each year.

D20	By **1 November** of each year, storage capacity must be available in each regulated dam (or network of linked containment systems with a shared DSA volume), to meet the Design Storage Allowance (DSA) volume for the dam (or network of linked containment systems).
D21	The holder must, as soon as practicable but within **forty-eight (48) hours** of becoming aware that the regulated dam (or network of linked containment systems) will not have the available storage to meet the DSA volume on **1 November** of any year, notify the administering authority.
D22	The holder must, immediately on becoming aware that a regulated dam (or network of linked containment systems) will not have the available storage to meet the DSA volume on **1 November** of any year, act to prevent the occurrence of any unauthorised discharge from the regulated dam or linked containment systems.
D23	**Annual inspection report** Each regulated structure must be inspected each calendar year by a suitably qualified and experienced person.
D24	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 a recommendations section, with any recommended actions to ensure the integrity of the regulated structure or a positive statement that no recommendations are required.
D25	The suitably qualified and experienced person who prepared the annual inspection report must certify the report in accordance with the 'Manual for assessing consequence categories and hydraulic performance of structures' (ESR/2016/1933).
D26	The 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; (b) If applicable, any actions being taken in response to those recommendations; and (c) If, following receipt of the recommendations and (if applicable) recommended actions, the administering authority requests a copy of the annual inspection report from the holder, provide this to the administering authority within 10 business days of receipt of the request.
D27	**Transfer arrangements** The holder must provide a copy of any reports, documentation and certifications prepared under this authority, including but not limited to any Register of Regulated Structures, consequence assessment, design plan and other supporting documentation, to a new holder on transfer of this authority.
D28	Before surrendering this environmental authority, the site must meet the conditions and the rehabilitation milestones under the approved PRCP schedule.
D29	**Register of Regulated Structures** A Register of Regulated Structures, incorporating each regulated structure, must be established and maintained by the holder.
D30	The holder must provisionally enter the required information in the Register of Regulated Structures when a design plan for a regulated dam is submitted to the administering authority.

D31	The holder must make a final entry of the required information in the Register of Regulated Structures once compliance with conditions **D11** and **D12** has been achieved.
D32	The holder must ensure that the information contained in the Register of Regulated Structures is current and complete on any given day.
D33	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.
D34	The holder must, at the same time as providing the annual return, supply to the administering authority a copy of the records contained in the Register of Regulated Structures, in the electronic format required by the administering authority.
D35	**Transitional arrangements** All existing structures that have not been assessed in accordance with either the Manual or the former 'Manual for Assessing Hazard Categories and Hydraulic Performance of Dams' must be assessed and certified in accordance with the Manual within **six (6) months** of amendment of the authority adopting this schedule.
D36	All existing structures must subsequently comply with the timetable for achieving the requirements of the Manual and any further assessments in accordance with the Manual specified in **Table D1: Transition period required for existing structures to achieve the requirements of the Manual for Assessing Consequence Categories and Hydraulic Performance of Dams**, depending on the consequence category for each existing structure assessed in the most recent previous certification for that structure.
D37	Where an existing structure is to be managed as part of an integrated containment system for the purpose of sharing the DSA volume across the system, the integrated containment system must subsequently comply with the timetable for achieving the requirements of the Manual and any further assessments in accordance with the Manual specified in **Table D1: Transition period required for existing structures to achieve the requirements of the Manual for Assessing Consequence Categories and Hydraulic Performance of Dams**, depending on the consequence category in the most recent previous certification for that system.
D38	**Table D1 Transition period required for existing structures to achieve the requirements of the Manual for Assessing Consequence Categories and Hydraulic Performance of Dams** ceases to apply for a structure once any of the following events has occurred: (a) it has been brought into compliance with the hydraulic performance criteria applicable to the structure under the Manual; or (b) it has been decommissioned; or (c) it has been certified as no longer being assessed as a regulated structure.
D39	Certification of the transitional assessment required by conditions **D35** and **D36** (as applicable) must be provided to the administering authority within **six (6) months** of amendment of the authority adopting this schedule.

Table D1: Transition period required for existing structures to achieve the requirements of the Manual for Assessing Consequence Categories and Hydraulic Performance of Dams

Compliance with criteria	High consequence	Significant consequence	Low consequence
>90% and a history of good compliance performance in last 5 years	No transition required	No transition required	No transitional conditions apply. Review consequence

			assessment every 7 years.
>70%-≤90%	Within 7 years, unless otherwise agreed with the administering authority, based on no history of unauthorised releases.	Within 10 years, unless otherwise agreed with the administering authority, based on no history of unauthorised releases.	No transitional conditions apply. Review consequence assessment every 7 years.
>50-≤70%	Within 5 years unless otherwise agreed with the administering authority, based on no history of unauthorised releases.	Within 7 years unless otherwise agreed with the administering authority, based on no history of unauthorised releases.	Review consequence assessment every 7 years.
≤50%	Within 5 years or as per compliance requirements (e.g. TEP timing).	Within 5 years or as per compliance requirements (e.g. TEP timing).	Review consequence assessment every 5 years.
Regulated levee designed to prevent the ingress of clean flood water <100% compliant*	Within 5 years unless otherwise agreed with the administering authority.		

Note:

* *Levees designed for the diversion of contaminated waters or protection of the structural integrity of a dam are not to be considered as part of this provision. These levees are considered a key design element of the relevant dam and transitional periods should as such align to that relevant compliance criteria and consequence category.*

Schedule E: Noise and Vibration	
Condition number	**Condition**
E1	**Noise Nuisance** The holder of this environmental authority must ensure that noise generated by the mining activities does not cause the criteria in **Table E1 Noise limits at a noise sensitive place** to be exceeded at a sensitive place or commercial place.
E2	When requested by the administering authority, noise monitoring must be undertaken within a reasonable and practicable timeframe nominated by the administering authority to investigate any complaint (which is neither frivolous nor vexatious nor based on mistaken belief in the opinion of the authorised officer) of environmental nuisance at any sensitive or commercial place, and the results must be notified within **fourteen (14) days** to the administering authority following completion of monitoring.
E3	The method of measurement and reporting of noise levels must comply with the latest edition of the administering authority's *Noise Measurement Manual*.
E4	If the environmental authority holder can provide evidence through monitoring that the limits defined in **Table E1 Noise limits at a noise sensitive place**, are not being exceeded then the holder is not in breach of condition **E1**. Monitoring must include: (a) $L_{A1,\ adj,\ 15\ mins}$; (b) $L_{Aeq,\ adj,\ 15\ mins}$; and (c) the level and frequency of occurrence of impulsive or tonal noise.
E5	If monitoring indicates exceedance of the limits in **Table E1 Noise limits at a noise sensitive place**, then the environmental authority holder must: (a) address the complaint including the use of appropriate dispute resolution if required; and (b) immediately implement noise abatement measures so that emissions of noise from the activity do not result in further environmental nuisance.
E6	The holder of this environmental authority must develop a Noise Management Plan prior to the commencement of mining activities within ML70445, ML70448 and ML70449.

E7	The Noise Management Plan (as required under condition **E6**) must address, as a minimum, the following: (a) a procedure for routine monitoring of real time meteorological conditions (rainfall, temperature, wind direction and wind speed) at Mackenzie North to identify periods when nearby sensitive receivers are at risk of elevated noise levels; (b) implementation of a Trigger Action Response Plan, which will identify and initiate appropriate noise mitigation measures, for periods when adverse meteorological conditions combine with high mining intensity at Mackenzie North; (c) noise monitoring and recording on a regular basis (as defined within the Noise Management Plan) must include the following descriptor characteristics and matters: (i) LA1, adj, 15 mins; (ii) LAeq, adj, 15 mins; (iii) the level and frequency of occurrence of impulsive or tonal noise; and (iv) atmospheric conditions including wind speed and direction, location, date and time of recording.
E8	**Vibration Nuisance** Subject to conditions E9 and E10, vibration from the mining activity must not cause an environmental nuisance, at any sensitive or commercial place.
E9	When requested by the administering authority, vibration monitoring must be undertaken within a reasonable and practicable timeframe nominated by the administering authority to investigate any complaint (which is neither frivolous nor vexatious nor based on mistaken belief in the opinion of the authorised officer) of environmental nuisance at any sensitive or commercial place, and the results must be notified within **fourteen (14) days** to the administering authority following completion of monitoring.
E10	If the environmental authority holder can provide evidence through monitoring that the limits defined in **Table E2 Vibration limits at a noise sensitive place** are not being exceeded then the holder is not in breach of condition **E8**. Monitoring must include: (a) location of the blast(s) within the mining area (including which bench level); (b) atmospheric conditions including temperature, relative humidity and wind speed and direction; and (c) location, date and time of recording.
E11	If monitoring indicates exceedance of the relevant limits in **Table E2 Vibration limits at a noise sensitive place**, then the environmental authority holder must: (a) address the complaint including the use of appropriate dispute resolution if required (b) immediately implement vibration abatement measures so that vibration from the activity does not result in further environmental nuisance.

Table E1: Noise limits at a noise sensitive place

Noise level dB(A) measured as:	Sensitive Place					
	Monday to Saturday			Sunday and Public Holidays		
	7am – 6pm	6pm – 10pm	10pm – 7am	9am – 6pm	6pm – 10pm	10pm – 9am
$L_{Aeq,\ adj,\ 15\ mins}$	CV = 50 AV = 5	CV = 45 AV = 5	CV = 40 AV = 0	CV = 45 AV = 5	CV = 40 AV = 5	CV = 35 AV = 5
$L_{A1,\ adj,\ 15\ mins}$	CV = 55 AV = 10	CV = 50 AV = 10	CV = 45 AV = 5	CV = 50 AV = 10	CV = 45 AV = 10	CV = 40 AV = 5

Notes:

a) *CV = Critical Value.*
b) *AV = Adjustment Value.*
c) *To calculate noise limits in Table E1:*
   i) *If bg $\leq$ (CV – AV): Noise limit = bg + AV.*
   ii) *If (CV – AV) < bf $\leq$ CV: Noise limit = CV.*
   iii) *If bg > CV: Noise limit = bg = 0.*
d) *In the event that measurement bg ($L_{A90,\ adj,\ 15\ mins}$) is less than 30 dB(A), then 30 dB(A) can be substituted for the measured background level.*
e) *Bg = background noise level ($L_{A90,\ adj,\ 15\ mins}$) measured over 3 – 5 days at the nearest sensitive receptor.*

Table E2: Vibration limits at a noise sensitive place

Blasting noise limits	Sensitive or commercial place blasting noise limits	
	7am to 6pm Monday to Friday* and 9am to 5pm Saturdays, Sundays and Public Holidays*	**All other times**
Airblast overpressure	115 dB (Linear) Peak for 9 out of 10 consecutive blasts initiated and not greater than 120 dB (Linear) Peak at any time.	No blasting
Ground vibration peak particle velocity	5mm/second peak particle velocity for 9 out of 10 consecutive blasts and not greater than 10mm/second peak particle velocity at any time.	No blasting

Note:
** Except in cases where measures need to be taken to ensure the mine area is safe and stable.*

Schedule F: Waste	
Condition number	**Condition**
F1	**Storage of Tyres** Scrap tyres stored awaiting disposal or transport for take-back and recycling, or waste to energy options must be stored in stable stacks and at least 10 metres from any other scrap tyre storage area, or combustible or flammable material, including vegetation.
F2	All reasonable and practicable fire prevention measures must be implemented, including removal of grass and other materials within a 10 metre radius of the scrap tyre storage area.
F3	**Disposal of Tyres** Where take-back, recycling or waste-to-energy is impracticable and all other stages (options) in the waste hierarchy have been considered, scrap tyres resulting from the mining activities may be disposed of on the mine site in accordance with conditions **F4** to **F5**.
F4	Disposing of scrap tyres resulting from the mining activities in spoil emplacements is acceptable, provided tyres are placed as deep in the spoil as reasonably practicable.
F5	Scrap tyres resulting from the mining activities disposed within the operational land must not impede saturated aquifers or compromise the stability of the consolidated landform.
F6	**Waste Management** The Waste Management System and waste management arrangements must be reviewed annually and managed in accordance with the Waste Management Plan.
F7	The Waste Management Plan required by condition **F6** must a description of how waste is generated; (a) a program for reusing, recycling, or disposing of all wastes; (b) the waste management control strategies including: (i) the type of wastes; (ii) segregation of the wastes; (iii) storage of the wastes; (iv) transport of the wastes; (v) monitoring and reporting matters concerning the waste; (vi) emergency response planning; (vii) disposal, reused and recycling options; (c) the hazard characteristics of the wastes generated including disposal procedures for regulated wastes; (d) how the waste will be managed in accordance with the waste and resource management hierarchy, including a description of the types of waste that will be dealt with under each of the waste management practices in the waste management hierarchy (i.e. avoidance, reuse, recycling, energy recovery, disposal); (e) how the waste will be stored, handled, and transferred in a proper and effective manner; (f) procedures for identifying and implementing opportunities to minimise the amount of waste generated, promote efficiency in the use of resources and improve the waste management practices employed;

	(g) procedures for dealing with accidents, spills, and other incidents that may impact on waste management; (h) details of any management system employed, or planned to be employed, to deal with the waste; (i) indicators or other criteria on which the performance of the waste management practices will be assessed; (j) staff training and induction to the waste management program; (k) a system for regular review; and (l) identify responsible staff (positions) for implementing, managing, and reporting under the Waste Management Plan.
F8	The non-mineral Waste Management Plan required under condition **F6** must be regularly reviewed and updated at intervals of no greater than **five (5) years.**
F9	A designated area must be set aside for the segregation of economically viable, recyclable solid and liquid waste.

Schedule G: Land	
Condition number	**Condition**
G1	Land disturbed by mining must be rehabilitated in accordance with the approved PRCP schedule for this environmental authority.
G2	The mining void and levee within ML80129 is limited to the approved disturbance footprint as shown in **Figure 1 Authorised Disturbance** and must not encroach within 100 metres of the Southern High Bank of the Mackenzie River as shown in **Figure 4 Mackenzie South Levee** and **Table G1 Southern high bank of the Mackenzie River**.

Table G1: Southern high bank of the Mackenzie River

Name of structure	Easting (MGA GDA 94, Zone 55)	Northing (MGA GDA 94, Zone 55)
Southern high bank of the Mackenzie River	696551	7425896
	696062	7425749
	695813	7425703
	695271	7425800
	694873	7425836

G3	**Cover and Material Handling** Topsoil resources that are suitable for use in rehabilitation must be salvaged ahead of mining for strategic use in rehabilitation of the mine area.
G4	A topsoil inventory which identifies the topsoil requirements for the authorised mining activities and availability of suitable topsoil on site must be: (a) provided with any Estimated Rehabilitation Cost application; and (b) detailed in the Topsoil Management Plan.
G5	**Category B Environmentally Sensitive Areas** This environmental authority does not authorise disturbance of the Category B Environmentally Sensitive areas located outside of the Eastern dump expansion boundary in **Figure 3 Eastern Dump Extension** located on ML80184.

G6	**Impacts to Prescribed Environmental Matters** Significant residual impacts to prescribed environmental matters are not authorised unless the impacts are authorised in condition **G7**, other than if the impacts were authorised by an existing authority issued before the commencement of the *Environmental Offsets Act 2014*.
G7	Notwithstanding condition **G6**, significant residual impacts to prescribed environmental matters are only authorised to occur if: (a) For the prescribed environmental matters specified in **Table G1 Authorised significant residual impacts to prescribed environmental matters**, the impacts occur at the location(s) specified in **Figure 5 Location of Significant Residual Impacts to Prescribed Environmental Matters** for those prescribed environmental matters; and (b) For the prescribed environmental matters specified in **Table G1 Authorised significant residual impacts to prescribed environmental matters**, the significant residual impacts do not exceed the maximum extent of impact specified in **Table G1 Authorised significant residual impacts to prescribed environmental matters**.

Table G1: Authorised significant residual impacts to prescribed environmental matters

Prescribed environmental matter	Maximum extent of impact (ha)
Endangered regional ecosystem – 11.4.8	14.65
Endangered regional ecosystem – 11.3.1	9.9
Of Concern regional ecosystem – 11.3.2	69.0
Of concern regional ecosystem – 11.3.3	40.8
Regional ecosystem within a defined distance from the defining banks of a watercourse – 11.4.8	1
Regional ecosystem within a defined distance from the defining banks of a watercourse – 11.3.1	4.5
Regional ecosystem within a defined distance from the defining banks of a watercourse – 11.3.2	49.5
Regional ecosystem within a defined distance from the defining banks of a watercourse – 11.3.25	21.9
Regional ecosystem within a defined distance from the defining banks of a watercourse – 11.3.3	16.2
Connectivity area	148.9
Habitat for an animal that is vulnerable wildlife – Squatter pigeon – (*Geophaps scripta scripta*)	148.9

Note: *Areas in this table overlap; an area for one matter may also encompass the area of another. Queensland Government regional ecosystem mapping was used to determine the maximum extent of impacts to prescribed environmental matters.*

G8	An environmental offset must be delivered for each impact specified in **Table G1 Authorised significant residual impacts to prescribed environmental matters**.
G9	Records demonstrating that each impact to a prescribed environmental matter not listed in **Table G1 Authorised significant residual impacts to prescribed environmental matters** did not, or is not likely to, result in a significant residual impact to that matter must be kept for the life of the environmental authority.
G10	The significant residual impacts to prescribed environmental matters authorised in condition **G7** for which environmental offsets are required may be carried out in stages. An environmental offset can be delivered for each stage of the impacts to prescribed environmental matters.
G11	Prior to the commencement of each stage, an analysis of the anticipated maximum extent of significant residual impacts to each prescribed environmental matter must be provided to the administering authority: (a) For the forthcoming stage – the estimated significant residual impact to each prescribed environmental matter; and (b) For the previous stage, if applicable – the actual significant residual impact to each prescribed environmental matter, to date.
G12	The analysis of impacts required by condition **G11** must be accepted by the administering authority before the notice of election for the forthcoming stage, if applicable, is given to the administering authority.
G13	The notice of election for the staged environmental offset referred to in condition **G12**, if applicable, must be provided to the administering authority no less than **three (3) months** before the proposed commencement of that stage, unless a lesser timeframe has been agreed to by the administering authority.

Schedule H: Watercourse Diversions	
Condition number	**Condition**
H1	**Design Plan** A certified Design Plan must be submitted to the administering authority at least **ten (10) business days** before commencing construction of the watercourse diversion.
H2	The certified design plan for the watercourse diversion must be consistent with the functional design report 'Jellinbah Resources Mackenzie North - Mackenzie River Anabranch Diversion Functional Design Report' (30 April 2021, Revision D).
H3	**Construction and Operation** A certified set of 'as constructed' drawings and specifications must be submitted to the administering authority within **sixty (60) business days** from the completion of construction of the watercourse diversion, or re-establishment of the pre-existing watercourse. These drawings and specifications must state: (a) that the 'as constructed' drawings and specifications meet the original intent of the design plan for the watercourse diversion; and (b) construction of the watercourse diversion is in accordance with the design plan.
H4	Monitoring of the watercourse diversion must be undertaken in accordance with the monitoring program detailed in the functional design report 'Jellinbah Resources Mackenzie North - Mackenzie River Anabranch Diversion Functional Design Report' (30 April 2021, Revision D).

Schedule I: Groundwater	
Condition number	**Condition**
I1	The holder of this environmental authority must not release contaminants, directly or indirectly, to groundwater.
I2	**Groundwater Monitoring** Groundwater quality must be monitored: (a) at the locations specified in **Table I1 Groundwater quality monitoring locations and frequency**, as illustrated in **Figure 6 Groundwater Monitoring Bore Locations – Water Quality**; and (b) at the frequencies specified in **Table I1 Groundwater quality monitoring locations and frequency**; and (c) for quality characteristics listed in **Table I2 Groundwater quality limits** and **Table I3 Groundwater contaminant limits**.

Table I1: Groundwater quality monitoring locations and frequency

Monitoring Bore	**Hydrogeological Unit**	**Location (decimal degrees*, GDA2020)**		**Surface RL (mAHD)**	**Screened Interval (mbgl)**		**Monitoring Frequency**
		Latitude	**Longitude**		**From**	**To**	
Interpretation Bores							
JMR22WP	Permian-Pollux seam	-23.228966	148.926433	122.2	157	163	Q
JN1119E	Permian-Pollux seam	-23.225812	148.925928	121.38	140	146	Q
JMR23WA	Alluvium	-23.242885	148.927600	122.30	17.2	20.2	Q
Compliance Bores							
JMR4WA	Alluvium	-23.253039	148.915384	123.80	36	42	Q
JMR4WP2	Permian-Pollux seam	-23.253030	148.915413	124.00	83.5	88	Q
JMR24WP2	Permian-Overburden	-23.208712	148.927998	120.5	72.8	78.8	Q
JMR25WA	Alluvium	-23.249658	148.919381	122.5	17.9	20.9	Q

Note: *Q-quarterly monitoring (every 3 months).*

I3	Results of monitoring of groundwater from compliance bores identified in **Table I1 Groundwater quality monitoring locations and frequency**, must not exceed any of the limits defined in **Table I2 Groundwater quality limits** and **Table I3 Groundwater contaminant limits** on **three (3)** consecutive occasions.

Table I2: Groundwater quality limits

Monitoring Bore	Groundwater Quality Characteristic Limit		
	pH (pH units)	EC (µS/cm)	Sulfate (mg/L)
JMR4WA	6.37 - 8.6	6,900	103
JMR4WP2		9,590	60
JMR24WP2		10,490	20
JMR25WA		2,200	16

Table I3: Groundwater contaminant limits

Quality Characteristic[1]	Groundwater limit[2]	Limit type
Total dissolved solids (TDS) (mg/L)	No specified limit	Interpretative purposes only
Major anions (mg/L) [Ca, K, Mg, Na]	No specified limit	Interpretative purposes only
Major cations (mg/L) [Cl^-, OH^-, CO_3^{2-}, HCO_3^-]	No specified limit	Interpretative purposes only
Aluminium (µg/L)	55	For aquatic ecosystem protection, based on SMD guideline[4]
Arsenic (µg/L)	13	For aquatic ecosystem protection, based on SMD guideline
Chromium (µg/L)	1.0	For aquatic ecosystem protection, based on SMD guideline
Cobalt (µg/L)	1.4	For aquatic ecosystem protection, based on default guideline
Copper (µg/L)	2.0	Interim trigger value based on median value from bore JMR25WA
Manganese (µg/L)	1900	For aquatic ecosystem protection, based on SMD guideline
Molybdenum (µg/L)	34	For aquatic ecosystem protection, based on default guideline
Nickel (µg/L)	211 (Permian Bores: JMR22WP, JN1119E, JMR4WP2, and JMR24WP2)) 221 (Alluvium Bores: JMR23WA, JMR4WA, and JMR25WA)	Hardness modified criteria, based on ANZG (2018) 95% aquatic ecosystem trigger
Selenium (µg/L)	10	For aquatic ecosystem protection, based LOR for ICPMS[5]
Zinc (µg/L)	154 (Permian Bores: JMR22WP, JN1119E, JMR4WP2, and JMR24WP2)) 161 (Alluvium Bores: JMR23WA, JMR4WA, and JMR25WA)	Hardness modified criteria, based on ANZG (2018) 95% aquatic ecosystem trigger
TPH C6-C9 (µg/L)	20	For aquatic ecosystem protection, based on LOR[3] for GCMS[6]
TPH C10-C36 (µg/L)	50	For aquatic ecosystem protection, based on LOR for GCMS

Notes:

[1] All parameters must be measured in dissolved and total fractions

[2] Limits apply to dissolved (bioavailable fraction)

[3] LOR – typical reporting for method stated. ICPMS/ GCMS – analytical method required to achieve LOR.

[4]. SMD guideline - slightly moderately disturbed level of protection, guideline refers ANZECC & ARMCANZ (2000)

[5] ICPMS - Inductively coupled plasma mass spectrometry.

[6] GCMS - Gas chromatography–mass spectrometry.

I4	If any limit specified in **Table I2 Groundwater quality limits** or **Table I3 Groundwater contaminant limits** are exceeded at the compliance bores specified in **Table I1 Groundwater quality monitoring locations and frequency** on **three (3)** consecutive occasions, the holder of the environmental authority must notify the administering authority via WaTERS within **twenty-four (24) hours** of receiving the results.
I5	Monitoring and sampling must be carried out in accordance with written procedures that address and comply with the requirements of the latest version of the Queensland Government's '*Monitoring and Sampling Manual – Environmental Protection (Water) Policy 2009*' unless otherwise approved by the administering authority.
I6	All groundwater monitoring must be carried out by an appropriately qualified person.
I7	The following information must be recorded in relation to all groundwater monitoring: (a) the date on which the sample was taken; (b) the time at which the sample was taken; (c) the monitoring bore at which the sample was taken; and (d) the results of all monitoring.
I8	**Groundwater standing water level monitoring** Groundwater standing water level (SWL) must be monitored: (a) at the locations specified in **Table I4 Groundwater standing water level monitoring locations, frequency and triggers**, as illustrated in **Figure 7 Groundwater Monitoring Bore Locations – Water Level**; and (b) at the frequencies specified in **Table I4 Groundwater standing water level monitoring locations, frequency and triggers.**
I9	If the level trigger thresholds specified in **Table I4 Groundwater standing water level monitoring locations, frequency and triggers** are exceeded at the compliance bores specified in **Table I4 Groundwater standing water level monitoring locations, frequency and triggers**, the holder of the environmental authority must notify the administering authority via WaTERS within **fourteen (14) days** of receiving the results.
I10	**Groundwater Monitoring and Management Program** A Groundwater Monitoring and Management Program (GMMP) must be developed, implemented and maintained.

I11	The GMMP required by condition **I10** must: (a) Describe the existing groundwater conceptual model (b) identify all potential sources of contamination to groundwater from the activities authorised under this environmental authority; and (c) identify all environmental values that may be impacted; and (d) detail groundwater levels in all identified hydrogeological units present across and adjacent to the site to confirm existing groundwater flow paths; and (e) ensure all potential groundwater impacts due to the activities authorised under this environmental authority are identified, monitored and mitigated; and (f) ensure adequate groundwater monitoring and data analysis is undertaken to achieve the following objectives: (i) detect any impacts to groundwater quality due to the activities authorised under this environmental authority; and (ii) detect any changes to groundwater level due to the activities authorised under this environmental authority; and (iii) determine compliance with condition **I4**; (iv) determine trends in groundwater quality; and (v) determine any interaction or impact from groundwater on surface water (groundwater monitoring locations should align with receiving environment surface water quality monitoring locations, if appropriate); and (g) document groundwater management and monitoring methodologies undertaken for the duration of all the activities authorised under this environmental authority; and (h) provide an appropriate quality assurance and quality control program; and (i) include a review process to identify improvements to the program that includes addressing any comments provided by the administering authority.
I12	The GMMP must be reviewed on an annual basis by an appropriately qualified person to determine if it continues to meet the requirements stated in condition **I11**.
I13	**Groundwater Model** By **30 June 2023**, the environmental authority holder must submit an update to the current groundwater model.

Table I4: Groundwater standing water level monitoring locations, frequency and triggers

Monitoring Bore	Hydrogeological Unit	Location (decimal degrees, GDA2020)		Surface RL (mAHD)	Screened Interval (mbgl)		Monitoring Frequency[1]	Baseline water level (mAHD)[3]	Level Trigger Threshold – End of mining drawdown[2] (m)
		Latitude	Longitude		From	To			
Interpretation Bores									
JP0911T	Alluvium	-23.264898	148.901783	124.86	22	28	Q	99.48	N/A
JP0912T	Alluvium	-23.262135	148.928424	122.56	36	42	Q	100.89	N/A
JMR26WA	Alluvium	-23.265381	148.921434	123.40	18.2	21.2	Q	Dry	N/A
Compliance Bores									
JMR4WP2	Permian-Pollux seam	-23.253030	148.915413	124.00	83.5	88	Q	103.20	18
JMR24WP2	Permian-Overburden	-23.208712	148.927998	120.50	72.8	78.8	Q	77.81	55
JMR4WA	Alluvium	-23.253039	148.915384	123.80	36	42	Q	103.25	10 to 20
JMR25WA	Alluvium	-23.249658	148.919381	122.50	17.9	20.9	Q	102.43	5 to 10
JMR22WP	Permian	-23.228966	148.926433	122.2	157	163	Q	101.24	90
JMR22WA	Alluvium	-23.229120	148.926396	122.2	14.5	17.5	Q	Dry	N/A
JN1119E	Permian	-23.225812	148.925928	121.38	140	146	Q	100.79	100
JMR24WA	Alluvium	-23.208712	148.927979	120.40	14.8	17.8	Q	Dry	N/A
JMR23WA	Alluvium	-23.242885	148.927600	122.30	17.2	20.2	Q	Dry	N/A

Notes:

[1] *Q-quarterly monitoring (every 3 months).*

[2] *Trigger level thresholds sourced from 'Australasian Groundwater & Environmental Consultants Pty Ltd, report on Mackenzie North groundwater assessment, June 2013' (AGE 2013).*

[3] *Baseline water levels are underpinned by data gathered prior to July 2020 (as mining of coal in the Mackenzie North Pit commenced in August 2020).*

I14	The groundwater model review in **I13** must: (a) include all hydrogeological units potentially impacted by the activities authorised under this environmental authority; (b) be undertaken in accordance with the most recent version of the '*Australian Groundwater Modelling Guidelines' (2012)*; (c) be validated and recalibrated with all recent monitoring data; and (d) be documented and recorded.
I15	By **30 September 2023**, the environmental authority holder must provide a report to the administering authority which: (a) Is prepared by an appropriately qualified person; (b) compares the updated groundwater model required by condition **I13** (June 2023), to the original groundwater model (2013)[1]; (c) describes any differences in the predicted outcomes between the models; and (d) details any additional impacts to environmental values identified by the updated groundwater model (June 2023), that were not predicted by the original model (2013). *[1] The original groundwater model is that included in 'Australasian Groundwater & Environmental Consultants Pty Ltd, report on Mackenzie North groundwater assessment, June 2013' (AGE 2013).*
I16	**Annual Groundwater Monitoring Report** An Annual Groundwater Monitoring Report (AGMR) must be completed by **1 March** each year.
I17	The AGMR required by condition **I16** must include: (a) a review of all the groundwater quality and SWL data of all groundwater bores listed within **Table I1: Groundwater quality monitoring locations and frequency** and **Table I4 – Groundwater standing water level monitoring locations, frequency and triggers**; (b) an assessment of groundwater quality and SWL trends for all data from all groundwater bores listed in **Table I1: Groundwater quality monitoring locations and frequency** and **Table I4: Groundwater standing water level monitoring locations, frequency and triggers**; (c) an assessment of any impacts on groundwater level due to the mining activities; and (d) comparison with receiving environment surface water quality monitoring results to determine any interaction or impact from groundwater on surface water.
I18	**Groundwater Monitoring Bores** The construction, maintenance, operation and decommissioning of each groundwater monitoring bore must be undertaken in a manner that: (a) prevents contaminants entering the groundwater; (b) ensures representative groundwater samples from the target hydrogeological unit; and (c) maintains the hydrogeological environment within the hydrogeological unit.
I19	If bore locations are decommissioned, alternative methods for sampling groundwater levels must be implemented and notification given to the administering authority within **one (1) month**.
I20	All groundwater monitoring data must be uploaded to WaTERS by **31 January** for the previous calendar year.

END OF CONDITIONS

Definitions

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

Words and phrases used throughout this environmental authority are defined below except where identified in the *Environmental Protection Act 1994* (Qld) or subordinate legislation. Where a word or term is not defined, the ordinary English meaning applies, and regard should be given to the Macquarie Dictionary.

"acid rock drainage" 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 as a result of mining activity.

"administering authority" means the Department of Environment and Heritage Protection or its successor.

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

"Affected person" is someone whose drinking water can potentially be impacted as a result of discharges from a dam or their life or property can be put at risk due to dwellings or workplaces being in the path of a dam break flood.

"airblast overpressure" means energy transmitted from the blast site within the atmosphere in the form of pressure waves, The maximum excess pressure in this wave, above ambient pressure is the peak airblast overpressure measured in decibels linear (dBL).

"ambient (or tonal) 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.

"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.

"ANZECC" means the *Australian and New Zealand Guidelines for Fresh Marine Water Quality 2000.*

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

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

a) exactly what has been assessed and the precise nature of that determination;

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

c) the relevant data and facts on which the assessment has been based, the source of that material, and the efforts made to obtain all relevant data and facts; and

d) the reasoning on which the assessment has been based using the relevant data and facts, and the relevant criteria.

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

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

(b) any land used for those operations.

"authority" means environmental authority (mining activities) under the *Environmental Protection Act 1994* (Qld) or a development approval.

"bed and banks" for a waters, river, creek, stream, lake, lagoon, pond, swamp, wetland or dam means land over which the water of the waters, lake, lagoon, pond, swamp, wetland or dam normally flows or that is normally covered by the water, whether permanently or intermittently; but does not include land adjoining or adjacent to the bed and banks that is from time to time covered by floodwater.

"beneficial use" in respect of dams means that the current or proposed owner of the land on which a dam stands, has found a use for that dam that is:

a) of benefit to that owner in that it adds real value to their business or to the general community

b) in accordance with relevant provisions of the *Environmental Protection Act 1994*

c) sustainability by virtue of written undertakings given by that owner to maintain that dam

d) the transfer and use have been approved or authorised under any relevant legislation.

"blasting" means the use of explosive materials to fracture- rock, coal and other minerals for later recovery; or structural components or other items to facilitate removal from a site or for reuse.

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

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

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

'certified' with respect to watercourse diversions, means assessed and approved by a suitably qualified and experienced person. In relation to 'as constructed' drawings and specifications, the certification must be by the suitably qualified person who supervised the construction of the watercourse diversion, or re-establishment of the watercourse.

“chemical” means:

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

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

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

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

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

   i) a pesticide, insecticide, fungicide, herbicide, rodenticide, nematicide, miticide, fumigant or related product; or

   ii) a surface active agent, including, for example, soap or related detergent; or

   iii) a paint solvent, pigment, dye, printing ink, industrial polish, adhesive, sealant, food additive, bleach, sanitiser, disinfectant, or biocide; or

   iv) a fertiliser for agricultural, horticultural or garden use; or

   v) a substance used for, or intended for use for mineral processing or treatment of metal, pulp and paper, textile, timber, water or wastewater; or

   vi) manufacture of plastic or synthetic rubber.

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

“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.

“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.

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

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

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

“cover material” means any soil or rock suitable as a germination medium or landform armouring.

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

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

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

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

“designer” for the purposes of a regulated dam, means the certifier of the design plan for the regulated dam.

“development approval” means a development approval under the *Integrated Planning Act 1997* or the *Sustainable Planning Act 2009* in relation to a matter that involves an environmentally relevant activity under the *Environmental Protection Act 1994*.

“disturbance” of land includes:

a) compacting, removing, covering, exposing or stockpiling of earth;

b) removal or destruction of vegetation or topsoil or both to an extent where the land has been made susceptible to erosion;

c) carrying out mining within a watercourse, waterway, wetland or lake;

d) the submersion of areas by tailings or hazardous contaminant storage and dam/structure walls;

e) temporary infrastructure, including any infrastructure (roads, tracks, bridges, culverts, dam/structures, bores, buildings, fixed machinery, hardstand areas, airstrips, helipads etc) which is to be removed after the mining activity has ceased; or

f) releasing of contaminants into the soil, or underlying geological strata.

However, the following areas are not included when calculating areas of ‘disturbance’:

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

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

c) by agreement with the administering authority, areas previously disturbed which have not achieved the rehabilitation objective(s) due to circumstances beyond the control of the mine operator (such as climatic conditions);

d) areas under permanent infrastructure. Permanent infrastructure includes any infrastructure (roads, tracks, bridges, culverts, dam/structures, bores, buildings, fixed machinery, hardstand areas, airstrips, helipads etc) which is to be left by agreement with the landowner; or

e) disturbance that pre-existed the grant of the tenure.

“emergency action plan” means documentation forming part of the operational plan held by the holder or a nominated responsible officer, that identifies emergency conditions that sets out procedures and actions that will be followed and taken by the dam owner and operating personnel in the event of an emergency. The actions are to minimise the risk and consequences of failure, and ensure timely warning to affected persons and the implementation of protection measures. The plan must require dam owners to annually review and update contact information where required.

“end of pipe” means the location at which water is released to waters or land.

“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.

“ERE” means an endangered regional ecosystem identified in the database maintained by the administering authority called ‘Regional Ecosystem Description Database’ containing regional ecosystem numbers and descriptions.

“existing structure” means a structure that prior to date when EA is issued meets any or both of the following, a structure:

a) with a design that is in accordance with the Manual for Assessing Consequence Categories and Hydraulic Performance of Structures and that is considerably in progress;

b) that is under considerable construction or that is constructed.

"Extreme Storm Storage" – means a storm storage allowance determined in accordance with the criteria in the *Manual for assessing consequence categories and hydraulic performance of structures (ESR/2016/1933)* published by the administering authority.

"Flare pit" means containment area where any hydrocarbon that is discovered in an over-pressured reservoir during a drilling operation is diverted to, and combusted. The flare pit is only used during the drilling and work over process on a petroleum well.

"floodwater" means water overflowing, or that has overflowed, from waters, river, creek, stream, lake, pond, wetland or dam onto or over riparian land that is not submerged when the watercourse or lake flows between or is contained within its bed and banks.

"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.

"foreseeable future" is the period used for assessing the total probability of an event occurring. Permanent structures and ecological sustainability should be expected to still exist at the end of a 150 year foreseeable future with an acceptable probability of failure before that time.

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

a) geomorphic and vegetation assessment of the existing watercourse;

b) hydrologic conditions of the existing watercourse;

c) the proposed watercourse diversion route; and

d) results from hydrologic, hydraulic and sediment transportation modelling used in the design of the diversion.

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

"holder" means:

a) where this document is an environmental authority, any person who is the holder of, or is acting under, that environmental authority; or

b) where this document is a development approval, any person who is the registered operator for that development approval.

"hydraulic performance" means the capacity of a regulated dam to contain or safely pass flowable substances based on the design criteria specified for the relevant consequence category in the *Manual for assessing consequence categories and hydraulic performance of structures (ESR/2016/1933)*.

"infrastructure" means water storage dams, roads and tracks, buildings and other structures built for the purpose of mining activities but does not include other facilities required for the long term management of mining impacts or the protection of potential resources. Such other facilities include dams, waste rock dumps, voids, or ore stockpiles and buildings as well as 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.

"$L_{A\ 10,\ adj,\ 15\ mins}$" means the A-weighted sound pressure level, (adjusted for tonal character and impulsiveness of the sound) exceeded for 10% of any 15-minute measurement period, using Fast response.

"$L_{A\ 1,\ adj,\ 15\ mins}$" means the A-weighted sound pressure level, (adjusted for tonal character and impulsiveness of the sound) exceeded for 1% of any 15-minute measurement period, using Fast response

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

"land use" term to describe the selected post mining use of the land as per the approved PRCP schedule.

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

"levee" means an embankment that only provides for the containment and diversion of stormwater or flood flows from a contributing catchment, or containment and diversion of flowable materials resulting from releases from other works, during the progress of those stormwater or flood flows or those releases; and does not store any significant volume of **water** or **flowable substances** at any other times.

"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' (ESR/2016/1933).

"low hazard dam" means any dam that is not a high or significant hazard category as assessed using the 'Manual for Assessing Hazard Categories and Hydraulic Performance of Dams' (EM635).

"Mackenzie North" means the mining activities carried out at the mining tenures ML70445, ML70446, ML70448 and ML70449 of this environmental authority.

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

"manual" means the 'Manual for assessing consequence categories and hydraulic performance of structures' (ESR/2016/1933) published by the administering authority, as amended from time to time.

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

"mg/L" means milligrams per litre.

“mine affected water”:

1) means the following types of water:

   a) pit water, tailings dam water, processing plant water;

   b) water contaminated by a mining activity which would have been an environmentally relevant activity under Schedule 2 or Schedule 2A of the *Environmental Protection Regulation 2008* if it had not formed part of the mining activity;

   c) rainfall runoff which has been in contact with any areas disturbed by mining activities which have not yet been rehabilitated, excluding rainfall runoff discharging through release points associated with erosion and sediment control structures that have been installed in accordance with the standards and requirements of an Erosion and Sediment Control Plan to manage such runoff, provided that this water has not been mixed with pit water, tailings dam water, processing plant water or workshop water;

   d) groundwater which has been in contact with any areas disturbed by mining activities which have not yet been rehabilitated;

   e) groundwater from the mine’s dewatering activities; or

   f) a mix of mine affected water (under any of paragraphs a) – f) above) and other water.

2) does not include surface water runoff which, to the extent that it has been in contact with areas disturbed by mining activities that have not yet been completely rehabilitated, has only been in contact with:

   a) land that has been rehabilitated to a stable landform and either capped or revegetated in accordance with the acceptance criteria set out in the environmental authority but only still awaiting maintenance and monitoring of the rehabilitation over a specified period of time to demonstrate rehabilitation success; or

   b) land that has partially been rehabilitated and monitoring demonstrates the relevant part of the landform with which the water has been in contact does not cause environmental harm to waters or groundwater, for example:

      i) areas that are been capped and have monitoring data demonstrating hazardous material adequately contained with the site;

      ii) evidence provided through monitoring that the relevant surface water would have met the water quality parameters for mine affected water release limits in this environmental authority, if those parameters had been applicable to the surface water runoff; or

   c) both.

“mining activity” or **“mining activities”** means exploration, construction, mining operation, rehabilitation and monitoring activities on the mining tenures stated in Environmentally Relevant Activity and Location details of this environmental authority.

“modification or modifying” (see definition of ‘construction’)

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

“native vegetation” means vegetation that occurs naturally in a certain area.

“notice of election” has the meaning in section 18(2) Environmental Offsets Act 2014.

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

“operational land” means the land associated with the project for which this environmental authority has been issued.

“operational plan” includes:

a) normal operating procedures and rules (including clear documentation and definition of process inputs in the DSA);

b) contingency and emergency action plans including operating procedures designed to avoid and/or minimise environmental impacts including threats to human life resulting from any overtopping or loss of structural integrity of the regulated structure.

“peak particle velocity (ppv)” means a measure of ground vibration magnitude which is the maximum rate of change of ground displacement with time, usually measured in millimetres/second (mms^{-1}).

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

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

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

“progressive rehabilitation” means rehabilitation (defined below) undertaken as per the approved PRCP schedule.

“protected area” means:

a) a protected area under the *Nature Conservation Act 1992*

b) a marine park under the *Marine Parks Act 2004*

c) a World Heritage Area.

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

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

“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 Structures" includes**:**

a) Date of entry in the register;

b) Name of the structure, its purpose and intended/actual contents;

c) The consequence category of the dam as assessed using the *Manual for assessing consequence categories and hydraulic performance of structures (ESR/2016/1933)*;

d) Dates, names, and reference for the design plan plus dates, names, and reference numbers of all document(s) lodged as part of a design plan for the dam;

e) Name and qualifications of the suitably qualified and experienced person who certified the design plan and 'as constructed' drawings;

f) For the regulated dam, other than in relation to any levees –
   i. The dimensions (metres) and surface area (hectares) of the dam measured at the footprint of the dam;
   ii. Coordinates (latitude and longitude in GDA94) within five metres at any point from the outside of the dam including its storage area
   iii. Dam crest volume (megalitres);
   iv. Spillway crest level (metres AHD).
   v. Maximum operating level (metres AHD);
   vi. Storage rating table of stored volume versus level (metres AHD);
   vii. Design storage allowance (megalitres) and associated level of the dam (metres AHD);
   viii. Mandatory reporting level (metres AHD);

g) The design plan title and reference relevant to the dam;

h) The date construction was certified as compliant with the design plan;

i) The name and details of the suitably qualified and experienced person who certified that the constructed dam was compliant with the design plan;

j) Details of the composition and construction of any liner;

k) The system for the detection of any leakage through the floor and sides of the dam;

l) Dates when the regulated dam underwent an annual inspection for structural and operational adequacy, and to ascertain the available storage volume for 1 November of any year;

m) Dates when recommendations and actions arising from the annual inspection were provided to the administering authority;

n) Dam water quality as obtained from any monitoring required under this authority as at 1 November of each year.

"regulated dam" means any dam in the significant or high hazard category as assessed using the *Manual for Assessing Hazard Categories and Hydraulic Performance of Dams.*

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

a) a fabricated or manufactured tank or container, designed and constructed to an Australian Standard that deals with strength and structural integrity of that tank or container;

b) a sump or earthen pit used to store residual drilling material and drilling fluid only for the duration of drilling and well completion activities;

c) a flare pit.

“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 the approved PRCP Schedule and, where relevant, includes remediation of contaminated land.

“release event” means a surface water discharge from mine affected water storages or contaminated areas on the licensed place.

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

“residual drilling material” means waste drilling materials including muds and cuttings or cement returns from well holes and which have been left behind after the drilling fluids are pumped out.

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

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

“sensitive place” means:

a) a dwelling, residential allotment, mobile home or caravan park, residential marina or other residential premises

b) a motel, hotel or hostel

c) an educational institution

d) a medical centre or hospital

e) a protected area under the *Nature Conservation Act 1992*, the *Marine Parks Act 2004* or a World Heritage Area

f) a public park or gardens.

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

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

“structure” means dam or levee.

“storm water” means all surface water runoff from rainfall.

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

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

b) 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.

“suitably qualified and experienced person” in relation to watercourse diversions means a person who is a RPEQ under the provisions of the *Professional Engineers Act 2002*, who has an **appropriate level of expertise** in the structures, geomechanics, hydrology, hydraulics and environmental impact of watercourse diversions.

An **appropriate level of expertise** includes:

a) demonstrable competency, experience and expertise in:
   i) investigation, design or construction of watercourses diversions;
   ii) operation and maintenance of watercourse diversions;
   iii) geomechanics with particular emphasis on channel equilibrium, geology and geochemistry;

iv) hydrology with particular reference to flooding, estimation of extreme storms, water management or meteorology;
v) hydraulics with particular reference to sediment transport and deposition and erosion control;
vi) hydrogeology with particular reference to seepage and groundwater;
vii) solute transport processes and monitoring thereof; or

b) sufficient knowledge and experience to certify that where the **suitably qualified and experienced person** has relied on advice and information provided by other **persons with relevant expertise**:
  i) they consider it reasonable to rely on that advice and information; and
  ii) the expert providing the advice and information has knowledge, competency, suitable experience and demonstrated expertise in the matters related to watercourse diversions.

Persons with relevant expertise include:

a) Geomorphologist: person who has demonstrated competency and relevant experience in stream geomorphology and watercourse diversions;
b) Geotechnical Expert: person who has demonstrated competency and relevant experience in geotechnical assessment of soil characteristics suitable for watercourse diversions;
c) Vegetation Expert: person who has demonstrated competency and relevant experience in the identification, role and function of vegetation with watercourses and adjoining floodplains, and has demonstrated competency and relevant experience in revegetation of watercourse diversions and adjoining floodplains;
d) Groundwater Expert: person who has demonstrated competency and relevant experience in groundwater systems;
e) Surface Water Expert: person who has demonstrated competency and relevant experience in hydrology;
f) Engineer: person who is a RPEQ under the provisions of the *Professional Persons Act 2002* or has similar qualifications under a respected professional registration association, and has demonstrated competency and relevant experience in design and construction of watercourse diversions;
g) Soils Expert: person who has demonstrated competency and relevant experience in soil classification including the physical, chemical and hydrologic analysis of soil.

"system design plan" means a plan that manages an integrated containment system that shares the required DSA and/or ESS volume across the integrated containment system. **"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. **"µS/cm"** means micro siemens per centimetre.

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

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

a) a river, creek or stream in which water flows permanently or intermittently—
  i. in a natural channel, whether artificially improved or not; or
  ii. in an artificial channel that has changed the course of the watercourse.

b) Watercourse includes the bed and banks and any other element of a river, creek or stream confining or containing water.

'**watercourse diversion**' is a man-made structure that diverts or interferes with the course of flow within a watercourse, but that does not impound water.

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

"water year" means the 12-month period from 1 July to 30 June.

"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 OF DEFINITIONS

Figure 1: Authorised Disturbance

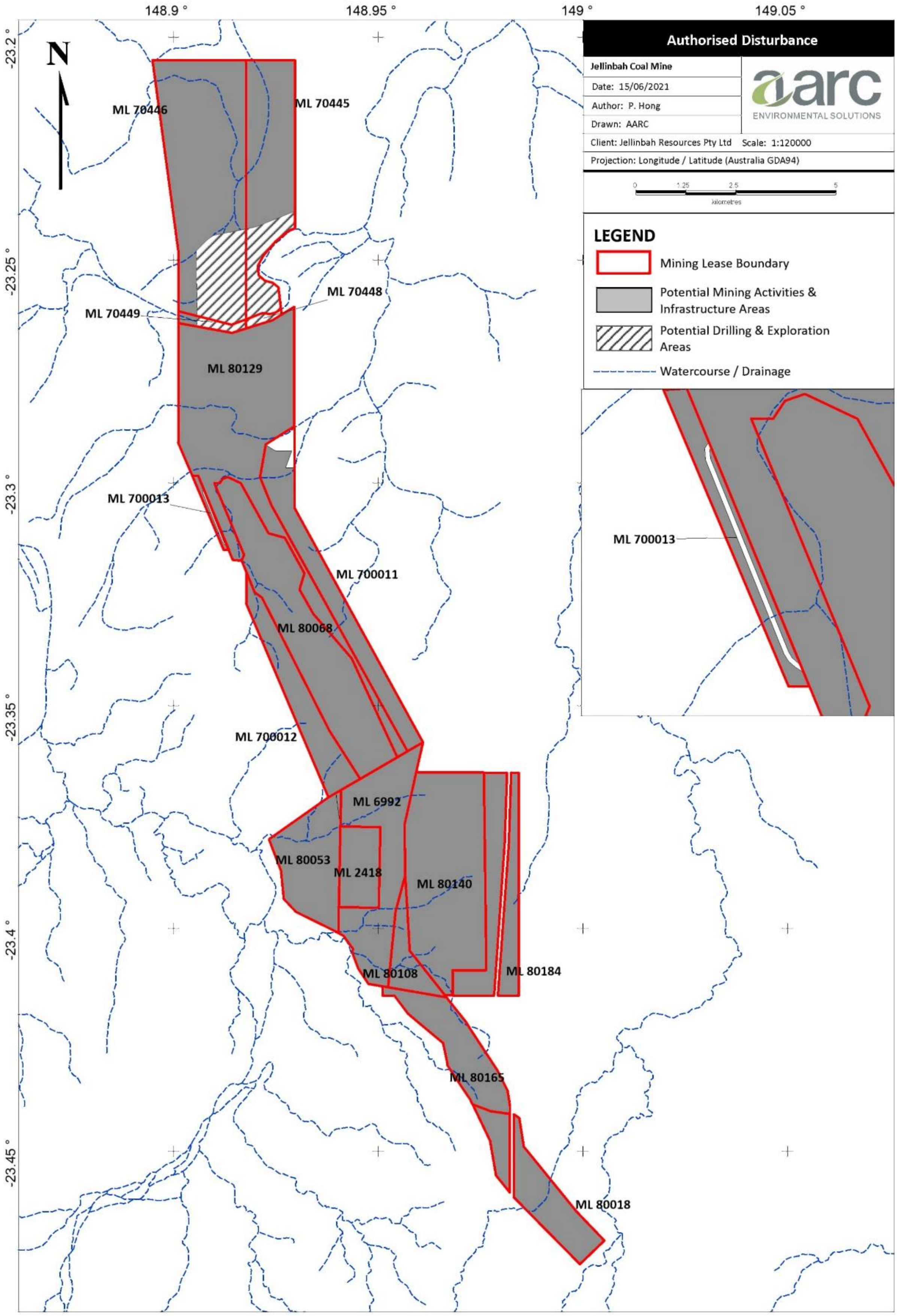


Figure 2a: Authorised Release Points and Receiving Environment Monitoring Locations – Mackenzie River

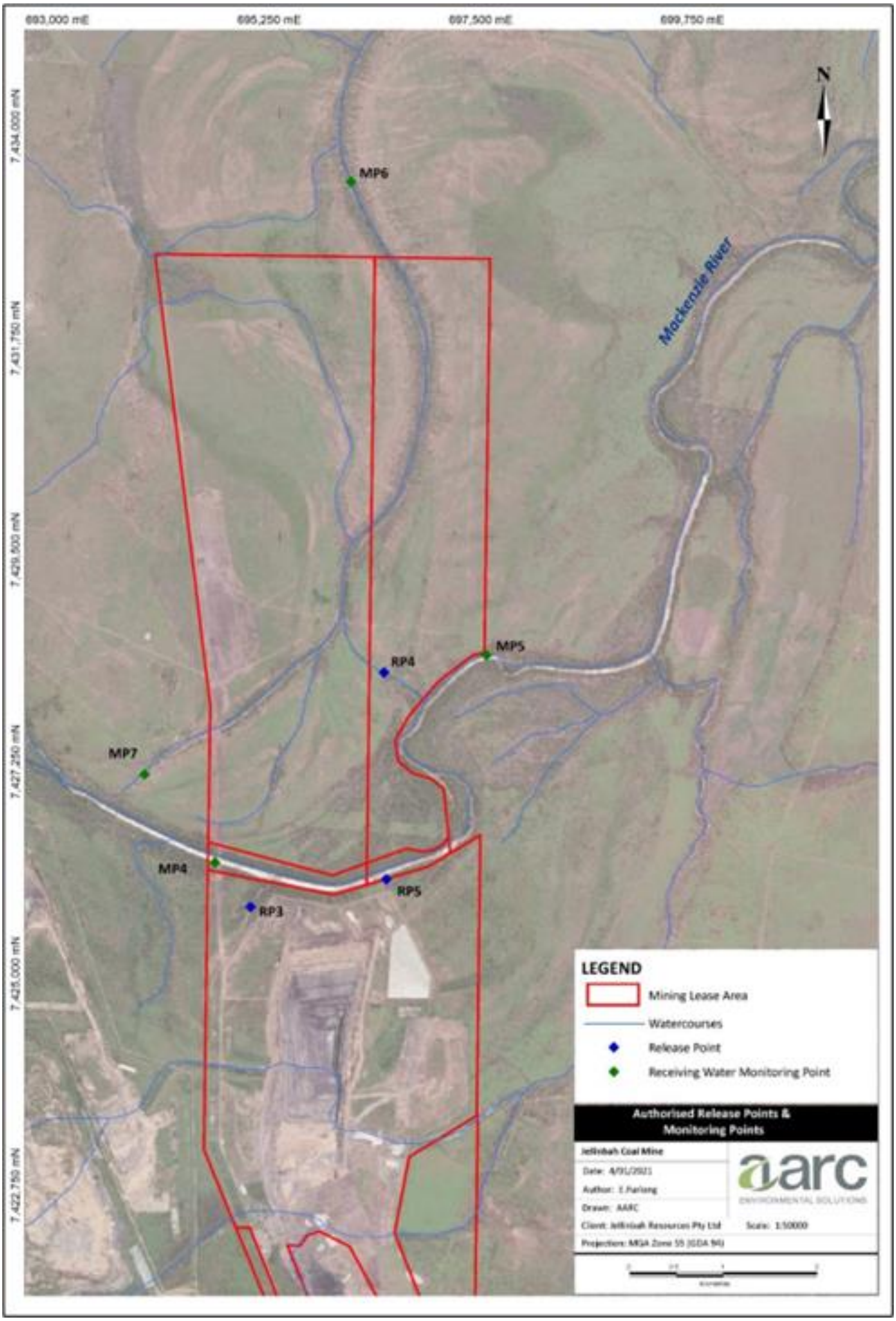


Figure 2b: Authorised Release Points and Receiving Environment Monitoring Locations – Blackwater Creek

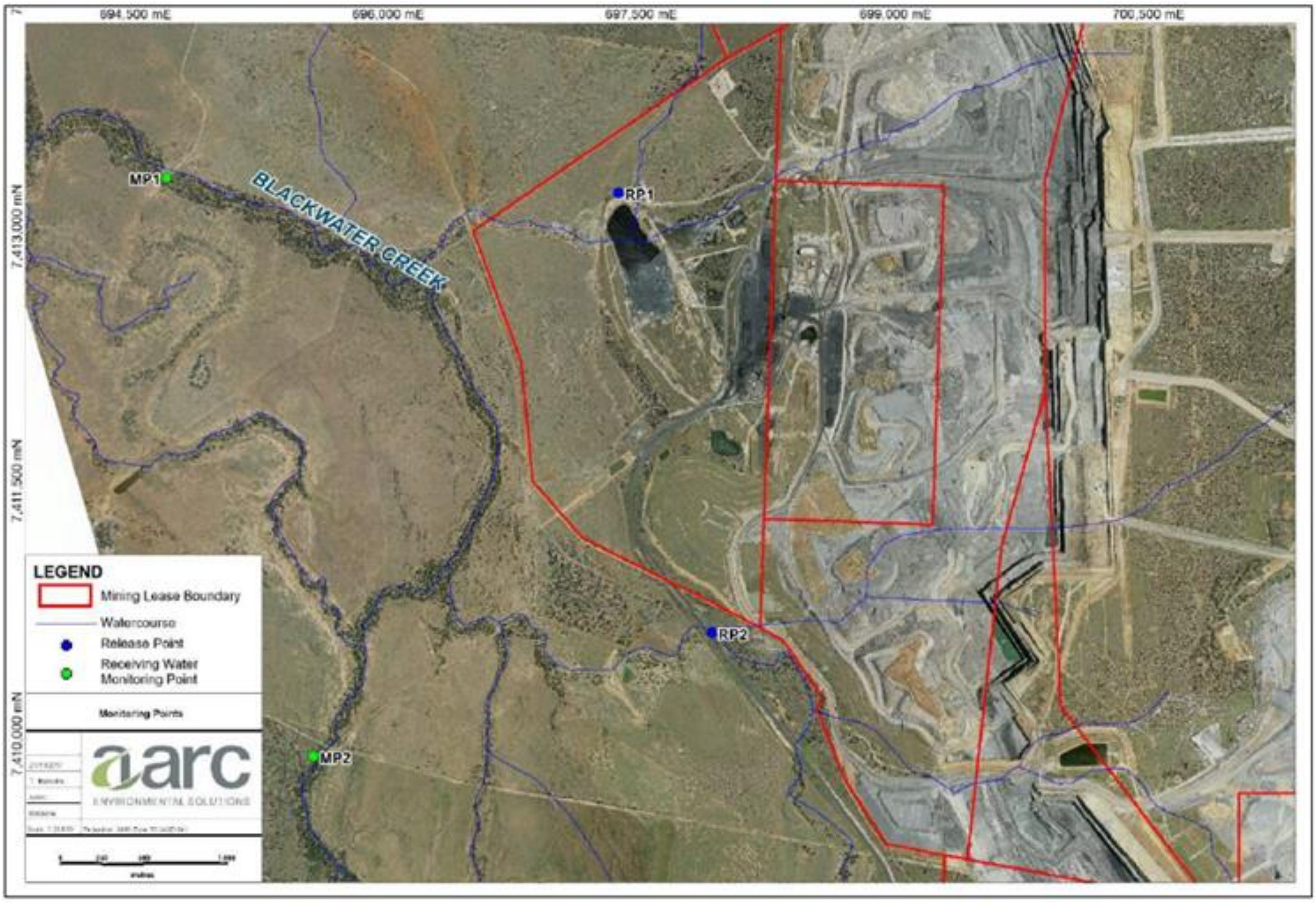

694,500 mE
696,000 mE
697,500 mE
699,000 mE
700,500 mE
7,413,000 mN
7,411,500 mN
7,410,000 mN
MP1
RP1
BLACKWATER CREEK
RP2
MP2
LEGEND
Mining Lease Boundary
Watercourse
Release Point
Receiving Water Monitoring Point
Monitoring Points
arc
ENVIRONMENTAL SOLUTIONS

Figure 3: Eastern Dump Expansion

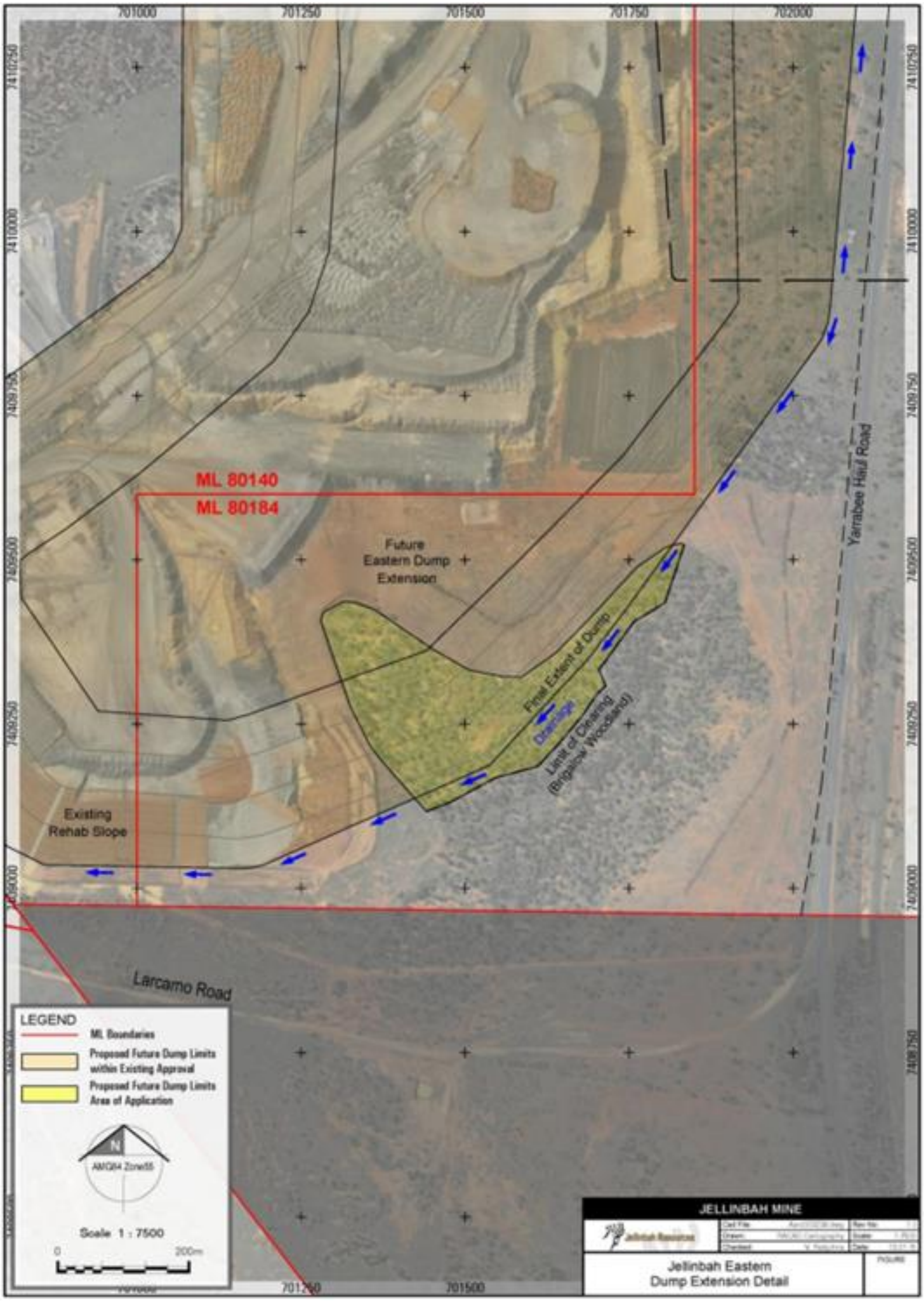


Figure 4: Mackenzie South Levee

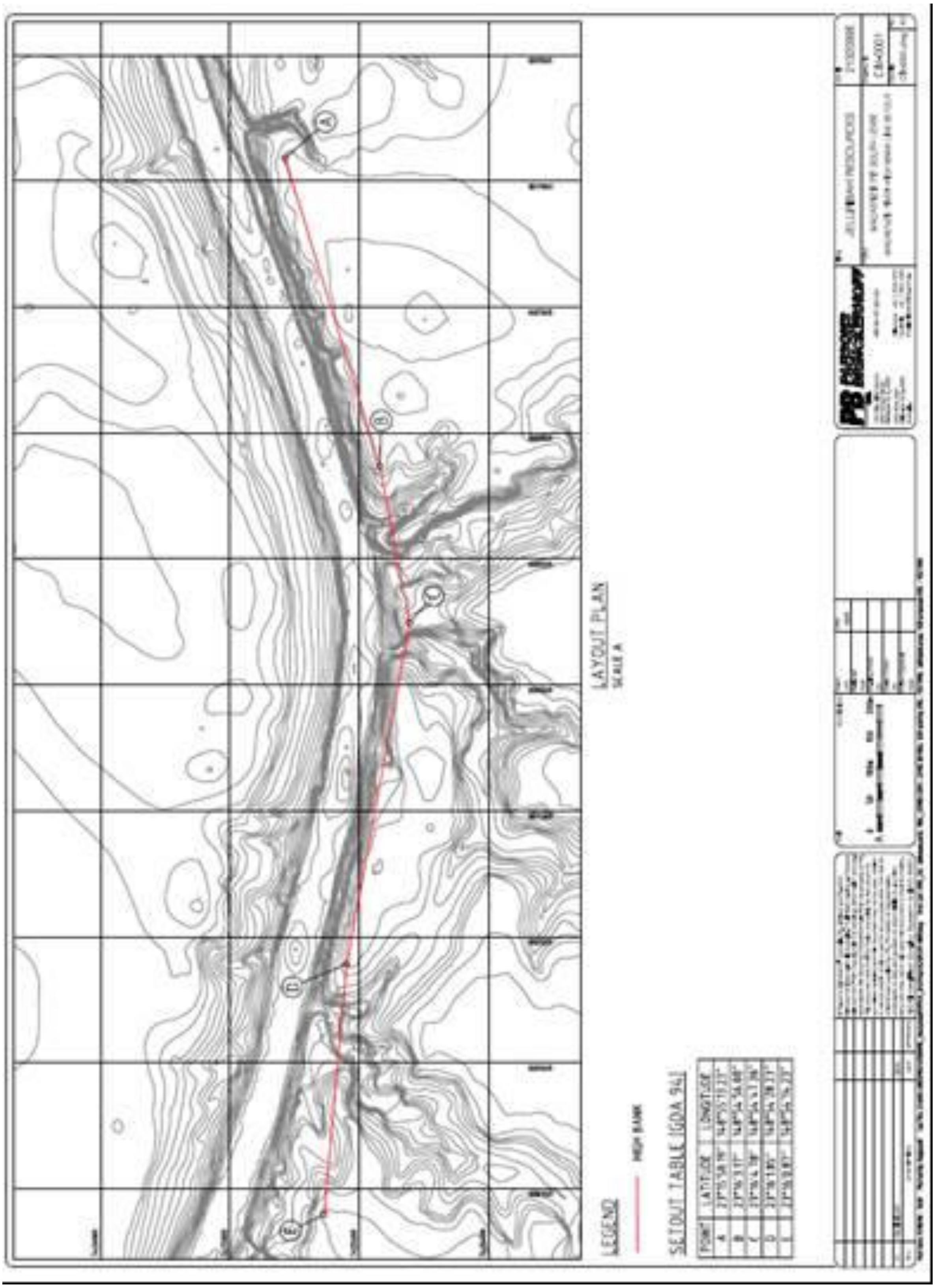


Figure 5: Location of Significant Residual Impacts to Prescribed Environmental Matters

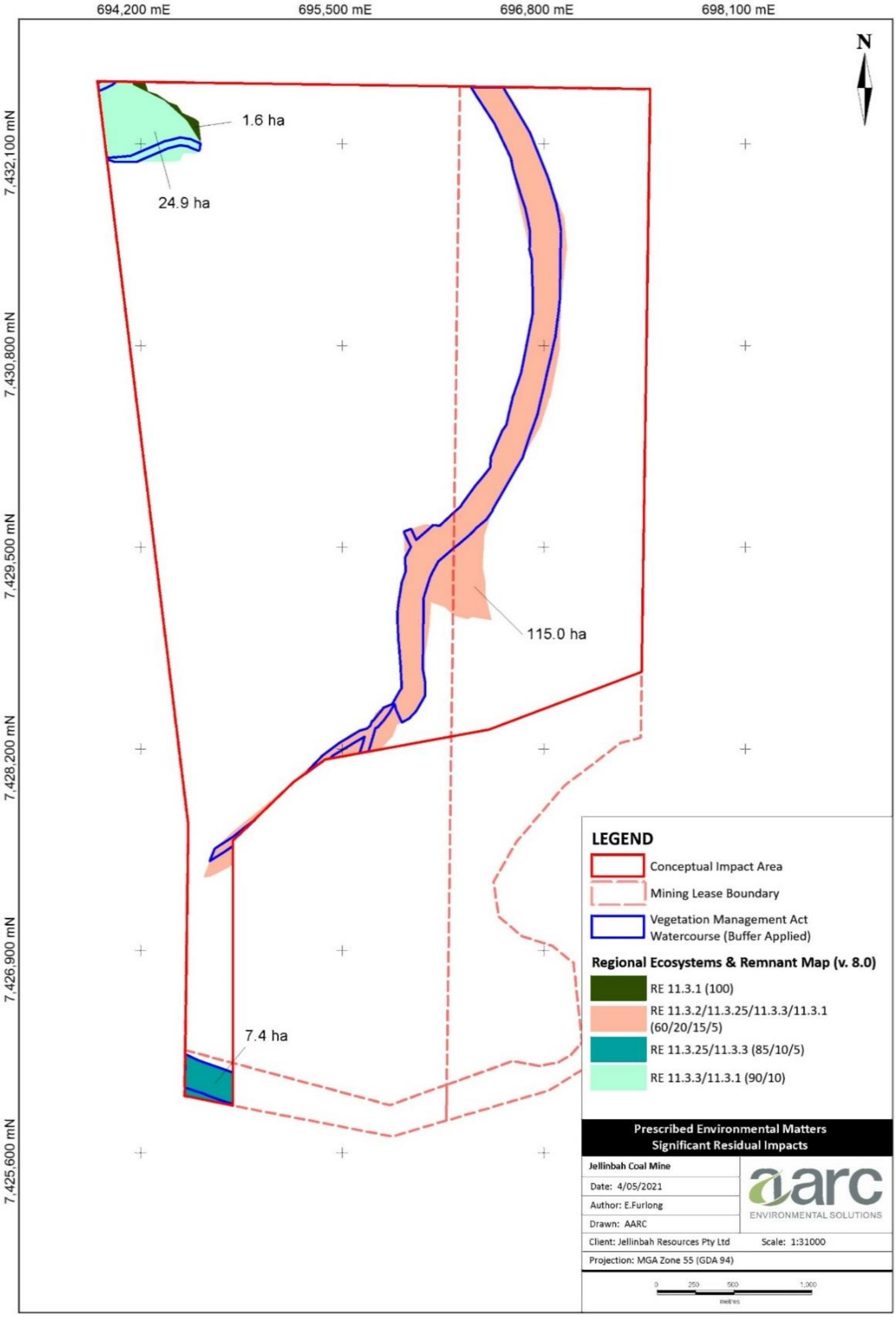


Figure 6: Groundwater Monitoring Bore Locations – Water Quality

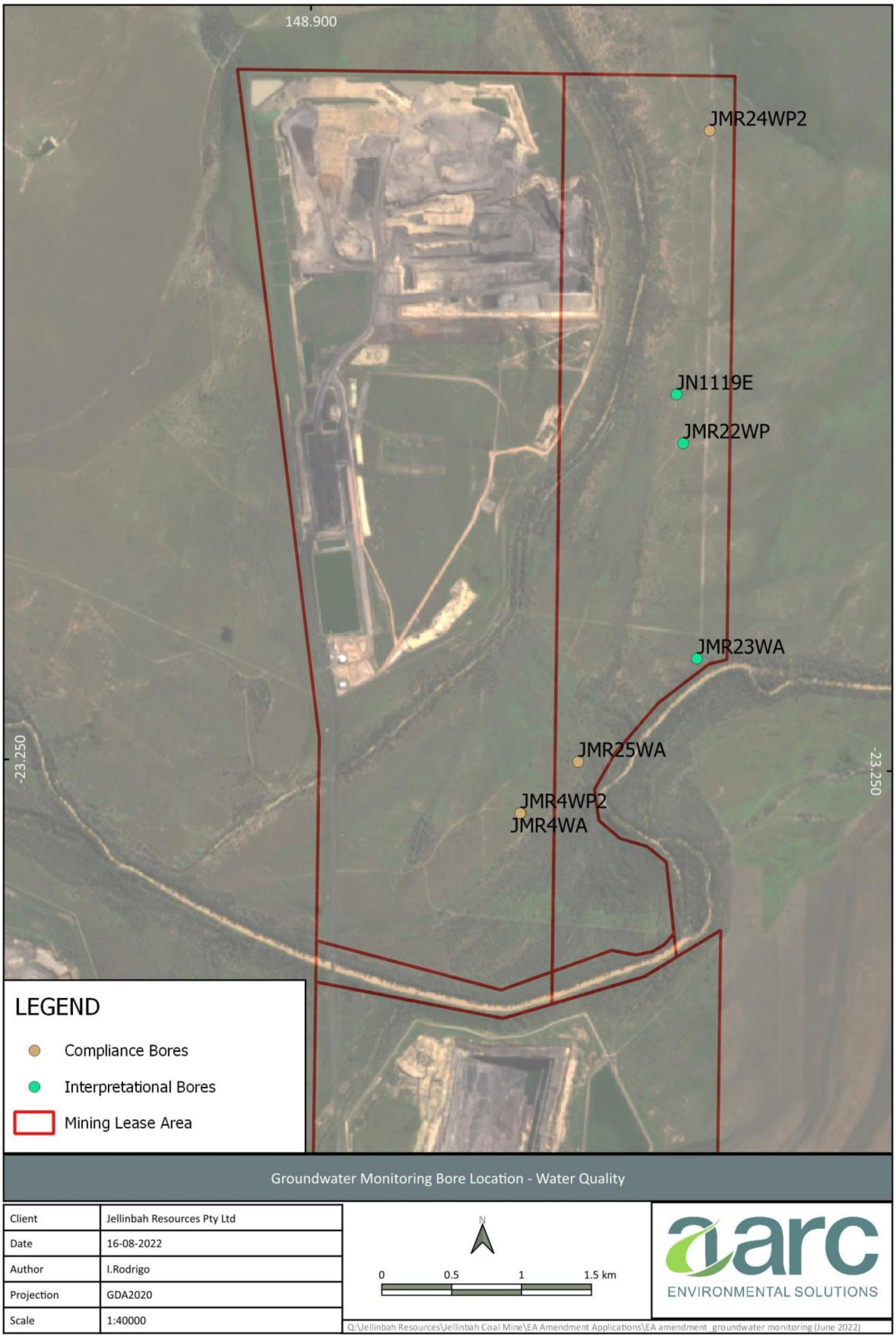
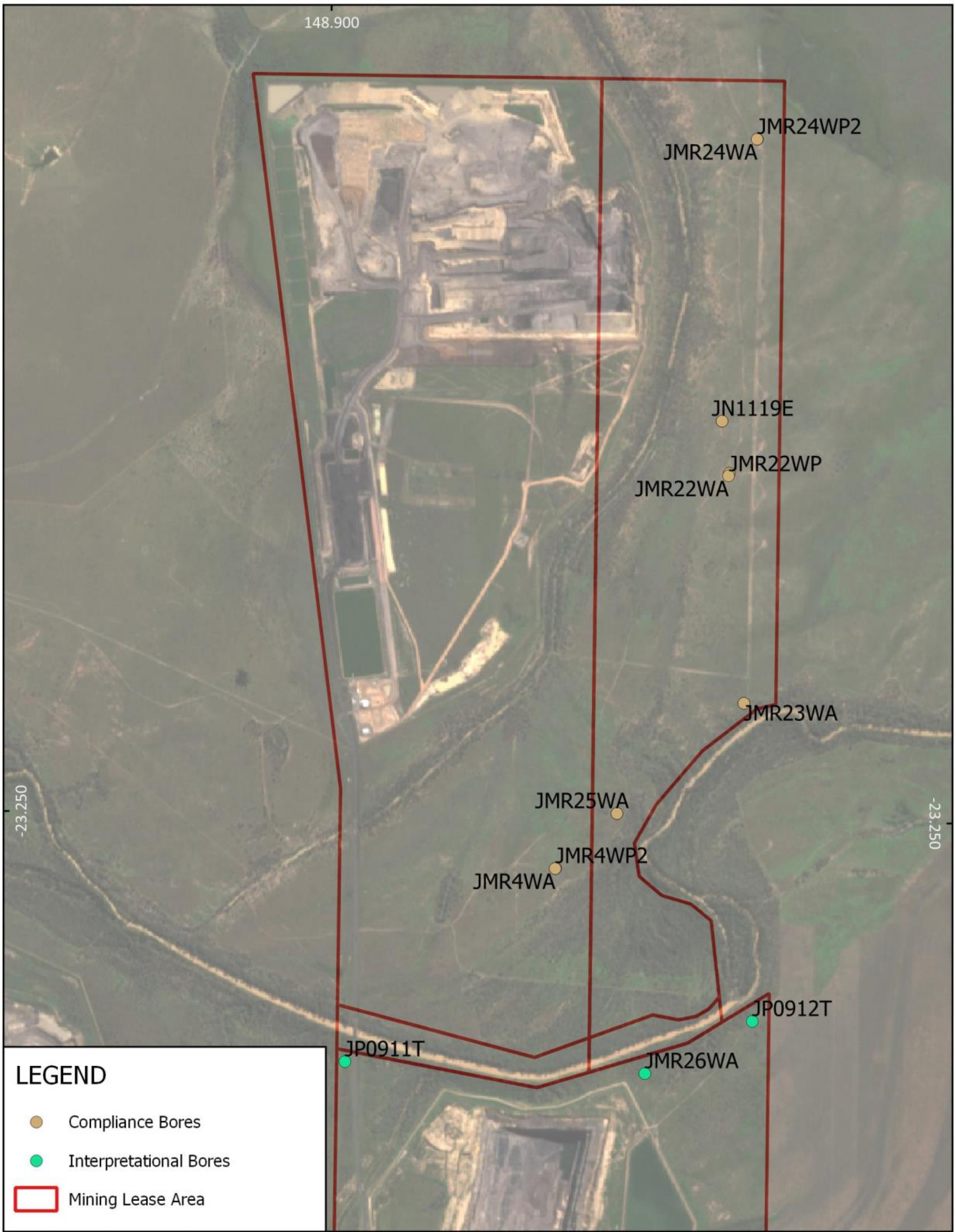


Figure 7: Groundwater Monitoring Bore Locations – Water Level



Groundwater Monitoring Bore Location - Water Level

Client	Jellinbah Resources Pty Ltd
Date	16-08-2022
Author	I.Rodrigo
Projection	GDA2020
Scale	1:40000

N

0 0.5 1 1.5 km

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Q:\Jellinbah Resources\Jellinbah Coal Mine\EA Amendment Applications\EA amendment_groundwater monitoring (June 2022)

END OF ENVIRONMENTAL AUTHORITY