

Permit

Environmental Protection Act 1994

Environmental authority EPML02498414

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

Environmental authority number: EPML02498414

Environmental authority takes effect upon grant of tenure

Environmental authority holder(s)

Name(s)	Registered address
Blackwood Coal Pty Ltd	Level 15 31 Market St SYDNEY NSW 2000
Hannigan & Associates Pty Limited	Suite 3B, 165 Moggill Road TARINGA QLD 4068

Environmentally relevant activity and location details

Environmentally relevant activity/activities	Location(s)
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)	ML70524 ML70525 ML70526
Ancillary 15 - Fuel burning: Using fuel burning equipment that is capable of burning at least 500kg of fuel in an hour	ML700040 ML700041
Ancillary 31 - Mineral processing 2: Processing, in a year, the following quantities of mineral products, other than coke (b) more than 100,000t	
Ancillary 56 - Regulated Waste Storage: Receiving and storing regulated waste	
Ancillary 57 - Regulated Waste Transport 2: Transporting regulated waste, other than tyres, in (a) 1 to 5 vehicles	
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	
Schedule 3 13 - Mining black coal	

Additional information for applicantsEnvironmentally relevant activities

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

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

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

Contaminated land

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

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

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

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

Take effect

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

- a) if the authority is for a prescribed ERA and it states that it takes effect on the day nominated by the holder of the authority in a written notice given to the administering authority-on the nominated day; or
- b) if the authority states a day or an event for it to take effect-on the stated day or when the stated event happens; or
- c) otherwise-on the day the authority is issued.

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

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

Environmental Authority EPML02498414 – Moorlands Coal Mine

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

Alison Cummings

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

Date issued: 19 January 2023

Enquiries:

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Obligations under the Environmental Protection Act 1994

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

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

Other permits required

This permit only provides an approval under the *Environmental Protection Act 1994*. In order to lawfully operate you may also require permits / approvals from your local government authority, other business units within the department and other State Government agencies prior to commencing any activity at the site.

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	Waste
Schedule D	Noise
Schedule E	Groundwater
Schedule F	Water
Schedule H	Land and Rehabilitation
Schedule I	Regulated Structures

Definitions**Schedule 1 – Approved plans**

- Figure 1a – Moorlands Coal Mine: Project Layout
- Figure 1b – Moorlands Coal Mine: Project Layout
- Figure 2 – Groundwater Bore Monitoring Locations
- Figure 3 – REMP and Monitoring Sites
- Figure 4 - Wetland Management Areas

Schedule 2 – Rehabilitation

- Table H1 – Rehabilitation Requirements

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	This environmental authority authorises the extraction of no more than 1.9 million tonnes of run-of-mine (ROM) coal per annum.
A3	In carrying out the mining activity authorised by this environmental authority, the holder of this environmental authority must comply with Schedule 1 – Approved Plans, Figure 1a and 1b Moorlands Coal Mine: Project Layout of this environmental authority.
A4	Exclusion of Mining Activities Mining activities must not be carried out in, or within the buffer of the Palustrine Wetland identified in Schedule 1 – Figure 4 Wetland Management Areas.
A5	The holder of this environmental authority must: a) install all measures, plant and equipment necessary to ensure compliance with the conditions of this environmental authority; b) maintain such measures, plant and equipment in a proper and efficient condition; c) operate such measures, plant and equipment in a proper and efficient manner; and d) ensure all instruments and devices used for the measurement or monitoring of any parameter under any condition of this environmental authority are properly calibrated.
A6	Monitoring Except where specified otherwise in another condition of this environmental authority, all monitoring records or reports required by this environmental authority must be kept for a period of not less than five (5) years.
A7	Upon request from the administering authority, copies of monitoring records and reports should be made available and provided to the administering authority's nominated office within ten (10) business days or an alternative timeframe agreed between the administering authority and the holder. Any management or monitoring plans, systems or programs required to be developed and implemented by a condition of this environmental authority should be reviewed for effectiveness in minimising the likelihood of environmental harm on an annual basis, and amended promptly if required, unless a particular review date and amendment program is specified in the plan, system or program.

A8	Risk Management The holder of this environmental authority must develop and implement a risk management system for mining activities which mirrors the content requirement of the Standard for Risk Management (ISO31000:2009), or the latest edition of an Australian standard for risk management, to the extent relevant to environmental management, within three (3) months of the commencement of mining activities notified under Condition A15.
A9	Notification of Emergencies, Incidents and Exceptions The holder of this environmental authority must notify the administering authority by written notification within twenty-four (24) hours, after becoming aware of any emergency or incident which result in the release of contaminants not in accordance, or reasonably expected to be not in accordance with, the conditions of this environmental authority.
A10	Within ten (10) business days following the initial notification of any emergency or incident, or receipt of monitoring results, whichever is the latter, further written advice must be provided to the administering authority, including the following: a) results and interpretation of any samples taken and analysed; b) outcomes of actions taken at the time to prevent or minimise unlawful environmental harm; and c) proposed actions to prevent a recurrence of the emergency or incident.
A11	Complaints The holder of this environmental authority must record all environmental complaints received about the mining activities including: a) name, address and contact number for of the complainant; b) time and date of complaint; c) reasons for the complaint; d) investigations undertaken; e) conclusion formed; f) actions taken to resolve the complaint; g) any abatement measures implemented; and h) person responsible for resolving the complaint.
A12	The holder of this environmental authority must, when requested by the administering authority, undertake relevant specified monitoring within a reasonable timeframe nominated or agreed to by the administering authority to investigate any complaint of environmental harm. The results of the investigation (including any analysis and interpretation of the monitoring results) and abatement measures, where implemented, must be provided to the administering authority within ten (10) business days of completion of the investigation, or no later than ten (10) business days after the end of the timeframe nominated by the administering authority to undertake the investigation.

A13	Third-Party Reporting The holder of this environmental authority must: a) within one (1) year of the commencement of mining activities as notified under Condition A15, obtain from an appropriately qualified person a report on compliance with the conditions of this environmental authority; b) obtain further such reports at regular intervals; not exceeding three (3) yearly intervals, from the completion of the report referred to above; and c) provide each report to the administering authority within ninety (90) days of its completion.
A14	Where a condition of this environmental authority requires compliance with a standard, policy or guideline published externally to this environmental authority and the standard is amended or changed subsequent to the issue of this environmental authority, the holder of this environmental authority must: a) comply with the amended or changed standard, policy or guideline within two (2) years of the amendment or change being made, unless a different period is specified in the amended standard or relevant legislation; and b) until compliance with the amended or changed standards, policy or guideline is achieved, continue to remain in compliance with the corresponding provision that was current immediately prior to the relevant amendment or change.
A15	Commencement of mining activities The holder of this environmental authority must provide the administering authority with a date in writing for when mining activities commence under this environmental authority.

Schedule B: Air	
Condition number	Condition
B1	Air Quality Objectives Dust and particulate matter generated by mining activities must not cause an environmental nuisance at any sensitive or commercial place.
B2	Dust and Particulate Matter Monitoring The holder of this environmental authority shall ensure that all reasonable and feasible avoidance and mitigation measures are employed so that the dust and particulate matter emissions generated by the mining activities do not cause exceedances of the following levels when measure at any sensitive or commercial place: a) dust deposition of 120 milligrams per square metre per day, averaged over one (1) month;; when monitored in accordance with the most relevant version of Australian Standard AS3580.10.1 Methods for sampling and analysis of ambient air – Determination of particulate matter – Deposited matter – Gravimetric method. b) a concentration of particulate matter with an aerodynamic diameter of less than ten (10) micrometres (PM₁₀) suspended in the atmosphere of fifty (50) micrograms per cubic metre over a 24-hour averaging time, for no more than five (5) exceedances recorded each year, when monitored in accordance with the most recent version of either: i) Australian Standards AS3580.9.6 Methods for sampling and analysis of ambient air – Determination of suspended particulate matter – PM₁₀ high volume sampler with size-selective inlet – Gravimetric method; or ii) Australian Standards AS3580.9.9 methods for sampling and analysis of ambient air – Determination of suspended particulate matter – PM₁₀ low volume sampler – Gravimetric method. c) a concentration of particulate matter with an aerodynamic diameter of less than 2.5 micrometres (PM_{2.5}) suspended in the atmosphere of 25 micrograms per cubic metre over a 24-hour averaging time, when monitored in accordance with the most recent version of AS/NZ3580.9.10 Methods for sampling and analysis of ambient air – Determination of suspended particulate matter – PM_{2.5} low volume sampler – Gravimetric method; and d) a concentration of particulate matter suspended in the atmosphere of 90 micrograms per cubic metre over a one (1) year averaging time, when monitored in accordance with the most recent version of AS/NZ3580.9.3:2003 Methods for sampling and analysis of ambient air – Determination of suspended particulate matter – Total suspended particulate matter (TSP) – High volume sampler gravimetric method.

Schedule C: Waste	
Condition number	Condition
C1	Unless otherwise permitted by the conditions of this environmental authority or with prior approval from the administering authority and in accordance with a relevant standard operating procedure, waste must not be burnt.
C2	The holder of this environmental authority may burn vegetation cleared in the course of carrying out extraction activities provided the activity does not cause environmental harm at any sensitive place or commercial place.
C3	Tailings Disposal Tailings must be managed in accordance with procedures contained within a Tailings Disposal Plan, which must be developed and implemented for all stages of the authorised mining activities. The Tailings Disposal Plan must include provisions for: a) containment of tailings; b) the management of seepage and leachates both during operations and the foreseeable future; c) the control of fugitive emissions to air; d) a program of progressive sampling and characterisation to identify acid producing potential and metal concentrations of tailings; e) maintaining records of the relative locations of any other waste stored within the tailings; f) rehabilitation strategy; and g) monitoring of rehabilitation, research and/or trials to verify the requirements and methods for decommissioning and final rehabilitation of tailings, including the prevention and management of acid mine drainage, erosion minimisation and establishment of vegetation cover.

C4	Waste Rock A waste rock and spoil disposal plan must be developed and implemented for all stages of the authorised mining activities. The waste rock and spoil disposal plan must include at least: a) effective characterisation of the waste rock and spoil to predict under the proposed placement and disposal strategy the quality of runoff and seepage generated concerning potentially environmentally significant effects including salinity, acidity, alkalinity and dissolved metals, metalloids and non-metallic inorganic substances; b) a program of progressive sampling and characterisation to identify dispersive non-dispersive spoil and the salinity, acid and alkali producing potential and metal concentrations of waste rock; c) a materials balance and disposal plan demonstrating how potentially acid forming and acid forming waste rock will be selectively placed and/or encapsulated to minimise the potential generation of acid mine drainage; d) where relevant, a sampling program to verify encapsulation and/or placement of potentially acid-forming and acid-forming waste rock; e) how often the performance of the plan will be assessed; f) the indicators or other criteria on which the performance of the plan will be assessed; and g) a rehabilitation strategy.
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Schedule D: Noise	
Condition number	Condition
D1	The holder of this environmental authority must ensure that noise generated by the mining activities does not cause the criteria in Table D1 – Noise Limits to be exceeded at a sensitive place or commercial place.
D2	Airblast Overpressure Nuisance The holder of this environmental authority must ensure that blasting does not cause the limits for peak particle velocity and air blast overpressure in Table D2 – Blasting Noise Limits to be exceeded at a sensitive place or commercial place.

Table D1 – Noise Limits

Sensitive Place						
Noise level dB(A) measured as:	Monday to Saturday			Sundays and Public Holidays		
	7am to 6pm	6pm to 10pm	10pm to 7am	9am to 6pm	6pm to 10pm	10pm to 9am
L _{Aeq} , adj, 15 mins	35	35	30	35	35	30
L _{A1} , adj, 15 mins	40	40	35	40	40	35
Commercial Place						
Noise level dB(A) measured as:	Monday to Saturday			Sundays and Public Holidays		
	7am to 6pm	6pm to 10pm	10pm to 7am	9am to 6pm	6pm to 10pm	10pm to 9am
L _{Aeq} , adj, 15 mins	40	40	35	40	40	35

Table D2 – Blasting Noise Limits

Blasting Noise Limits	Sensitive or Commercial Blasting Noise Limits	
	7am to 6pm	6pm to 7am
Airblast overpressure	115dB (Linear) Peak for 9 out of 10 consecutive blasts initiated and not greater than 120dB (Linear) Peak at any time	No blasting
Ground vibration peak particle velocity	5mm/second peak particle velocity of 9 out of 10 consecutive blasts and not greater than 10mm/second peak particle velocity at any time	No blasting

D3	Monitoring and Reporting When requested by the administering authority, or as a result of a complaint, noise monitoring must be undertaken and the results thereof notified to the administering authority within fourteen (14) days following completion of the monitoring period.
D4	Noise monitoring and recording must include the following descriptor characteristics and matters: a) $L_{AN,T}$ (where N equals the statistical levels of 1, 10 and 90 and T = 15 mins); b) background noise LA_{90}; c) the level and frequency of occurrence of impulsive or tonal noise and any adjustment and penalties to statistical levels; d) atmospheric conditions including temperature, relative humidity, wind speed and directions; e) effects due to any extraneous factors such as traffic noise; f) location, date and time of monitoring; and g) if the complaint concerns low frequency noise, $Max L_{pLIN,T}$ and one third octave band measurements in dB(LIN) for centre frequencies in the 10-200Hz range.
D5	The holder of this environmental authority must develop and implement a blast monitoring program to monitor compliance with Table D2 – Blasting Noise Limits for: a) 100% of all blasts undertaken on this site must be monitored at the nearest sensitive place or commercial place; and b) all blasts conducted during any time period specified by the administering authority at any additional sensitive place or commercial place.

Schedule E: Groundwater	
Condition number	Condition
E1	The holder of this environmental authority must not release contaminants to groundwater.
E2	Monitoring and Reporting All determinations of groundwater quality and biological monitoring must be performed by an appropriately qualified person.
E3	Groundwater quality and levels must be monitored at the locations and frequencies defined in Table – E1 Groundwater Monitoring Locations and Frequency and Figure 2 - Groundwater Bore Monitoring Locations of this environmental authority for quality characteristics identified in Table E2 – Groundwater Quality Triggers and Limits .

Table E1 – Groundwater Monitoring Locations and Frequency

Monitoring Point	Location		Aquifer	Surface RL (m) ¹	Monitoring Frequency
	Latitude (GDA94)	Longitude (GDA94)			
	Reference Bores ²				
TBA	TBA	TBA	TBA	TBA	SWL* - Monthly for the first 12 months of operation and quarterly thereafter Quality - quarterly
TBA	TBA	TBA	TBA	TBA	
TBA	TBA	TBA	TBA	TBA	
TBA	TBA	TBA	TBA	TBA	
TBA	TBA	TBA	TBA	TBA	
	Compliance Bores				
MB01	-22.5801	147.4231	TBA	TBA	SWL* - Monthly for the first 12 months of operation and quarterly thereafter Quality – quarterly (except VWP)
MB02	-22.5879	147.4281	TBA	TBA	
MB03	-22.5965	147.4264	TBA	TBA	
MB04	-22.6028	147.4240	TBA	TBA	
MB05	-22.6145	147.4264	TBA	TBA	

1. Monitoring is not required where a bore has been removed as a direct result of the mining activity.
2. RL must be measured to the nearest 5cm from the top of the bore casing.
3. reference sites must:
 - (a) have a similar flow regime
 - (b) be from the same bio-geographic and climatic region
 - (c) have similar geology, soil types and topography
 - (d) not be so close to the test sites that any disturbance at the test site also results in a change at the reference site.
4. *SWL means Standing Water Level

Table E2 – Groundwater Quality Triggers and Limits

Parameter	Contaminant Triggers (µg/L)	Comment on Contaminant Trigger	Contaminant Limit (µg/L)
Aluminium (µg/L)	5,000	<i>For livestock drinking water, based on the ANZECC Guidelines</i>	TBA
Antimony (µg/L)	3	<i>For drinking water (health), based on the ADWG*</i>	TBA
Arsenic	500	<i>For livestock drinking water, based on the ANZECC Guidelines</i>	TBA
Beryllium	60	<i>For drinking water (health), based on the ADWG*</i>	TBA
Boron	5,000	<i>For livestock drinking water, based on the ANZECC Guidelines</i>	TBA
Cadmium	10	<i>For livestock drinking water, based on the ANZECC Guidelines</i>	TBA
Calcium	1 x 10 ⁶	<i>For livestock drinking water, based on the ANZECC Guidelines</i>	TBA
Chloride	Must be monitored for interpretational purposes	-	TBA
Copper	1,000	<i>For livestock drinking water, based on the ANZECC Guidelines[^]</i>	TBA
Electrical Conductivity(µS/cm)	7460	<i>Based on TDS value</i>	TBA
Bicarbonate	Must be monitored for interpretational purposes	-	TBA
Iron	1 x 10 ⁶	<i>For irrigation and general use, based on the ANZECC Guidelines</i>	TBA
Lead	100	<i>For livestock drinking water, based on the ANZECC Guidelines</i>	TBA
Magnesium	2 x 10 ⁶	<i>For livestock drinking water, based on the ANZECC Guidelines</i>	TBA
Mercury	2	<i>For livestock drinking water, based on the ANZECC Guidelines</i>	TBA
Molybdenum	150	<i>For livestock drinking water, based on the ANZECC Guidelines</i>	TBA
Nickel	1,000	<i>For livestock drinking water, based on the ANZECC Guidelines</i>	TBA

Parameter	Contaminant Triggers (µg/L)	Comment on Contaminant Trigger	Contaminant Limit (µg/L)
pH	6.5 – 8.5	<i>For drinking water (aesthetic), based on the ADWG*</i>	TBA
Potassium	Must be monitored for interpretational purposes	-	TBA
Selenium	20	<i>For livestock drinking water, based on the ANZECC Guidelines</i>	TBA
Silver	100	<i>For drinking water (health), based on the ADWG*</i>	TBA
Sulfate	1 x 10 ⁶	<i>For livestock drinking water, based on the ANZECC Guidelines</i>	TBA
Sodium	Must be monitored for interpretational purposes	-	TBA
Total Dissolved Solids (TDS)	1 x 10 ⁷	<i>For livestock drinking water, based on the ANZECC Guidelines</i>	TBA
Zinc	20,000	<i>For livestock drinking water, based on the ANZECC Guidelines</i>	TBA

* ADWG means 'Australian Drinking Water Guidelines 6 2011' (version 3.7, updated January 2022)

^ Based on ANZECC livestock drinking water guidelines for cattle.

E4	Groundwater levels when measured at the monitoring locations specified in Table E1 – Groundwater Monitoring Locations and Frequency must not exceed the groundwater level trigger change thresholds specified in Table E3 – Groundwater Level Monitoring below.
E5	The environmental authority holder is required to submit the proposed groundwater quality triggers and limits specified in Table E2 – Groundwater Quality Triggers and Limits to the administering authority after 24 months of monitoring (i.e. 24 monitoring events) is obtained in accordance with conditions E2 and E3 or no later than 30 April 2025 .

Table E3 – Groundwater Level Monitoring

Monitoring Location	Level Trigger Threshold	Monitoring Frequency
MB01	5m/year	Monthly
MB02	5m/year	Monthly
MB03	5m/year	Monthly
MB04	5m/year	Monthly
MB05	5m/year	Monthly

E6	Results of monitoring of groundwater from compliance bores identified in Table E1 – Groundwater Monitoring Locations and Frequency must not exceed any of the limits defined in Table E2 – Groundwater Quality Triggers and Limits .
E7	Exceedance Investigation if monitoring results from water quality compliance bores listed in Table E1 – Groundwater Monitoring Locations and Frequency exceed any of the Contaminant Triggers specified in Table E2 – Groundwater Quality Triggers and Limits or exceed any of the groundwater level trigger thresholds stated in Table E3 – Groundwater Level Monitoring, on three (3) consecutive occasions the approval holder y must complete an investigation within fourteen (14) days receiving the results to determine if the exceedance is a result of: (a) mining activities authorised under this environmental authority; (b) natural variation; or (c) neighbouring land use resulting in groundwater impacts.
E8	Bore Construction and Maintenance and Decommissioning The construction, maintenance, and management of groundwater bores (including groundwater monitoring bores) must be undertaken in a manner that prevents or minimises impacts to the environment and ensures the integrity of the bores to obtain accurate monitoring.
E9	Amendment application required for TBA and interim values By 30 April 2025, the environmental authority holder must submit an environmental authority amendment application to the administering authority to replace TBA and existing values in Table E1 – Groundwater Monitoring Locations and Frequency, Table E2 – Groundwater Quality Triggers and Limits and Table E3 – Groundwater Level Monitoring.
E10	Condition E9 of this environmental authority must be completed in full prior to the commencement of mining activities.

Schedule F: Water	
Condition number	Condition
F1	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.
F2	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 Table F1 – Mine Affected Water Release Points, Sources and Receiving Water and depicted in Schedule 1, Figure 3 – REMP and Monitoring Points this environmental authority.
F3	The release of mine affected water is not authorised to occur until the administering authority approves the discharge points, monitoring points, trigger limits and release limits identified in Table F1 – Mine Affected Water Release Points, Sources and Receiving Waters; Table F2 – Mine Affected Water Release Limits; Table F3 – Release Contaminant Trigger Investigation Levels, Potential Contaminants; Table F4 – Mine Affected Water Release During Flow Events; Table F5 – Receiving Waters Contaminant Trigger Levels; and Table F6 – Receiving Water Upstream Background Sites and Downstream Monitoring Points of this environmental authority.
F4	The release of mine affected water, in accordance with condition F3 , to internal water management infrastructure installed and operated in accordance with a water management plan that complies with condition F27 is permitted.

Table F1 – Mine Affected Water Release Points, Sources and Receiving Waters

Release Point (RP)	Latitude (decimal degree, GDA94)	Longitude (decimal degree, GDA94)	Mine Affected Water Source and Location	Monitoring Point	Receiving Waters Description
RP1	TBA	TBA	Mine Water Dam	End of Pipe	Western Creek

Table F2 – Mine Affected Water Release Limits

Quality Characteristic	Release Limits	Monitoring Frequency	Comment
Electrical conductivity (µS/cm)	Release limits specified in Table F4 for variable flow criteria.	Daily during release (the first sample must be taken within two hours of commencement of release)	
pH (pH units)	6.5 (minimum) 9.0 (maximum)	Daily during release (the first sample must be taken within two hours of commencement of release)	
Turbidity (NTU)	25	Daily during release (first sample within two hours of commencement of release)	Turbidity is required to assess ecosystems impacts and can provide instantaneous results.
Dissolved oxygen (DO) % saturation	90-110	Daily during release (first sample within two hours of commencement of release)	

F5	The release of mine affected water to waters, in accordance with condition F2 and condition F3 , must not exceed the release limits stated in Table F2 – Mine Affected Water Release Limits when measured at the monitoring points specified in Table F1 – Mine Affected Water Release Points, Sources and Receiving Water for each quality characteristic.
F6	The release of mine affected water to waters from the release points, in accordance with condition F3, must be monitored at the locations specified in Table F1 – Mine Affected Water Release Points, Sources and Receiving Water for each quality characteristic and at the frequency specified in Table F2 – Mine Affected Water Release Limits and Table F3 – Release Contaminant Trigger Investigation Levels, Potential Contaminants. <i>Note: the administering authority will take into consideration any extenuating circumstances prior to determining an appropriate enforcement response in the event condition F6 is contravened due to a temporary lack of safe or practicable measures to maintain safe and practical access to designated monitoring locations.</i>

Table F3 – Release Contaminant Trigger Investigation Levels, Potential Contaminants

Quality Characteristic	Trigger Levels (µg/L) or as indicated	Comment on Trigger Level	Monitoring Frequency
Aluminium	55	<i>For aquatic ecosystem protection, based on SMD guideline</i>	Commencement of release and thereafter weekly during release
Arsenic	13	<i>For aquatic ecosystem protection, based on SMD guideline</i>	
Cadmium	0.2	<i>For aquatic ecosystem protection, based on SMD guideline</i>	
Chromium	1	<i>For aquatic ecosystem protection, based on SMD guideline</i>	
Copper	2	<i>For aquatic ecosystem protection, based on SMD guideline</i>	
Iron	300	<i>For aquatic ecosystem protection, based on low reliability guideline</i>	
Lead	4	<i>For aquatic ecosystem protection, based on SMD guideline</i>	
Mercury	0.2	<i>For aquatic ecosystem protection, based on LOR for CV FIMS</i>	
Nickel	11	<i>For aquatic ecosystem protection, based on SMD guideline</i>	
Zinc	8	<i>For aquatic ecosystem protection, based on SMD guideline</i>	
Boron	370	<i>For aquatic ecosystem protection, based on SMD guideline</i>	
Cobalt	90	<i>For aquatic ecosystem protection, based on low reliability guideline</i>	
Manganese	1900	<i>For aquatic ecosystem protection, based on SMD guideline</i>	
Molybdenum	34	<i>For aquatic ecosystem protection, based on low reliability guideline</i>	
Selenium	10	<i>For aquatic ecosystem protection, based on LOR for ICPMS</i>	
Silver	1	<i>For aquatic ecosystem protection, based on LOR for ICPMS</i>	
Uranium	1	<i>For aquatic ecosystem protection, based on LOR for ICPMS</i>	
Vanadium	10	<i>For aquatic ecosystem protection, based on LOR for ICPMS</i>	
Ammonia	900	<i>For aquatic ecosystem protection, based on SMD guideline</i>	
Nitrate	1100	<i>For aquatic ecosystem protection, based on ambient Qld WQ Guidelines (2006) for TN</i>	
Petroleum hydrocarbons (C6-C9)	20	<i>For aquatic ecosystem protection, based on LOR for GCMS</i>	
Petroleum hydrocarbons (C10-C36)	100	<i>For aquatic ecosystem protection, based on LOR for GCMS</i>	
Fluoride (total)	2000	<i>Protection of livestock and short term irrigation guideline</i>	

Quality Characteristic	Trigger Levels (µg/L) or as indicated	Comment on Trigger Level	Monitoring Frequency
Sodium (mg/L)	180	For drinking water (aesthetic), based on the ADWG ⁵	
Total Suspended Solids (TSS) (mg/L)	10	For aquatic ecosystem protection, based on ambient Qld WQ Guidelines (2006) for TSS (Fitzroy Basin)	
Sulfate (SO ₄ ²⁻) (mg/L)	500	Drinking water environmental values from NHMRC 2006 guidelines or ANZECC	

Table F3 – Release Contaminant Trigger Investigation Levels, Potential Contaminants notes:

1. All metals and metalloids must be measured as total (unfiltered) and dissolved (filtered). Trigger levels for metal/metalloids apply if dissolved results exceed trigger.
2. The quality characteristics required to be monitored as per **Table F3 – Release Contaminant Trigger Investigation Levels, Potential Contaminants** can be reviewed once the results of **two (2) years** monitoring data is available, or if sufficient data is available to adequately demonstrate negligible environmental risk, and it may be determined that a reduced monitoring frequency is appropriate or that certain quality characteristics can be removed from **Table F3 – Release Contaminant Trigger Investigation Levels, Potential Contaminants** by amendment.
3. SMD – slightly moderately disturbed level of protection, guideline refers ANZECC and ARMCANZ (2000)
4. LOR – typical reporting for method stated. ICPMS/CV FIMS – analytical method required to achieve LOR
5. ADWG means 'Australian Drinking Water Guidelines 6 2011' (version 3.5, updated August 2018).

F7	If quality characteristics of the release exceed any of the trigger levels specified in Table F3 – Release Contaminant Trigger Investigation Levels, Potential Contaminants during a release event, the environmental authority holder must compare the downstream results in the receiving waters to the trigger values specified in Table F3 – Release Contaminant Trigger Investigation Levels, Potential Contaminants 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 F3 – Release Contaminant Trigger Investigation Levels, potential contaminants for any quality characteristic, compare the results of the downstream site to the data from background monitoring sites and 1. if the result is less than the background monitoring site data, then no action is to be taken; or 2. 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 within ninety (90) days of receiving the result, outlining i) details of the investigations carried out; and ii) actions taken to prevent environmental harm. <i>Note: Where an exceedance of a trigger level has occurred and is being investigated, in accordance with F6 b 2) of this condition, no further reporting is required for subsequent trigger events for that quality characteristic.</i>
F8	If an exceedance in accordance with condition F7 b) 2) is identified, the holder of the environmental authority must notify the administering authority via WaTERS within twenty-four (24) hours of receiving the result.
F9	Mine Affected Water Release Events 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 F4 – Mine Affected Water Release During Flow Events.
F10	Notwithstanding any other condition of this environmental authority, the release of mine affected water to waters in accordance with condition F2 and condition F3, must only take place during periods of natural flow in accordance with the receiving water flow criteria for discharge specified in Table F4 – Mine Affected Water Release During Flow Events for the release point(s) specified in Table F1 – Mine Affected Water Release Points, Sources and Receiving Waters.
F11	The release of mine affected water to waters, in accordance with condition F2 and condition F3, must not exceed the Maximum Release Rate (for all combined release point flows) for each receiving water flow criterion for discharge specified in Table F4 – Mine Affected Water Release During Flow Events when measured at the monitoring points specified in Table F1 – Mine Affected Water Release Points, Sources and Receiving Waters.

Table F4 – Mine Affected Water Release During Flow Events

Receiving Waters/ Stream	Release Point (RP)	Gauging Station	Gauging Station Latitude (decimal degree, GDA94)	Gauging Station Longitude (decimal degree, GDA94)	Receiving Water Flow Recording Frequency	Receiving Water Flow Criteria for Discharge (m ³ /s)	Maximum Release Rate (for all combined RP flows)	Electrical Conductivity Release Limits
Western Creek	RP1	TBA	TBA	TBA	Continuous (minimum daily)	Low/No Flow: 28 days after natural flow events that exceed 0.5m ³ /s in Western Creek	0.5m ³ /s	Electrical conductivity: 690µS/cm
								Sulfate: 400mg/L
						Medium Flow: >0.5m ³ /s - <2.0m ³ /s in Western Creek	0.3m ³ /s	Electrical conductivity: 800µS/cm
								Sulfate: 400mg/L
						High Flow: >2.0m ³ /s in Western Creek	0.5m ³ /s	Electrical conductivity: 1,100µS/cm
								Sulfate: 400mg/L

F12	The daily quantity of mine affected water released from each release point must be measured and recorded.
F13	Releases to water 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.

F14	Notification of Release Event The environmental authority holder must notify the administering authority via WaTERS as soon as practicable and no later than twenty-four (24) hours after commencing to release mine affected water to the receiving environment. Notification must include the submission of written advice to the administering authority of the following information: a) release commencement date/time; b) details regarding the compliance of the release with the conditions of Schedule F: Water of this environmental authority (that is, contaminant limits, natural flow, discharge volume); c) release point/s; d) release rate; e) release salinity; and f) receiving water/s including the natural flow rate. <i>Note: Notification to the administering authority must be addressed to the Manager and Project Manager of the local Administering Authority via email.</i>
F15	The environmental authority holder must notify the administering authority via WaTERS as soon as practicable and nominally no later than twenty-four (24) hours after cessation of a release event of the cessation of a release notified under condition F13 and within twenty-eight (28) days provide the following information in writing: a) release cessation date/time; b) natural flow rate in receiving water; c) volume of water released; d) details regarding the compliance of the release with the conditions of Schedule F: Water of this environmental authority (i.e. contaminant limits, natural flow, discharge volume); e) all in-situ water quality monitoring results; and f) any other matters pertinent to the water release event. <i>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 F13 and F14, provided the relevant details of the release are included within the notification provided in accordance with conditions F13 and F1</i>
F16	Notification of Release Event Exceedance If the release limits defined in Table F2 – Mine Affected Water Release Limits are exceeded, the holder of this environmental authority must notify the administering authority via WaTERS within twenty-four (24) hours of receiving the results.

F17	The environmental authority holder must, within twenty-eight (28) days of a release that is not compliant with the conditions of this environmental authority, provide a report to the administering authority via WaTERS detailing: a) the reason for the release; b) the location of the release; c) the total volume of the release and which (if any) part of this volume was non-compliant; d) the totals duration of the release and which (if any) part of this period was non-compliant; e) all water quality monitoring results (including all laboratory analyses); f) identification of any environmental harm as a result of the noncompliance; g) all calculations; and h) any other matters pertinent to the water release event.
F18	Receiving Environment Monitoring and Contaminant Trigger Levels The quality of the receiving waters must be monitored at the location specified in Table F6 – Receiving Water Upstream Background Sites and Downstream Monitoring Points and Figure 4 – REMP and Monitoring Sites for each quality characteristic and at the monitoring frequency stated in Table F5 – Receiving Waters Contaminant Trigger Levels.
F19	If quality characteristics of the receiving water at the downstream monitoring points exceed any of the trigger levels specified in Table F5 – Receiving Waters Contaminant Trigger Levels during a release event the holder of this environmental authority 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. <i>Note: Where an exceedance of a trigger level has occurred and is being investigated, in accordance with F18 b) of this conditions, no further reporting is required for subsequent events for that quality characteristic.</i>

Table F5 – Receiving Waters Contaminant Trigger Levels

Quality Characteristic	Trigger Level	Monitoring Frequency
pH (pH units)	6.5 – 9.0	First sample to be taken within two (2) hours of release and then daily during the release
Electrical Conductivity (µS/cm)	690	
Turbidity (NTU)	300	
Sulfate (SO ₄ ²⁻) (mg/L)	400	

Note: Site-specific values must be submitted to the administering authority by 30 April 2024 or prior to the commencement of mining activities, whichever is earlier.

Table F6 – Receiving Water Upstream Background Sites and Downstream Monitoring Points

Monitoring Points	Receiving Waters Location Description	Latitude (decimal degree, GDA94)	Longitude (decimal degree, GDA94)
Upstream Background Monitoring Points			
WC1	Western Creek (TBA metres upstream of RP1)	TBA	TBA
BC1	Brigalow Creek (TBA Metres upstream of disturbance area)	TBA	TBA
Downstream Monitoring Points			
WC2	Western Creek (TBA metres downstream from RP1) (mixing zone)	TBA	TBA
WC3	Western Creek (at compliance point)	TBA	TBA
MC1	Miclere Creek	TBA	TBA
MC2	Miclere Creek	TBA	TBA
BC2	Brigalow Creek	TBA	TBA
BC3	Brigalow Creek	TBA	TBA
BC4	Brigalow Creek	TBA	TBA
WL1	Palustrine Waterbody	TBA	TBA
WL2	Riverine Waterbody	TBA	TBA

Table F6 – Receiving water upstream background sites and downstream monitoring points notes:

1. the upstream monitoring point should be within 10km of the release point.
2. the downstream point should not be greater than 10km from the release point.
3. the data from background monitoring points must not be used where they are affected by releases from other mines.

F20	All determinations of water quality and biological monitoring must be performed by an appropriately qualified person.
F21	Receiving Environmental Monitoring Program (REMP) The environmental authority holder must develop and implement a REMP to monitor, identify and describe any adverse impacts to surface water environmental values, quality and flows due to the authorised mining activity. This must include monitoring the effects of the mine on the receiving environment periodically (under natural flow conditions) and while mine affected water is being discharged from the site. For the purposes of the REMP, the receiving environment is the waters of the Brigalow, Miclere, Western and Mistake Creeks and connected or surrounding waterways within 10km 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.

F22	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 location (as a minimum, the locations specified in Table F6: Receiving Water 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 2006. 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 Table F2: Mine Affected Water Release Limits and Table F3: 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) incorporate a riparian corridor monitoring program to monitor impacts on riparian ecosystems; i) apply procedures and/or guidelines from ANZECC & ARMCANZ 2000 and other relevant guideline documents; j) describe sampling and analysis methods and quality assurance and control; k) incorporate stream flow and hydrological information in the interpretations of water quality and biological data; and l) be made available to the administering authority upon request.
F23	A report outlining the findings of the REMP, including all monitoring results and interpretations must be prepared annually and made available on request to the administering authority. This must include an assessment of background reference water quality, the condition of downstream water quality compared against water quality objectives, and the suitability of current discharge limits to protect downstream environmental values.

F24	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).
F25	Annual Water Monitoring 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 via WaTERS by 1 March each year in the specified format: 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 to the administering authority in the specified electronic format upon request.
F26	Temporary Interference with Waterways Destroying native vegetation, excavating, or placing fill in a watercourse, lake or spring necessary for and associated with mining operations must be undertaken in accordance with Department of Natural Resources and Mines (or its successor) Guideline – Activities in a Watercourse, Lake or Spring associated with Mining Activities.
F27	Water Management Plan A Water Management Plan must be developed by an appropriately qualified person and implemented.
F28	Stormwater and Water Sediment Controls As Erosion and Sediment Control Plan must be developed by an appropriately qualified person and implemented for all stages of the mining activities on the site to minimise erosion and the release of sediment to receiving waters and contamination of stormwater.
F29	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 F28; and b) water management infrastructure that is installed and operated, in accordance with a Water Management Plan that complies with condition F27, for the purpose of ensuring water does not become mine affected water.

F30	Amendment application required for TBA and interim values By 30 April 2024, the environmental authority holder must submit an environmental authority amendment application to the administering authority to replace TBA and existing values in Table F1 – Mine Affected Water Release Points, Sources and Receiving Waters, Table F3 – Release Contaminant Trigger Investigation Levels, Potential Contaminants, Table F4 – Mine Affected Water Release During Flow Events, Table F5 – Receiving Waters Contaminant Trigger Levels and Table F6 – Receiving Water Upstream Background Sites and Downstream Monitoring Points.
F31	Condition F30 of this environmental authority must be completed in full prior to the commencement of mining activities.

Schedule H – Land and Rehabilitation	
Condition number	Condition
H1	Land disturbed by mining must be rehabilitated in accordance with Schedule 2, Table H1 – Rehabilitation Requirements .
H2	Rehabilitation must commence progressively as areas become available.
H3	Contaminated Land Before applying for a surrender of a mining lease, the holder must (if applicable) provide to the administering authority a site investigation report under the Act, in relation to any part of the mining lease which has been used for notifiable activities or which the holder is aware is likely to be contaminated land, and also carry out any further work that is required as a result of that report to ensure that the land is suitable for its final land use.
H4	Before applying for progressive rehabilitation certification of an area, the holder must (if applicable) provide to the administering authority a site investigation report under the Act, in relation to any part of the area the subject of the application which has been used for notifiable activities or which the holder is aware is likely to be contaminated land, and also carry out any further work that is required as a result of that report to ensure that the land is suitable for its final land use under condition H1 .
H5	The environmental authority holder must minimise the potential for contamination of land by hazardous contaminants.
H6	Biodiversity Offsets Significant residual impacts to prescribed environmental matters are not authorised under this environmental authority or the <i>Environmental Offsets Act 2014</i> unless the impact(s) is specified in Table H2 - Matters of State Environmental Significance.

Table H2 – Matters of State Environmental Significance

Environmental Authority EPML02498414 – Moorlands Coal Mine

Prescribed MSES with Significant Residual Impacts			Maximum Authorised Residual Impact Area (ha)
Regulated Vegetation	Regional Ecosystem	Vegetation Management Act 1999 Status	Total
Brigalow TEC	11.4.8*	Endangered	112.05
	11.3.1*	Endangered	4.61
	11.9.5*	Of Concern	19.05
	11.11.16	Of Concern	46.67
Eucalyptus tereticornis and/or Eucalyptus spp. woodland on alluvial plains	11.3.4	Of Concern	3.15
Eucalyptus melanophloia woodland on deformed and metamorphosed sediments and interbedded volcanics	11.11.10	Of Concern	0.9
Natural Grassland TEC	11.8.11*	Endangered	0.36
	11.3.2	Of Concern	11.87
Watercourse vegetation			25.46
Wetland			1.66
Connectivity			218.5
Species	Nature Conservation Act 1992 Status		Total
Koala (<i>Phascolarctos cinereus</i>)*	Special least concern		148.62
Ornamental snake (<i>Denisonia maculata</i>)*	Vulnerable		102.01
Squatter pigeon (<i>Geophaps scripta scripta</i>)*	Vulnerable		79.3
Allan's Lerista (<i>Lerista allanae</i>)*	Endangered		5.53

*These MSES duplicate Matters of National Environmental Significance (MNES) and will be conditioned for offsets by the Commonwealth Department of the Environment (or its successor). However, in the event that the Commonwealth Department of the Environment does not condition these MSES / MNES for offsets, then they are required to be delivered under this environmental authority.

Note: Deemed conditions in sections 18, 19B, 22, 24 and 25 of the Environmental Offsets Act 2014 are taken to be conditions of this environmental authority. The holder of the environmental authority must provide an environmental offset for significant residual impacts on MSES in accordance with the requirement of the Environmental Offsets Act 2014 (including deemed conditions), the Environmental Offsets Regulation 2014 and the Queensland Environmental Offsets Policy 2014.

H7	Records demonstrating that each impact to a prescribed environmental matter not listed in Table H2 - Matters of State Environmental Significance did not, or is not likely to, result in a significant residual impact to that matter must be: a) completed by an appropriately qualified person; and b) kept for the life of the environmental authority.
H8	An environmental offset made in accordance with the <i>Environmental Offsets Act 2014</i> and Queensland Environmental Offsets Policy, as amended from time to time, must be undertaken for the maximum extent of impact to each prescribed environmental matter authorised in Table H2 - Matters of State Environmental Significance, unless a lesser extent of the impact has been approved in accordance with condition H11.
H9	Staged Impacts The significant residual impacts to a prescribed environmental matter authorised in condition H6 for which an environmental offset is required by condition H8 may be carried out in stages. An environmental offset can be delivered for each stage of the impacts to prescribed environmental matters.
H10	Prior to the commencement of each stage, a report completed by an appropriately qualified person, that includes an analysis of the following must be provided to the administering authority: a) for the forthcoming stage—the estimated significant residual impacts to each prescribed environmental matter; and b) for the previous stage, if applicable—the actual significant residual impacts to each prescribed environmental matter, to date.
H11	The report required by condition H10 must be approved by the administering authority before a notice of election for the forthcoming stage, if applicable, is given to the administering authority.
H12	A notice of election for the staged environmental offset referred to in condition H11, if applicable, must be provided to the administering authority no less than three months before the proposed commencement of that stage, unless a lesser timeframe has been agreed to by the administering authority.
H13	Within six (6) months from the completion of the final stage of the project, a report completed by an appropriately qualified person, that includes the following matters must be provided to the administering authority: a) an analysis of the actual impacts on prescribed environmental matters resulting from the final stage; and b) if applicable, a notice of election to address any outstanding offset debits for the authorised impacts.

Schedule I – Regulated Structures	
Condition number	Condition
I1	The consequence category of any structure must be assessed by a suitably qualified and experience person in accordance with the <i>Manual for Assessing Consequence Categories and Hydraulic Performance of Structures (EM635)</i> 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.
I2	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.
I3	Certification must be provided by the suitably qualified and experienced person who undertook the assessment, in the form set out in the <i>Manual for Assessing Consequence Categories and Hydraulic Performance of Structures (ESR/2016/1933)</i> .
I4	Design and Construction of a Regulated Structure 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 <i>Manual for Assessing Consequence Categories and Hydraulic Performance of Structures (ESR/2016/1933)</i>.
I5	Construction of a regulated structure is prohibited unless the holder has: a) submitted a consequence category assessment report and certification to the administering authority; and b) received certification from a suitably qualified and experienced person for the design and design plan and the associated operating procedures in compliance with the relevant condition of this authority.
I6	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 <i>Manual for Assessing Consequence Categories and Hydraulic Performance of Structures (EM635)</i> , and must be recorded in the Regulated Dams/Levees register.

17	Regulated structures must: a) be designed and constructed in accordance with the conform to the requirements of the <i>Manual for Assessing Consequence Categories and Hydraulic Performance of Structures (EM635)</i>; b) be designed and constructed with due consideration given to ensuring that the design integrity would not be compromised on account of: i) floodwater 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; and c) for regulated dams that are dams associated with a failure to contain – seepage: have the floor and sides of the dam designed and constructed to prevent or minimise the passage of the setting 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.
18	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.
19	Operation of a Regulated Structure Operation of a regulated structure, except for an existing structure, is prohibited unless: a) the holder has submitted to the administering authority: i) one paper copy and one electronic copy of the design plan and certification of the 'design plan' in accordance with condition I6; ii) a set of 'as constructed' drawings and specifications; iii) certification of those 'as constructed drawings and specification' in accordance with condition I8; iv) where the regulated structure is to be managed as part of an integrated containment system for the purpose of sharing the DSA volume across the system, a copy of the certified system design plan; v) the requirements of this authority relating to the construction of the regulated structure have been met; vi) the holder has entered the details required under this authority, into a Register of Regulated Dams; and vii) there is a current operational plan for the regulated structures.

I10	Each regulated structure must be maintained and operated, for the duration of its operational life until decommissioned and rehabilitated, in a manner that is consistent with the current operational plan and/., if applicable, the current design plan and associated certified 'as constructed' drawings.
I11	Mandatory Reporting Level Conditions I12 to I15 inclusive only apply to Regulated Structures which have not been certified as low consequence category for 'failure to contain – overtopping'.
I12	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.
I13	The holder must, as soon as practical and within forty-eight (48) hours of becoming aware, notify the administering authority when the level of the contents of a regulated dam reaches the MRL.
I14	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.
I15	The holder must record any changes to the MRL in the Register of Regulated Structures.
I16	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.
I17	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).
I18	The holder must, as soon as possible and within forty-eight (48) hours of becoming aware that the regulated dam (or network of linked containment systems) will not have the available storage to meet the DSA volume on 1 November of any year, notify the administering authority.
I19	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.
I20	Annual Inspection Report Each regulated structure must be inspected each calendar year by a suitably qualified and experienced person.

I21	At each annual inspection, the condition and adequacy of all components of the regulated structure must be assessed and a suitably qualified and experience person must prepare an annual inspection report containing details of the assessment ad include recommended actions to ensure the integrity of the regulated structure.
I22	The suitably qualified and experienced person who prepared the annual inspection report must certify the report in accordance with the Manual for Assessing Consequence Categories and Hydraulic Performance of Structures (EM635).
I23	The holder must: a) within twenty (20) business days of the annual inspection report, provide to the administering authority: i) the recommendation section of the annual inspection report; and ii) if applicable, any actions being taken in response to those recommendations; and b) if, following receipt of the recommendations and (if applicable) actions, the administering authority requests a full copy of the annual inspection report from the holder, provide this to the administering authority within ten (10) business days of receipt of the request.
I24	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.
I25	Decommissioning and Rehabilitation Dams must not be abandoned but be either: a) decommissioned and rehabilitated to achieve compliance with condition I26; or b) be left in-situ for a beneficial use(s) provided that: i) it no longer contains contaminants that will migrate into the environment; ii) It contains water of a quality that is demonstrated to be suitable for its intended beneficial use(s); and iii) the administering authority, the holder of the environmental authority and the landholder agree in writing that the dam will be used by the landholder following the cessation of the environmentally relevant activity(ies).

I26	After decommissioning, all significantly disturbed land caused by the carrying out of the environmentally relevant activity(ies) must be rehabilitated to meet the following final acceptance criteria: a) the landform is safe for humans and fauna; b) the landform is stable with no subsidence or erosion gullies for a least three (3) years; c) any contaminated land (e.g. contaminated soils) is remediated and rehabilitated; d) not allowing for acid mine drainage; e) there is no ongoing contamination to waters (including groundwater); f) rehabilitation is undertaken in a manner such that any actual or potential acid sulfate soils on the area of significant disturbance are treated to prevent or minimise environmental harm in accordance with the Instructions for the treatment and management of acid sulfate soils (2001); g) all significantly disturbed land is reinstated to the pre-disturbed land suitability class; h) for land that is not being cultivated by the landholder: a. groundcover, that is not a declared pest species is established and self-sustaining; b. vegetation of similar species richness and species diversity to pre-selected analogue sites is established and self-sustaining; and c. the maintenance requirements for rehabilitated land is no greater than that required for the land prior to its disturbance caused by carrying out the petroleum activity(ies); and i) for land that is to be cultivated by the landholder, cover crop s revegetated, unless the landholder will be preparing the site for cropping within 3 months of petroleum activities being completed.
I27	Register of Regulated Structures A Register of Regulated Structures must be established and maintained by the holder for each regulated dam.
I28	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.
I29	The holder must make a final entry of the required information in the Register of Regulated Structures once compliance with condition I9 and I10 has been achieved.
I30	The holder must ensure that the information contained in the Register of Regulated Structures is current and complete on any given day.
I31	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.

I32	On 1 March each calendar year, the holder must 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.
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Definitions

Key terms and/or phrases used in this document are defined in this section and **bolded** throughout this document. Applicants should note that 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.

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

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

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.

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

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

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

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

Associated works in relation to a dam, means:

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

Authority means an environmental authority or a development approval.

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

Blasting means the use of explosive materials to fracture:

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

Buffer of the Palustrine Wetland means a 90 metre buffer around the Palustrine Wetland located within ML 70525, as represented by Queensland Government data source: “Wetland data - version 5 - wetland areas – Queensland (2019)” and displayed in Figure 4: Wetland Management Area of this EA.

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, or
- d) a drug or poison in the Standard for the Uniform Scheduling of Drugs and Poisons prepared by the Australian Health Ministers’ Advisory Council and published by the Commonwealth, or
- e) any substance used as, or intended for use as:
 - (i) a pesticide, insecticide, fungicide, herbicide, rodenticide, nematocide, miticide, fumigant or related product, or
 - (ii) a surface active agent, including, for example, soap or related detergent, or
 - (iii) a paint solvent, pigment, dye, printing ink, industrial polish, adhesive, sealant, food additive, bleach, sanitiser, disinfectant, or biocide, or
 - (iv) a fertiliser for agricultural, horticultural or garden use, or
 - (v) a substance used for, or intended for use for mineral processing or treatment of metal, pulp and paper, textile, timber, water or wastewater, or
 - (vi) manufacture of plastic or synthetic rubber.

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

Construction or constructed in relation to a dam 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.

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 (EM635).

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

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

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

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

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

Design storage allowance or DSA means an available volume, estimated in accordance with the *Manual for Assessing Consequence Categories and Hydraulic Performance of Structures* (EM635) published by the administering authority, must be provided in a dam as at 1 November each year in order to prevent a discharge from that dam to an annual exceedance probability (SEP) 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
- f) releasing of contaminants into the soil, or underlying geological strata.

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

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

EC means electrical conductivity.

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 downstream communities and the implementation of protection measures. The plan must require dam owners to annually update contact.

Existing structure means a structure that was in existence prior to the adoption of this schedule of conditions under the authority.

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* (EM635) 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 proves on a petroleum well.

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.

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

Hydraulic performance means the capacity of a regulated dam to contain or safely pass flowable substances based on the design criteria specified for the relevant consequence category in the *Manual for Assessing Consequence Categories and Hydraulic Performance of Structures* (EM635).

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

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

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

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

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.

Licensed place means the mining activities carried out at the mining tenements detailed in the table **Environmentally relevant activity and location details** (page 1) of this environmental authority.

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

m means metres.

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

Manual means the *Manual for Assessing Consequence Categories and Hydraulic Performance of Structures* (EM635) published by the administering authority.

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

Mine affected water:

- a) means the following types of water:
 - i) pit water, tailings dam water, processing plant water
 - ii) water contaminated by a mining activity which would have been an environmentally relevant activity under Schedule 2 of the Environmental Protection Regulation 2008 if it had not formed part of the mining activity
 - iii) 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
 - iv) groundwater which has been in contact with any areas disturbed by mining activities which have not yet been rehabilitated
 - v) groundwater from the mine's dewatering activities
 - vi) a mix of mine affected water (under any of paragraphs i) – v) and other water.
- b) 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:
 - i) 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
 - ii) 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:
 - a. areas that are been capped and have monitoring data demonstrating hazardous material adequately contained with the site
 - b. 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
 - iii) both.

Minimise is to reduce to the smallest possible amount or degree.

Mining activity or **mining activities** means 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').

Operational plan includes:

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

overtopping or loss of structural integrity of the regulated structure.

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

Register of Regulated Structures includes:

- a) date of entry in the register;
- b) name of the dam, its purpose and intended/actual contents;
- c) the consequence category of the dam as assessed using the *Manual for Assessing Consequence Categories and Hydraulic Performance of Structures* (EM635);
- d) date, 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 –
 - a. the dimensions (metres) and surface area (hectares) of the dam measured at the footprint of the dam;
 - b. coordinates (latitude and longitude in GDA94) within five metres at any point from the outside of the dam including its storage area;
 - c. dam crest volume (megalitres);
 - d. spillway crest level (metres AHD);
 - e. maximum operating levels (metres AHD);
 - f. storage rating table of stored volume versus level (metres AHD);
 - g. design storage allowance (megalitres) and associated level of the dam (metres AHD);
 - h. mandatory reporting level (metres AHD);
- g) the design plan title and reference relevant to the dam;
- h) the date construction was certified as compliant with the design plan;
- i) the name and details of the suitably qualified and experienced person who certified that the constructed dam was compliant with the design plan;
- j) details of the composition and construction of any liner;
- k) the system for the detection of any leakage through the floor and sides of the dam;
- l) dates when the regulated dam underwent an annual inspection for structural and operational adequacy, and to ascertain the available storage volume for 1 November of any year;
- m) dates when recommendations and actions arising from the annual inspection were provided to the administering authority;
- n) dam water quality as obtained from any monitoring required under this authority as at 1 November of each year.

Regulated dam means any dam in the significant or high consequence category as assessed using the *Manual for Assessing Consequence Categories and Hydraulic Performance of Structures* (EM635) published by the administering authority.

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

Rehabilitation means the process of reshaping and revegetating land to restore it to a stable landform.

Release event means a surface water discharge from mine affected water storages or contaminated areas on the licenced place.

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.

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

Self-sustaining means not requiring on-going intervention and maintenance to maintain functional riverine processes and characteristics.

Sensitive place means:

- a) a dwelling, residential allotment, mobile home or caravan park, residential marina or other residential premises; or
- b) a motel, hotel or hostel; or
- c) an educational institution; or
- d) a medical centre or hospital; or
- e) a protected area under the *Nature Conservation Act 1992*, the *Marine Parks Act 2004* or a World Heritage Area; or
- f) a public park or gardens.

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

A mining camp (i.e., accommodation and ancillary facilities for mine employees or contractors or both, associated with the mine the subject of the environmental authority) is not a sensitive place for that mine or mining project, whether or not the mining camp is located within a mining tenement that is part of the mining project the subject of the environmental authority. For example, the mining camp might be located on neighbouring land owned or leased by the same company as one of the holders of the environmental authority for the mining project, or a related company. Accommodation for mine employees or contractors is a sensitive place if the land is held by a mining company or related company, and if occupation is restricted to the employees, contractors and their families for the particular mine or mines which are held by the same company or related company.

For example, a township (occupied by the mine employees, contractors and their families for multiple mines that are held by different companies) would be a sensitive place, even if part or all of the township is constructed on land owned by one or more of the companies.

Structure means dam or levee.

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

Suitably qualified and experienced person means a person who is a Registered Professional Engineer of Queensland 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:

- demonstrable competency, experience and expertise in:
 - investigation, design or construction of watercourses diversions
 - operation and maintenance of watercourse diversions
 - geomechanics with particular emphasis on channel equilibrium, geology and geochemistry
 - hydrology with particular reference to flooding, estimation of extreme storms, water management or meteorology
 - hydraulics with particular reference to sediment transport and deposition and erosion control
 - hydrogeology with particular reference to seepage and groundwater
 - solute transport processes and monitoring thereof; or
- 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***:
 - they consider it reasonable to rely on that advice and information
 - 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:

- Geomorphologist: person who has demonstrated competency and relevant experience in stream geomorphology and watercourse diversions.
- Geotechnical Expert: person who has demonstrated competency and relevant experience in geotechnical assessment of soil characteristics suitable for watercourse diversions.
- 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.
- Groundwater Expert: person who has demonstrated competency and relevant experience in groundwater systems.
- Surface Water Expert: person who has demonstrated competency and relevant experience in hydrology.
- Engineer: person who is a Registered Professional Engineer of Queensland (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.
- 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.

the Act means the *Environmental Protection Act 1994*.

µS/cm means microsiemens per centimetre.

Void means any constructed, open excavation in the ground.

Watercourse has the meaning in Schedule 4 of the *Environmental Protection Act 1994* and means a river, creek or stream in which water flows permanently or intermittently –

- a) In a natural channel, whether artificially improved or not; or
- b) In an artificial channel that has changed the course of the watercourse.

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

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

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

Waters includes all or any part of a river, stream, lake, 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.

WaTERS means the Water Tracking and Electronic Reporting System (WaTERS) used for tracking of regulated activities in Queensland that involve water releases to the environment.

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.

Schedules

Schedule 1—Approved plans

Figure 1a – Moorlands Coal Mine: Project Layout

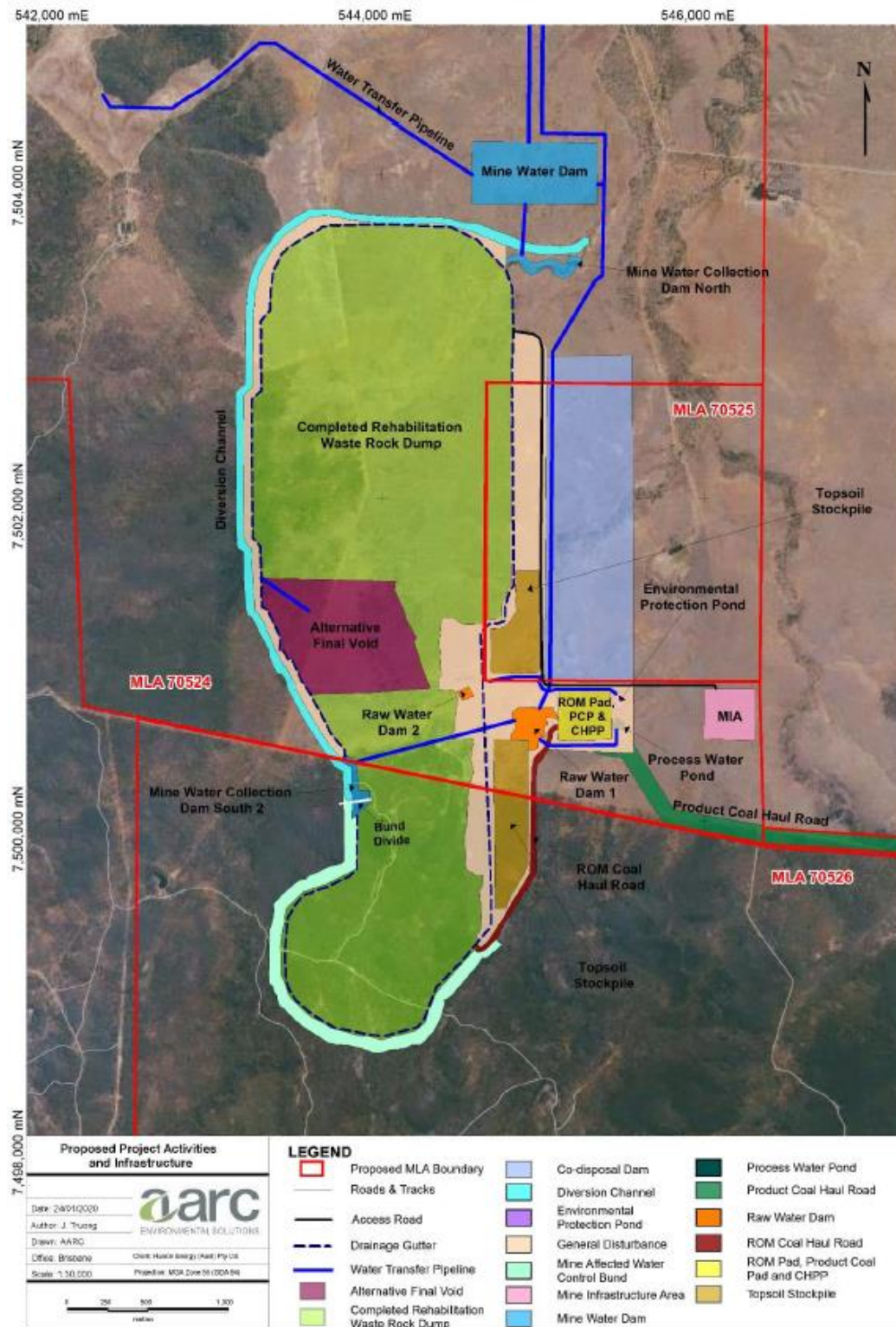


Figure 1b – Moorlands Coal Mine: Project Layout

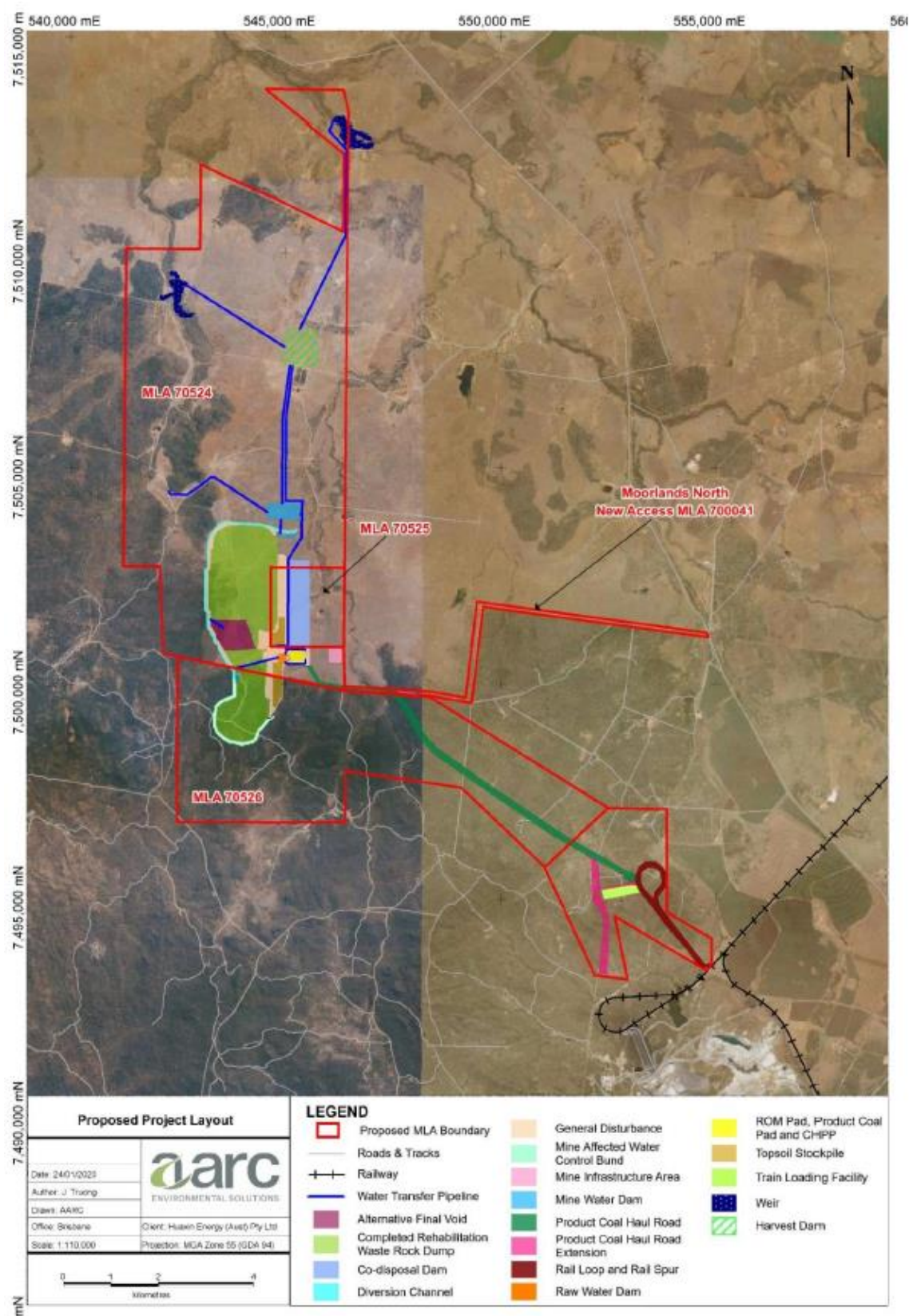


Figure 2 – Groundwater Bore Monitoring Locations

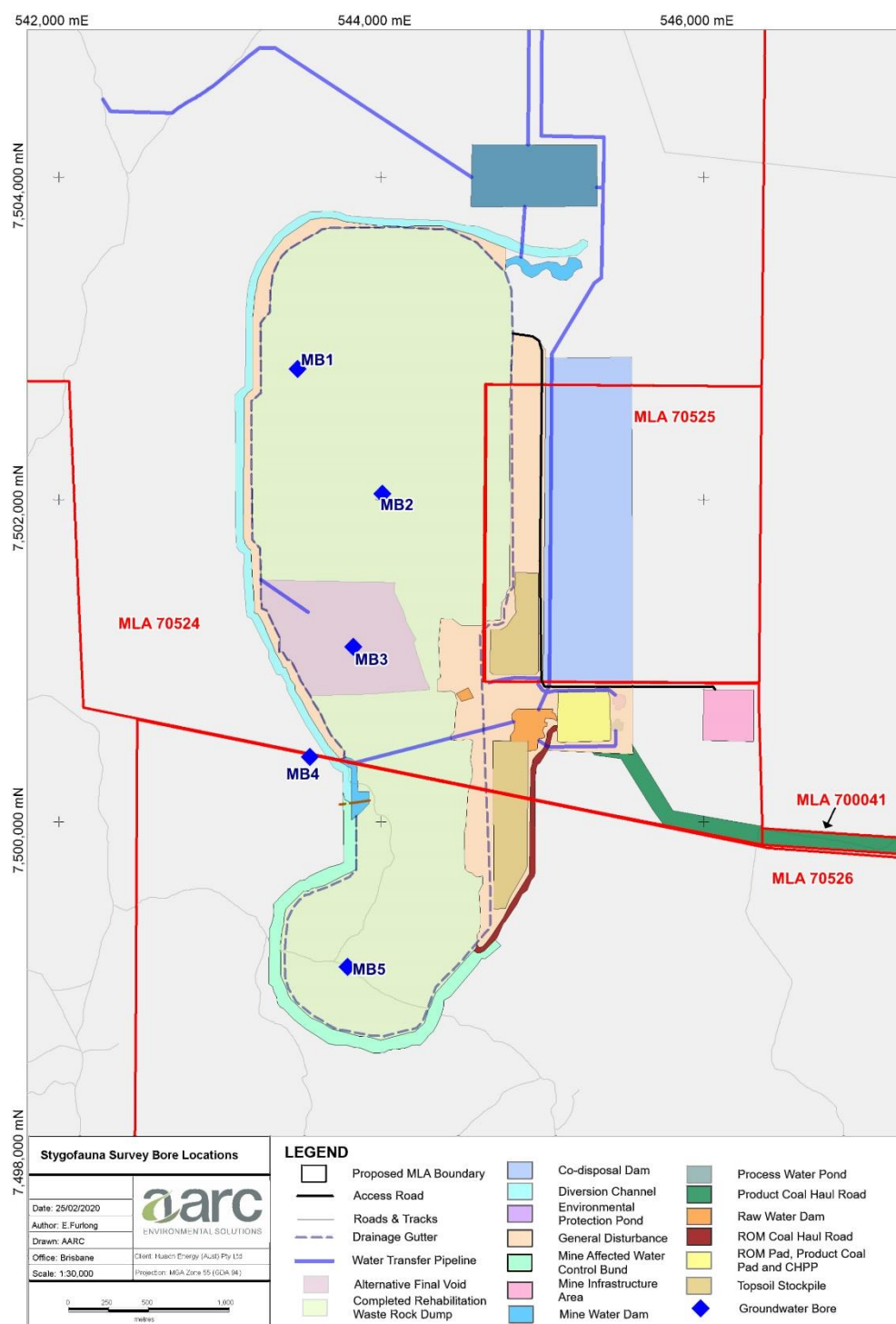


Figure 3 – REMP and Monitoring Sites

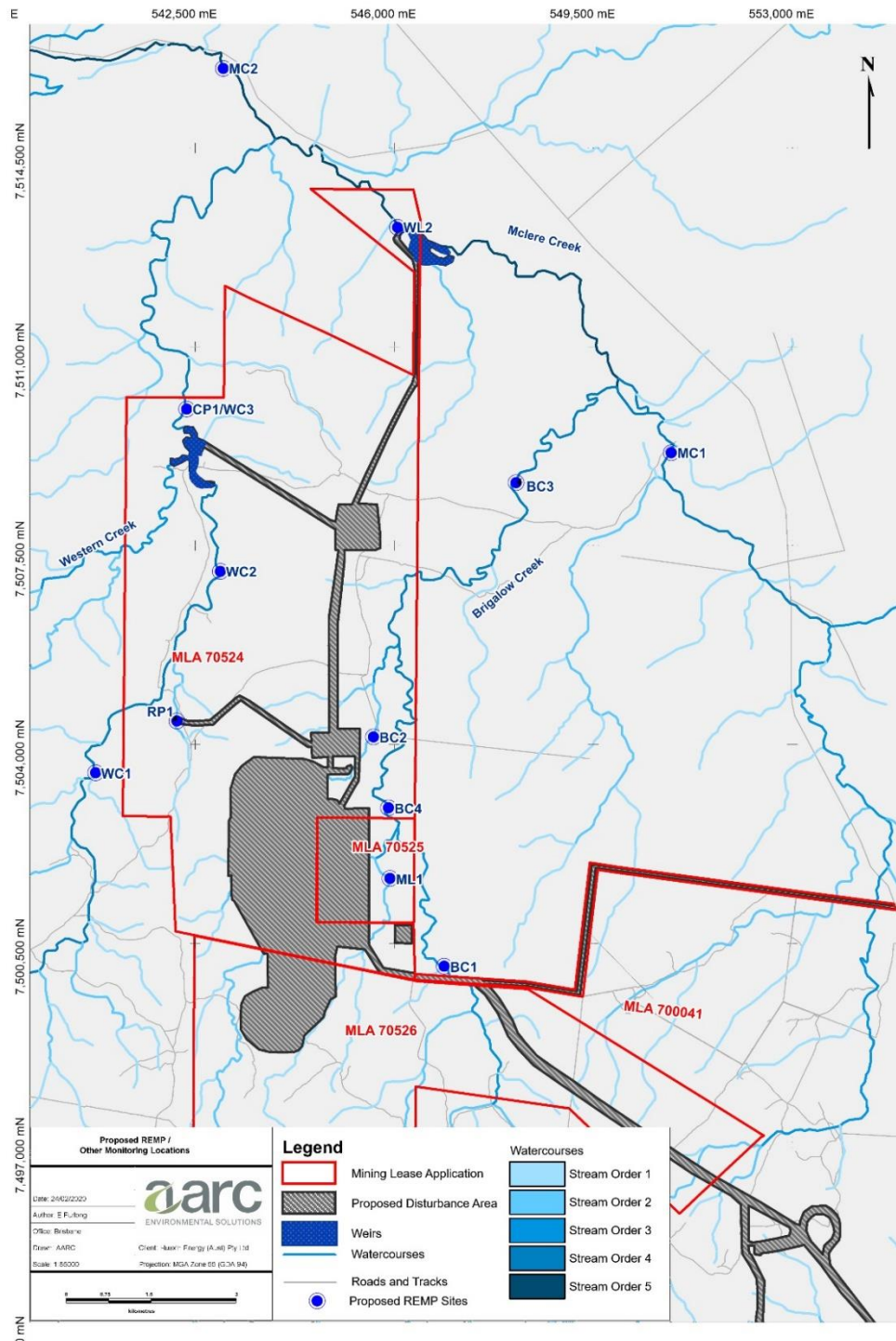
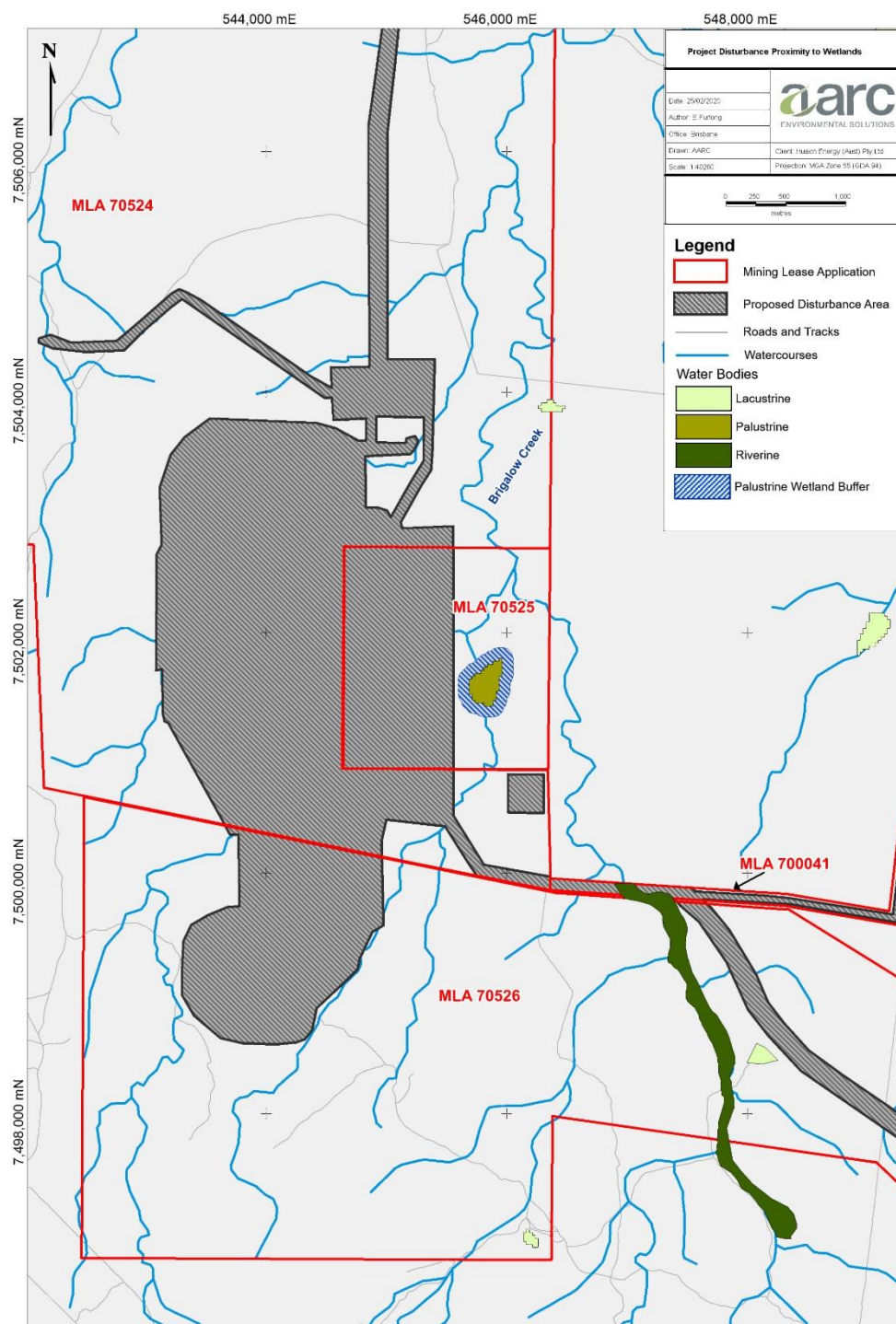


Figure 4 - Wetland Management Areas



Schedule 2—Rehabilitation

Table H1 – Rehabilitation Requirements

Domain	Rehabilitation Goals	Rehabilitation Objectives	Indicators	Completion Criteria
Waste Rock Dumps	Long term safety	Landform does not present a risk to people and stock	Weathered waste rock is covered. Unweathered materials are used at surface	No incidents involving humans or livestock.
		Structurally safe with no hazardous materials	Safety assessment of landform stability (geotechnical studies)	Certification by an appropriately qualified person in the Final Rehabilitation Report (FRR) that slopes are now safe and exhibit characteristics for long term stability.
				A risk assessment has been completed and risk mitigation measures have been implemented. Where risk mitigation measures include bunds, safety fences and warning signs, these have been erected in accordance with relevant guidelines and Australian Standards.
				Landform design meets the following design requirements. Outer face slope angle does not exceed 7°. Inner face slope angle is 12° – 14°.
			Exposure to and availability of heavy metals and other toxic materials	Certification by an appropriately qualified person that the FRR includes predictions about future changes and that the specified cover thickness is in place.
				Evidence in the FRR that monitoring results for dust and particulate matter indicates compliance with the limits in the environmental authority.
			Results of site contaminated land investigation report.	Evidence in the FRR that measures required in site contaminated land investigation report have been implemented.
			Stream bank erosion.	Evidence in the FRR that the diversion is stable at closure and exhibit characteristics for long term stability.

Domain	Rehabilitation Goals	Rehabilitation Objectives	Indicators	Completion Criteria
		Site is safe for humans and animals now and in the foreseeable future.	Safety assessment of landform stability (geotechnical studies).	An appropriately qualified person certifies the long-term geotechnical stability of the residual slopes and faces and evidence of this is documented in the FRR.
			Adequacy and predicted long-term performance of safety barriers.	Evidence in the FRR that a safety risk assessment of the slopes has been completed and proposed mitigation measures are documented in a Safety Plan.
			Installation of safety barriers and human/wildlife exclusion fencing.	If required, mitigation measures documented in a Safety Plan, e.g. fencing or other suitable barrier around the slopes are installed to restrict access.
	Non-polluting	Seepage and surface runoff will not cause environmental harm.	Runoff, surface and groundwater quality is monitored for 'standard' water quality parameters.	Monitoring meets trigger criteria.
		Mine affected water contained on site until water quality suitable for release.	Downstream surface water quality	Certification by an appropriately qualified person that surface water quality at monitoring locations is not negatively impacted when trends indicated by results from baseline monitoring and the 5 years previous to mine closure are compared to monitoring results for the rehabilitated landform.
			Groundwater quality.	Certification by an appropriately qualified person that groundwater quality at monitoring locations is not negatively impacted when trends indicated by results from baseline monitoring and the 5 years previous to mine closure are compared to monitoring results for the rehabilitated landform.
			Final landform water storages are contained on-site, with no over flows into external surface water systems until water quality suitable for release.	Certification by an appropriately qualified person that surface water quality at monitoring locations is not negatively impacted when trends indicated by results from baseline monitoring and the 5 years previous to mine closure are compared to monitoring results for the rehabilitated landform.

Domain	Rehabilitation Goals	Rehabilitation Objectives	Indicators	Completion Criteria
				Receiving water affected by surface water runoff has contaminant limits in accordance with the environmental authority.
			All non-permanent regulated structures decommissioned appropriately.	Regulated structures are decommissioned in accordance with the administering authority requirements.
		Acid mine drainage will not cause serious environmental harm.	Leachate testing from the waste rock dumps indicates no acid mine drainage issues.	Certification by suitably qualified person in the FRR that the Acid Mine Drainage Assessment Report either indicates leachate from the waste rock dump will not result in acid mine drainage or proposes suitable management measures.
	Stable landform	Erosion rates are managed to levels that do not compromise post-mine land use.	Slope angel and length.	Evidence in the FRR that the rehabilitated slopes have been designed to the following specifications. Slope gradient of <14% with a cover of non-dispersive Permian material.
			Erosion is managed in accordance with an Erosion and Sediment Control Plan.	Unweathered materials used for outer slopes. Steep slopes covered with durable rock.
			Engineered structures to control water flow.	Evidence in the FRR that required contour banks, channel linings, surface armour, engineered drop structures and other required measures are in place and functioning as intended.
			Rate of soil loss.	Certification by an appropriately qualified person that land disturbed by mining activities does not exhibit any signs of continued erosion greater than that exhibited at a comparable reference site. The comparable reference site must have similar chemical and physical characteristics including slope as the rehabilitated landform.

Domain	Rehabilitation Goals	Rehabilitation Objectives	Indicators	Completion Criteria
			Dimensions and frequency of occurrence of erosion of rills and gullies.	Evidence in the FRR that the dimensions and frequency of occurrence of erosion rills and gullies are no greater than that in comparable reference site(s).
		Dump slopes are geotechnically stable.	No geotechnical failure.	Waste rock dumps engineered to be geotechnically stable. Waste rock dumps will be designed, shaped and capped with topsoil and revegetated in accordance with Mine Waste Management Plan (MWMP).
		Vegetation cover sufficient for a self-sustaining community and to minimise erosion.	Scarified surface to be seeded with an appropriate seed mix and weed species to be controlled.	Percent foliage cover recorded in line with Rehabilitation Management Plan (RMP).
			Native fauna species.	Certification by an appropriately qualified person that native fauna species identified in pre-mining baseline studies and the five years of reference site monitoring prior to the completion of rehabilitation are present or indicators of these species or habitat elements are developing within the rehabilitated areas.
			Vegetation type and density.	Evidence that the vegetation type and density are of species suited to the sites characteristics including soil type, topography and climate and that soil erosion meets the goals set in the RMP.
				Vegetation types and densities are comparable with relevant reference site.
		The diversion mirrors natural stream functions	Design and stability of drainage diversion.	Documentation in the FRR how the drainage diversion is stable at closure and is likely to remain that way into the foreseeable future.

Domain	Rehabilitation Goals	Rehabilitation Objectives	Indicators	Completion Criteria
				To be designed and constructed in accordance with the Queensland Government Natural Resources and Mines, Central West Water Management and Use Regional Guideline: Watercourse Diversions-Central Queensland Mining Industry (2008) and with consideration of contemporary research, i.e. the ACARP report Maintenance of Geomorphic Processes in Bowen Basin River diversions (Project number C8030-C9068).
	Self-sustaining	Soil properties support the desired land-use.	Chemical properties, e.g. pH, salinity, nutrient content, sodium content of topsoil to support the proposed vegetation and land-use.	Certification in the FRR that the topsoil chemical properties do not limit the suitability of the land for the intended land used and are consistent with the following: • Soil salinity content is <0.6dS/m; • Soil pH is between 5.5 and 8.5; • Soil exchange sodium percentage (ESP) is <15%; • Nutrient accumulation and recycling processes are occurring as evidenced by the presence of a litter layer, mycorrhizae and/or other microsymbionts; and • Adequate macro- and micro-nutrients are present.
			Physical properties of topsoil to support the proposed vegetation and land-use.	Suitable topsoil and subsoils that have been stripped prior to mining will be applied to the surface of the dump. Certification in the FRR that the soil properties, e.g. rockiness, depth of soil, wetness and plant available water capacity are adequate for plant growth. Certification in the FRR of suitability for beef cattle grazing land use in accordance with Department of Minerals and Energy (DME) 1995 Land Suitability Assessment Techniques in Technical Guidelines for the Environmental Management of Exploration and Mining.

Domain	Rehabilitation Goals	Rehabilitation Objectives	Indicators	Completion Criteria
			Topsoil thickness.	A Soil Management Plan will be developed prior to commencement of mining activities to identify soils best suited to rehabilitation from available surface and subsurface materials. Surface and subsoils are rehabilitated in accordance with Soils Management Plan. Certification in the FRR that topsoil has been respread according to the depths required in the Soils Management Plan.
			Site soil characteristics.	Certification in the FRR that the site's soil characteristics have acceptable levels of surface roughness, infiltration capacity, aggregate stability and surface condition as defined in the Australian Soil and Land Survey Field Handbook (National Committee and Soil and Terrain 2009).
		Establish self-sustaining natural vegetation or habitat.	Presence of key plant species.	Certification by an appropriately qualified person that key plant species identified in the comparable reference site occur on the rehabilitation site. The presence of key plant species may also be guided by future vegetation trials for rehabilitation.
			Density of key plant species.	Certification by an appropriately qualified person that the density of key plant species in comparable reference sites is similar to the rehabilitation site. The density of key plant species may also be guided by future vegetation trials for rehabilitation.
			Structure of vegetation habitat.	Certification by an appropriately qualified person that the structure of vegetation, i.e. groundcover, shrub and canopy structure is trending towards being similar to comparable reference sites.

Domain	Rehabilitation Goals	Rehabilitation Objectives	Indicators	Completion Criteria
		Self-sustaining natural vegetation or habitat.	Native fauna species.	Certification by an appropriately qualified person that native fauna species identified in pre-mining baseline studies and the five years of reference site monitoring prior to the completion of rehabilitation are present or indicators of these species or habitat elements are developing within the rehabilitated areas.
			Plant regeneration.	Certification by an appropriately qualified person that plants in rehabilitated areas show evidence of flowering, seed setting and seed germination.
			Abundance of declared plants (weeds) identified through surveys.	Certification by an appropriately qualified person that the abundance of declared plants (weeds) identified in rehabilitated areas is no greater than comparable reference sites.
			Actions taken to eradicate plants declared under local or State legislation.	Evidence to demonstrate that action has been taken to eradicate declared plants (weeds) under local or State legislation should they occur on the site.
			Abundance of declared animals identified through surveys.	Certification by an appropriately qualified person that the abundance of declared animals identified in rehabilitated areas is no greater than comparable reference sites.
			Management actions taken to control animals declared under local or State legislation.	Evidence to demonstrate that action has been taken to control declared animals under local or State legislation should they occur on the site.
			Weed hygiene procedures.	Records indicating that appropriate weed and seed hygiene procedures were implemented during rehabilitation.
		Restore land to post mine land use (grazing) in accordance with RMP and ongoing management requirements are similar to non-mined land.	Presence of key pasture species. Quality and availability of water sources remain suitable for stock purposes.	Pasture cover returned to densities prescribed in RMP. Land able to sustain stock as pre-mining stocking rates.

Domain	Rehabilitation Goals	Rehabilitation Objectives	Indicators	Completion Criteria
			Livestock stocking rate.	As appropriately qualified person has predicted and defined the economics/benefits and these have been agreed with relevant stakeholders.
			Landform stability when grazed.	An appropriately qualified person has predicted and defined the economics/benefits and these have been agreed with relevant stakeholders.
			Stock access to water sources.	Stock has access to water that meet accepted livestock drinking water guidelines.
Infrastructure Areas MIA, CHPP area (incl. ROM pad and product coal stockpile), construction camp, TLF, rail loop and rail spur, linear infrastructure (e.g. power lines, water pipelines), haul roads, access road and product coal transport road	Safe Non-polluting	Structurally safe with no hazardous materials.	Safety assessment of landform stability (geotechnical studies).	Certification by an appropriately qualified person in the FRR that slopes are now safe and exhibit characteristics for long term stability. A risk assessment has been completed and risk mitigation measures have been implemented. Where risk mitigation measures include bunds, safety fences and warning signs, these have been erected in accordance with relevant guidelines and Australian Standards. For infrastructure that is not retained, landform design meets the following design requirements. Slope angles not to exceed 5°-6°.
		Site is safe for humans and animals now and in the foreseeable future.	Appropriate decommissioning of infrastructure.	Certification by an appropriately qualified person in the FRR that the infrastructure has been decommissioned and rehabilitated. Infrastructure has been removed unless stakeholders have entered into formal written agreements for their retention. Access to the area is conducive of the intended purpose of the post-mining land use including pastoral farming.

Domain	Rehabilitation Goals	Rehabilitation Objectives	Indicators	Completion Criteria
		Runoff from infrastructure areas contained on site until water quality suitable for release.	Downstream surface water quality.	Certification by an appropriately qualified person that surface water quality at monitoring locations is not negatively impacted when trends indicated by results from baseline monitoring and the 5 years previous to mine closure are compared to monitoring results for the rehabilitated landform.
				Receiving water affected by surface water runoff has contaminant limits in accordance with the environmental authority.
			Groundwater quality	Certification by an appropriately qualified person that groundwater quality at monitoring locations is not negatively impacted when trends indicated by results from baseline monitoring and the 5 years previous to mine closure are compared to monitoring results for the rehabilitated landform.
		Hazardous or contaminated material or areas are identified and managed.	Exposure to and availability of heavy metals and other toxic materials.	Certification by an appropriately qualified person that the FRR includes predictions about future changes and that the specified cover thickness is in place.
				Evidence in the FRR that monitoring results for dust and particulate matter indicates compliance with the limits in the environmental authority.
				Any metals or materials that may contaminate the site (e.g. batteries, waste oils etc.) will be removed from site and disposed of at an appropriately licensed waste disposal facility. Wastes that have the potential to cause contamination through seepage will be disposed of in cells within the waste rock dumps that will contain any contaminated seepage. Metal with the potential to react with waste rock and result in contamination of groundwater will not be disposed of in the in-pit waste rock dumps.

Domain	Rehabilitation Goals	Rehabilitation Objectives	Indicators	Completion Criteria
	Stable landform	Removal of potential sources of contamination.	Results of site contaminated land investigation report.	Contaminated areas may undergo on-site remediation, removal to an appropriately licensed waste disposal facility or encapsulation on-site to prevent the release of contaminants. Any contaminated land is remediated. Evidence in the FRR that measures required in site contaminated land investigation report have been implemented. Certification of remediation.
		Landform design achieves erosion rates that do not compromise post-mine land use.	Slope angle and length.	Evidence in the FRR that the rehabilitated slopes have been designed to the following specifications. Slope angles not to exceed 5° – 6°. Erosion is managed in accordance with an Erosion and Sediment Control Plan.
			Engineered structures to control water flow.	Evidence in the FRR that required contour banks, channel linings, surface armour, engineered drop structures and other required measures are in place and functioning. Drainage control through ripping, profiling or the provision of erosion control structures will be undertaken.
			Rates of soil loss.	Certification by an appropriately qualified person that land disturbed by mining activities does not exhibit any signs of continued erosion greater than that exhibited at a comparable reference site. The comparable reference site must have similar chemical and physical characteristics including slope as the rehabilitated landform. Scarified surface to be seeded with an appropriate seed mix and weed species to be controlled.

Domain	Rehabilitation Goals	Rehabilitation Objectives	Indicators	Completion Criteria
		Vegetation cover sufficient for a self-sustaining community and to minimise erosion.	Vegetation type and density.	Evidence that the vegetation type and density are of species suited to the sites characteristics including soil type, topography and climate and that soil erosion meets the goals set in the RMP.
				Vegetation types and densities are comparable with the relevant reference site.
			Foliage cover.	Minimum of 70% groundcover is present (or 50% if rocks, logs or other features are present). No bare surfaces >20 m ² in area or > 10 m in length down slope.
	Self-sustaining	Soil properties support the desired land-use.	Chemical properties, e.g. pH, salinity, nutrient content, sodium content of topsoil to support the proposed vegetation and land use.	Certification in the FRR that the topsoil chemical properties do not limit the suitability of the land for the intended land use and are consistent with the following: - soil salinity content is <0.6 dS/m; - soil pH is between 5.5 and 8.5; - soil exchange sodium percentage (ESP) is <15%; - nutrient accumulation and recycling processes are occurring as evidenced by the presence of a litter layer, mycorrhizae and/or other microsymbionts; and - adequate macro- and micro-nutrients are present.
			Physical properties of topsoil to support the proposed vegetation and land use.	Certification in the FRR that the soil physical properties, e.g. rockiness, depth of soil, wetness and plant available water capacity are adequate for plant growth.
				Certification in the FRR of suitability for beef cattle grazing land use in accordance with Department of Minerals and Energy (DME) 1995 Land Suitability Assessment Techniques in Technical Guidelines for the Environmental Management of Exploration and Mining.

Domain	Rehabilitation Goals	Rehabilitation Objectives	Indicators	Completion Criteria
			Topsoil thickness.	Certification in the FRR that topsoil has been respread according to the depths required in the Soils Management Plan.
			Site soil characteristics.	Certification in the FRR that the site's soil characteristics have acceptable levels of surface roughness, infiltration capacity, aggregate stability and surface condition as defined in the Australian Soil and Land Survey Field Handbook (National Committee on Soil and Terrain 2009).
		Establish self-sustaining natural vegetation or habitat.	Presence of key plant species.	Certification by an appropriately qualified person that key plant species identified in the comparable reference site occur on the rehabilitation site. The presence of key plant species may also be guided by future vegetation trials for rehabilitation.
			Density of key plant species.	Certification by an appropriately qualified person that the density of key plant species in comparable reference sites is similar to the rehabilitation site. The density of key plant species may also be guided by future vegetation trials for rehabilitation.
			Structure of vegetation habitat.	Certification by an appropriately qualified person that the structure of vegetation, i.e. groundcover, shrub and canopy structure is trending towards being similar to comparable reference sites.
		Self-sustaining natural vegetation or habitat.	Native fauna species.	Certification by an appropriately qualified person that native fauna species identified in pre-mining baseline studies and the five years of reference site monitoring prior to the completion of rehabilitation are present or indicators of these species or habitat elements are developing within the rehabilitated areas.

Domain	Rehabilitation Goals	Rehabilitation Objectives	Indicators	Completion Criteria
			Plant regeneration.	Certification by an appropriately qualified person that plants in rehabilitated areas show evidence of flowering, seed setting and seed germination.
			Abundance of declared plants (weeds) identified through surveys.	Certification by an appropriately qualified person that the abundance of declared plants (weeds) identified in rehabilitated areas is no greater than comparable reference sites.
			Actions taken to eradicate plants declared under local or State legislation.	Evidence to demonstrate that action has been taken to eradicate declared plants (weeds) under local or State legislation should they occur on the site.
			Abundance of declared animals identified through surveys.	Certification by an appropriately qualified person that the abundance of declared animals identified in rehabilitated areas is no greater than comparable reference sites.
			Management actions taken to control animals declared under local or State legislation.	Evidence to demonstrate that action has been taken to control declared animals under local or State legislation should they occur on the site.
			Weed hygiene procedures.	Records indicating that appropriate weed and seed hygiene procedure were implemented during rehabilitation.
		Establishment of post mine land use in accordance with RMP (grazing) and ongoing management requirements are similar to non-mined land	Livestock stocking rates.	An appropriately qualified person has predicted and defined the economics/benefits and these have been agreed with relevant stakeholders. Pasture cover returned to densities prescribed in RMP. Land able to sustain stock at pre-mining stocking rates.
			Landform stability when grazed.	Land maintenance requirements are comparable to comparable reference sites.
			Stock access to water sources.	Stock has access to water that meets accepted livestock drinking water guidelines.

Domain	Rehabilitation Goals	Rehabilitation Objectives	Indicators	Completion Criteria
		Infrastructure is dismantled and removed unless approved for use by another party.	No infrastructure remains on site unless requested by the landholder for beneficial use.	CHPP and mining support infrastructure will be decommissioned, dismantled and removed upon completion of the mining operations. The plant concrete bases and footings will be removed and the area ripped, reshaped and topsoil applied before revegetation. Following decommissioning, the TLF, rail loop and rail spur will require deep ripping, profiling, application of topsoil and seeding. Power lines/power poles and water pipelines may be retained, by agreement, for future use by landholders, local government or another project; or where removal of buried infrastructure would create more environmental damage than leaving in-situ. If they are not retained, infrastructure will be removed from site and disturbance corridors will undergo deep ripping, profiling, application of topsoil and seeding. All traffic movements are controlled until roads are decommissioned or roads are transferred to another party.
Mine water management infrastructure (incl. weirs, harvest dam, mine affected water dam)	Safe	Structurally safe with no hazardous materials.	Safety assessment of landform stability (geotechnical studies). Structural, geotechnical and hydraulic adequacy of the infrastructure is considered.	Certification by an appropriately qualified person in the FRR that slopes are now safe and exhibit characteristics for long term stability. A risk assessment has been completed and risk mitigation measures have been implemented. Where risk mitigation measures include bunds, safety fences and warning signs, these have been erected in accordance with relevant guidelines and Australian Standards. Landform design meets the following design requirements. Walls left in place will be graded where necessary such that slope angles do not exceed 10°.

Domain	Rehabilitation Goals	Rehabilitation Objectives	Indicators	Completion Criteria
	Non-polluting	Site is safe for humans and animals now and in the foreseeable future.	Appropriate decommissioning of regulated dams.	Certification by a suitably qualified and experienced person in the FRR that regulated dams and structures have been decommissioned and rehabilitated unless suitable for third party use.
		Mine affected water contained on site until quality suitable for release.	Downstream surface water quality.	Certification by an appropriately qualified person that surface water quality at monitoring locations is not negatively impacted when trends indicated by results from baseline monitoring and the 5 years previous to mine closure are compared to monitoring results for the rehabilitated landform.
			Groundwater quality.	Certification by an appropriately qualified person that groundwater quality at monitoring locations is not negatively impacted when trends indicated by results from baseline monitoring and the 5 years previous to mine closure are compared to monitoring results for the rehabilitated landform.
			Final landform water storage are contained on-site, with no over flows into external surface water systems until water quality suitable for release.	Certification by an appropriately qualified person that surface water quality at monitoring locations is not negatively impacted when trends indicated by results from baseline monitoring and the 5 years previous to mine closure are compared to monitoring results for the rehabilitated landform.
			Mine water management infrastructure design.	Receiving water affected by surface water runoff has contaminant limits in accordance with the environmental authority.
			All non-permanent regulated structures decommissioned appropriately.	Constructed on prepared low permeability base to minimise seepage.
		Hazardous materials adequately managed.	Exposure to and availability of heavy metals and other toxic materials.	Certification by an appropriately qualified person that the FRR includes predictions about future changes and that the specified cover thickness is in place.

Domain	Rehabilitation Goals	Rehabilitation Objectives	Indicators	Completion Criteria
				Evidence in the FRR that monitoring results for dust and particulate matter indicates compliance with the limits in the environmental authority.
		Removal of potential sources of contamination.	Results of site contaminated land investigation report.	Evidence in the FRR that measures required in site contaminated land investigation report have been implemented. If required, the infrastructure area will be placed on the DES's Environmental Management Register
	Stable	Landform design achieves appropriate erosion rates.	Engineered structures to control water flow.	Evidence in the FRR that required contour banks, channel linings, surface armour, engineered drop structures and other required measures are in place and functioning.
			Rate of soil loss.	Certification by an appropriately qualified person that land disturbed by mining activities does not exhibit any signs of continued erosion greater than that exhibited at a comparable reference site. The comparable reference site must have similar chemical and physical characteristics including slope as the rehabilitated landform.
			Dimensions and frequency of occurrence of erosion of rills and gullies.	Evidence in the FRR that the dimensions and frequency of occurrence of erosion rills and gullies are no greater than that in comparable reference site(s).
		Vegetation cover sufficient for a self-sustaining community and to minimise erosion.	Vegetation type and density.	Evidence that the vegetation type and density are of species suited to the sites characteristics including soil type, topography and climate and that soil erosion meets the goals set in the RMP. Rehabilitated water management infrastructure will be vegetated with an appropriate seed mix.
				Vegetation types and densities are comparable with the relevant reference site.

Domain	Rehabilitation Goals	Rehabilitation Objectives	Indicators	Completion Criteria
	Self-sustaining	Soil properties support the desired land use.	Foliage cover.	Minimum of 70% groundcover is present (or 50% if rocks, logs or other features are present). No bare surfaces >20 m ² in area or > 10 m in length down slope.
			Chemical properties, e.g. pH, salinity, nutrient content, sodium content of topsoil to support the proposed vegetation and land-use.	Certification in the FRR that the topsoil chemical properties do not limit the suitability of the land for the intended land use and are consistent with the following: - soil salinity content is <0.6 dS/m; - soil pH is between 5.5 and 8.5; - soil exchange sodium percentage (ESP) is <15%; - nutrient accumulation and recycling processes are occurring as evidenced by the presence of a litter layer, mycorrhizae and/or other microsymbionts; and - adequate macro- and micro-nutrients are present.
			Physical properties of topsoil to support the proposed vegetation and land use.	Certification in the FRR that the soil physical properties, e.g. rockiness, depth of soil, wetness and plant available water capacity are adequate for plant growth.
				Certification in the FRR of suitability for beef cattle grazing land use in accordance with Department of Minerals and Energy (DME) 1995 Land Suitability Assessment Techniques in Technical Guidelines for the Environmental Management of Exploration and Mining.
			Topsoil thickness.	Certification in the FRR that topsoil has been respread according to the depths required in the Soils Management Plan.
			Site soil characteristics.	Certification in the FRR that the site's soil characteristics have acceptable levels of surface roughness, infiltration capacity, aggregate stability and surface condition as defined in the Australian Soil and Land Survey Field Handbook (National Committee on Soil and Terrain 2009).

Domain	Rehabilitation Goals	Rehabilitation Objectives	Indicators	Completion Criteria
		Establish self-sustaining natural vegetation or habitat.	Presence of key plant species.	Certification by an appropriately qualified person that key plant species identified in the comparable reference site occur on the rehabilitation site. The presence of key plant species may also be guided by future vegetation trials for rehabilitation.
			Density of key plant species.	Certification by an appropriately qualified person that the density of key plant species in comparable reference sites is similar to the rehabilitation site. The density of key plant species may also be guided by future vegetation trials for rehabilitation.
			Structure of vegetation habitat.	Certification by an appropriately qualified person that the structure of vegetation, i.e. groundcover, shrub and canopy structure is trending towards being similar to comparable reference sites.
		Self-sustaining natural vegetation of habitat.	Plant regeneration.	Certification by an appropriately qualified person that plants in rehabilitated areas show evidence of flowering, seed setting and seed germination.
			Native fauna species.	Certification by an appropriately qualified person that native fauna species identified in pre-mining baseline studies and the five years of reference site monitoring prior to the completion of rehabilitation are present or indicators of these species or habitat elements are developing within the rehabilitated areas.
			Abundance of declared plants (weeds) identified through surveys.	Certification by an appropriately qualified person that the abundance of declared plants (weeds) identified in rehabilitated areas is no greater than comparable reference sites.
			Actions taken to eradicate plants declared under local or State legislation.	Evidence to demonstrate that action has been taken to eradicate declared plants (weeds) under local or State legislation should they occur on the site.

Domain	Rehabilitation Goals	Rehabilitation Objectives	Indicators	Completion Criteria
			Abundance of declared animals identified through surveys.	Certification by an appropriately qualified person that the abundance of declared animals identified in rehabilitated areas is not greater than comparable reference sites.
			Management actions taken to control animals declared under local or State legislation.	Evidence to demonstrate that action has been taken to control declared animals under local or State legislation should they occur on the site.
			Week hygiene procedures.	Records indicating that appropriate weed and seed hygiene procedures were implemented during rehabilitation.
		Establishment of post-mine land use in accordance with RMP and no ongoing specific management requirements.	Landform stability when grazed.	Land maintenance requirements are comparable to comparable reference sites. Pasture cover returned to densities prescribed in RMP.
			Stock access to water sources.	Stock has access to water that meet accepted livestock drinking water guidelines.
Co-disposal Dam	Safe	Structurally safe with no hazardous materials.	Safety assessment of landform stability (geotechnical studies). Structural, geotechnical and hydraulic adequacy of the dam is considered. Progressively rehabilitated as each stage of the co-disposal dam reaches its designed capacity.	Certification by an appropriately qualified person in the FRR that slopes are now safe and exhibit characteristics for long term stability.
				A risk assessment has been completed and risk mitigation measures have been implemented. Where risk mitigation measures include bunds, safety fences and warning signs, these have been erected in accordance with relevant guidelines and Australian Standards.
				Landform design meets the following design requirements. External slope angles less than 10°. Surface slope angles less than 3°.

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Domain	Rehabilitation Goals	Rehabilitation Objectives	Indicators	Completion Criteria
	Non-polluting	Site is safe for humans and animals now and in the foreseeable future.	Appropriate decommissioning of infrastructure.	Certification by an appropriately qualified person in the site FRR that the co-disposal dam has been decommissioned and rehabilitated. Access to the area is conducive of the intended purpose of the post-mining land use including pastoral farming.
		Mine affected water contained on site.	Downstream surface water quality.	Certification by an appropriately qualified person that surface water quality at monitoring locations is not negatively impacted when trends indicated by results from baseline monitoring and the 5 years previous to mine closure are compared to monitoring results for the rehabilitated landform.
				Receiving water affected by surface water runoff has contaminant limits in accordance with the environmental authority.
			Design of co-disposal dam.	Constructed on prepared low permeability base to minimise seepage.
			Groundwater quality.	Certification by an appropriately qualified person that groundwater quality at monitoring locations is not negatively impacted when trends indicated by results from baseline monitoring and the 5 years previous to mine closure are compared to monitoring results for the rehabilitated landform.
		Hazardous materials adequately managed.	All non-permanent regulated structures decommissioned appropriately.	Regulated structures are decommissioned in accordance with the administering authority requirements. The catchment of the rehabilitated co-disposal dam will be limited to the area within the embankments with clean water flows diverted around dam. Base and cover system in place and functioning.
			Exposure to and availability of heavy metals and other toxic materials.	Certification by an appropriately qualified person that the FRR includes predictions about future changes and that the specified cover thickness is in place.

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Domain	Rehabilitation Goals	Rehabilitation Objectives	Indicators	Completion Criteria
				Evidence in the FRR that monitoring results for dust and particulate matter indicates compliance with the limits in the environmental authority.
				Evidence that surface water quality for the 5 years post mine closure has complied with the surface water contaminant limits in the environmental authority.
		Removal of potential sources of contamination.	Results of site contaminated land investigation report.	Evidence in the FRR that measures required in site contaminated land investigation report have been implemented. If required, the co-disposal dam will be placed on the DES's Environmental Management Register.
		Acid mine drainage will not cause serious environmental harm.	Technical design of co-disposal dam cells. Leachate testing from the co-disposal dam indicates no acid mine drainage issues.	Certification by suitably qualified person in the FRR that the Acid Mine Drainage Assessment Report either indicates leachate from the co-disposal dam will not result in acid mine drainage or proposes suitable management measures.
	Stable	Landform design achieves appropriate erosion rates.	Slope angle and length.	Evidence in the FRR that the rehabilitated slopes have been designed to the following specifications. External slope angles less than 10°. Surface slope angles less than 3°. Surface cap in place and functioning.
			Design of co-disposal dam	Cells within the co-disposal dam will be covered with an appropriate cover system, such as a store-and-release cover, and rehabilitated/ revegetated. The design of the cover system will be documented in the RMP.
			Engineered structures to control water flow.	Evidence in the FRR that required contour banks, channel linings, surface armour, engineered drop structures and other required measures are in place and functioning.

Domain	Rehabilitation Goals	Rehabilitation Objectives	Indicators	Completion Criteria
			Rate of soil loss.	Certification by an appropriately qualified person that land disturbed by mining activities does not exhibit any signs of continued erosion greater than that exhibited at a comparable reference site. The comparable reference site must have similar chemical and physical characteristics including slope as the rehabilitated landform.
			Dimensions and frequency of occurrence of erosion of rills and gullies.	Evidence in the FRR that the dimensions and frequency of occurrence of erosion rills and gullies are no greater than that in comparable reference site(s).
		Vegetation cover sufficient for a self-sustaining community and to minimise erosion.	Vegetation type and density.	Evidence that the vegetation type and density are of species suited to the sites characteristics including soil type, topography and climate and that soil erosion meets the goals set in the RMP.
				Rehabilitated co-disposal dam will be vegetated with an appropriate seed mix. Vegetation types and densities are comparable with the relevant reference site.
			Foliage cover.	Minimum of 70% groundcover is present (or 50% if rocks, logs or other features are present). No bare surfaces >20 m ² in area or > 10 m in length down slope.

Domain	Rehabilitation Goals	Rehabilitation Objectives	Indicators	Completion Criteria
	Self-sustaining	Soil properties support the desired land-use.	Chemical properties, e.g. pH, salinity, nutrient content, sodium content of topsoil to support the proposed vegetation and land-use.	Certification in the FRR that the topsoil chemical properties do not limit the suitability of the land for the intended land use and are consistent with the following: - soil salinity content is <0.6 dS/m; - soil pH is between 5.5 and 8.5; - soil exchange sodium percentage (ESP) is <15%; - nutrient accumulation and recycling processes are occurring as evidenced by the presence of a litter layer, mycorrhizae and/or other microsymbionts; and - adequate macro- and micro-nutrients are present.
			Physical properties of topsoil to support the proposed vegetation and land-use.	Certification in the FRR that the soil physical properties, e.g. rockiness, depth of soil, wetness and plant available water capacity are adequate for plant growth.
				Certification in the FRR of suitability for beef cattle grazing land use in accordance with Department of Minerals and Energy (DME) 1995 Land Suitability Assessment Techniques in Technical Guidelines for the Environmental Management of Exploration and Mining.
			Topsoil thickness.	Certification in the FRR that topsoil has been respread according to the depths required in the Soils Management Plan.
			Site soil characteristics.	Certification in the FRR that the site's soil characteristics have acceptable levels of surface roughness, infiltration capacity, aggregate stability and surface condition as defined in the Australian Soil and Land Survey Field Handbook (National Committee on Soil and Terrain 2009).

Domain	Rehabilitation Goals	Rehabilitation Objectives	Indicators	Completion Criteria
		Establish self-sustaining natural vegetation or habitat (remnant vegetation areas).	Presence of key plant species.	Certification by an appropriately qualified person that key plant species identified in the comparable reference site occur on the rehabilitation site. The presence of key plant species may also be guided by future vegetation trials for rehabilitation.
			Density of key plant species.	Certification by an appropriately qualified person that the density of key plant species in comparable reference sites is similar to the rehabilitation site. The density of key plant species may also be guided by future vegetation trials for rehabilitation.
			Structure of vegetation habitat.	Certification by an appropriately qualified person that the structure of vegetation, i.e. groundcover, shrub and canopy structure is trending towards being similar to comparable reference sites.
		Self-sustaining natural vegetation or habitat.	Plant regeneration.	Certification by an appropriately qualified person that plants in rehabilitated areas show evidence of flowering, seed setting and seed germination.
			Abundance of declared plants (weeds) identified through surveys.	Certification by an appropriately qualified person that the abundance of declared plants (weeds) identified in rehabilitated areas is no greater than comparable reference sites.
			Actions taken to eradicate plants declared under local or State legislation.	Evidence to demonstrate that action has been taken to eradicate declared plants (weeds) under local or State legislation should they occur on the site.
			Abundance of declared animals identified through surveys.	Certification by an appropriately qualified person that the abundance of declared animals identified in rehabilitated areas is no greater than comparable reference sites.

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Domain	Rehabilitation Goals	Rehabilitation Objectives	Indicators	Completion Criteria
			Managemnt actions taken to control animals declared under local or State legislation.	Evidence to demonstrate that action has been taken to control declared animals under local or State legislation should they occur on the site.
			Weed hygiene procedures.	Records indicating that appropriate weed and seed hygiene procedures were implemented during rehabilitation.
		Establishment of post-mine land use in accordance with RMP and no ongoing specific management requirements.	Livestock stocking rates.	An appropriately qualified person has predicted and defined the economics/benefits and these have been agreed with relevant stakeholders. Pasture cover returned to densities prescribed in RMP.
			Landform stability when grazed.	Land maintenance requirements are comparable to comparable reference sites.
			Stock access to water sources.	Stock has access to water that meet accepted livestock drinking water guidelines.
Drainage Diversion	Safe	Structurally safe with no hazardous materials.	Safety assessment of landform stability (geotechnical studies).	Certification by an appropriately qualified person in the FRR that slopes are now safe and exhibit characteristics for long term stability.
				A risk assessment has been completed and risk mitigation measures have been implemented. Where risk mitigation measures include bunds, safety fences and warning signs, these have been erected in accordance with relevant guidelines and Australian Standards
				Landform design meets the following design requirements. Down-stream angles not to exceed 6°.
	Non-polluting	Water quality in the diversion similar to receiving environment.	Downstream surface water quality.	Certification by an appropriately qualified person that surface water quality at monitoring locations is not negatively impacted when trends indicated by results from baseline monitoring and the 5 years previous to mine closure are compared to monitoring results for the rehabilitated landform.

Domain	Rehabilitation Goals	Rehabilitation Objectives	Indicators	Completion Criteria
			The permanent diversion will meet approved design criteria.	Certification by an appropriately qualified person the diversion has been constructed and is operating in accordance with approved design criteria.
			All permanent regulated structures (e.g. bunds or levees) will meet approved design criteria.	The regulated structures are certified by an appropriately qualified person.
	Stable	Landform design achieves appropriate erosion rates.	Engineered structures to control water flow.	Evidence in the FRR that required contour banks, channel linings, surface armour, engineered drop structures and other required measures are in place and functioning.
			Increased sedimentation is prevented and natural stream flows exist.	Erosion is managed in accordance with an Erosion and Sediment Control Plan. Creek diversions will be left in a stable and sustainable condition in line with the RMP. The diversion and adjoining reaches establish a state of dynamic equilibrium (equal rates of sediment erosion and deposition).
		Vegetation cover sufficient for a self-sustaining community and to minimise erosion.	Vegetation type and density.	Evidence that the vegetation type and density are of species suited to the sites characteristics including soil type, topography and climate and that soil erosion meets the goals set in the RMP.
				Vegetation types and densities are comparable with the relevant reference site (i.e. natural drainage lines in the area)
			Foliage cover.	Foliage cover similar to reference site (i.e. natural drainage lines in the area)
		The diversion mirrors natural stream functions.	Design and stability of drainage diversions.	Documentation in the FRR how the drainage diversions is stable at closure and is likely to remain that way into the foreseeable future.

Domain	Rehabilitation Goals	Rehabilitation Objectives	Indicators	Completion Criteria
				To be designed and constructed in accordance with the Queensland Government Natural Resources and Mines, Central West Water Management and Use Regional Guideline: Watercourse Diversions-Central Queensland Mining Industry (2008) and with consideration of contemporary research, i.e. the ACARP report Maintenance of Geomorphic Processes in Bowen Basin River diversions (Project number C8030-C9068).
				Avoid the use of artificial grade control structures that are likely to require maintenance beyond life of mine. Designed though best-practice measures to provide stable landform.
	Self-sustaining	Soil properties support establishment of riparian vegetation and vegetation used to stabilize the diversion banks.	Physical properties of soil to support the proposed vegetation.	Certification in the FRR that the soil physical properties, e.g. rockiness, depth of soil, wetness and plant available water capacity are adequate for plant growth.
			Chemical properties, e.g. pH, salinity, nutrient content, sodium content of topsoil to support the proposed vegetation.	Certification in the FRR that the soil chemical properties do not limit the suitability of the land for the intended use as a permanent diversion and are consistent with the following: - soil salinity content is <0.6 dS/m; - soil pH is between 5.5 and 8.5; - soil exchange sodium percentage (ESP) is <15%; - nutrient accumulation and recycling processes are occurring as evidenced by the presence of a litter layer, mycorrhizae and/or other microsymbionts; and - adequate macro- and micro-nutrients are present.
			Soil thickness.	Certification in the FRR that soil proposed for use in the diversion has been respread according to the depths required in the Soils Management Plan.

Domain	Rehabilitation Goals	Rehabilitation Objectives	Indicators	Completion Criteria
			Diversion soil characteristics.	Certification in the FRR that the diversion's soil characteristics have acceptable properties (as relevant to a diversion) as defined in the Australian Soil and Land Survey Field Handbook (National Committee on Soil and Terrain 2009).
		Establish self-sustaining natural vegetation or habitat that promotes nutrient processing, ecological connectivity and natural sediment storage or transport.	Presence of key plant species.	Certification by an appropriately qualified person that key plant species identified in the comparable reference site (i.e. a natural drainage in the area) occur in the diversion. The presence of key plant species may also be guided by future vegetation trials for rehabilitation.
			Density of key plant species.	Certification by an appropriately qualified person that the density of key plant species in comparable reference sites (i.e. a natural drainage in the area) is similar to the diversion. The density of key plant species may also be guided by future vegetation trials for rehabilitation.
			Structure of vegetation habitat.	Certification by an appropriately qualified person that the structure of vegetation, i.e. groundcover, shrub and canopy structure is trending towards being similar to comparable reference sites (i.e. a natural drainage in the area).
		Self-sustaining natural vegetation or habitat.	Plant regeneration.	Certification by an appropriately qualified person that plants in diversion show evidence of flowering, seed setting and seed germination. Be established with long-term riparian vegetation and aquatic habitat by mine closure.
			Native fauna species.	Certification by an appropriately qualified person that native fauna species identified in pre-mining baseline studies and the five years of reference site (i.e. a natural drainage in the area) monitoring are present or indicators of these species or habitat elements are developing within the diversion.

Domain	Rehabilitation Goals	Rehabilitation Objectives	Indicators	Completion Criteria
			Abundance of declared plants (weeds) identified through surveys.	Certification by an appropriately qualified person that the abundance of declared plants (weeds) identified in diversion is no greater than comparable reference sites.
			Actions taken to eradicate plants declared under local or State legislation.	Evidence to demonstrate that action has been taken to eradicate declared plants (weeds) under local or State legislation should they occur on the site.
			Abundance of declared animals identified through surveys.	Certification by an appropriately qualified person that the abundance of declared animals identified in diversion is no greater than comparable reference sites.
			Management actions taken to control animals declared under local or State legislation.	Evidence to demonstrate that action has been taken to control declared animals under local or State legislation should they occur on the site.
			Weed hygiene procedures.	Records indicating that appropriate weed and seed hygiene procedures were implemented during the establishment of the diversion.
		Agricultural grazing.	Landform stability when grazed.	Land maintenance requirements are comparable to reference sites (i.e. a natural drainage in the area).
			Stock access to water sources.	Stock has access to water in the diversion following closure of mining that meets accepted livestock drinking water guidelines.
Final void	Safe	Structurally safe.	Safety assessment of landform stability (geotechnical studies).	Certification by an appropriately qualified person in the FRR that slopes are now safe and exhibit characteristics for long term stability.
				A risk assessment has been completed and risk mitigation measures have been implemented. Where risk mitigation measures include bunds, safety fences and warning signs, these have been erected in accordance with relevant guidelines and Australian Standards.

Domain	Rehabilitation Goals	Rehabilitation Objectives	Indicators	Completion Criteria
				Landform design meets the following design requirements. High wall slopes are stable and angled at a maximum slope angle of 45° (to be determined from geotechnical investigations). Low wall slopes are stable with slope angles not exceeding 45°. Tip faces are stable with slope angles not exceeding 37°.
			Diversion and/or bund stability.	Evidence in the FRR that any diversion or bund preventing surface water entering the final void is stable at closure and exhibits characteristics for long term stability.
		Site is safe for humans and animals now and in the foreseeable future. Humans, fauna and stock will be excluded from the final voids.	Safety assessment of landform stability (geotechnical studies).	An appropriately qualified person certifies the long-term geotechnical stability of the residual slopes and faces in the void and evidence of this is documented in the FRR.
			Adequacy and predicted long term performance of safety barriers.	Evidence in the FRR that a safety risk assessment of the final void and slopes has been completed and proposed mitigation measures are documented in a Safety Plan.
			Installation of safety barriers and human/wildlife exclusion fencing of final void.	If required, mitigation measures documented in a Safety Plan, e.g. fencing or other suitable barrier around the final void and slopes are installed to restrict access. Warning signs erected and trees planted to prevent access and landholder and community awareness.
	Non-polluting	Mine affected water falling within the final void catchment is contained in the final void.	Permanent structures to control and direct runoff.	The void will be isolated from surface water and groundwater systems by minimising the catchment extent, diverting potential surface inflows and creating a permanent groundwater sink.
			Groundwater quality.	Certification by an appropriately qualified person that groundwater quality at monitoring locations is not negatively impacted when trends indicated by results from baseline monitoring and the 5 years previous to mine closure are compared to monitoring results for the final landform.

Domain	Rehabilitation Goals	Rehabilitation Objectives	Indicators	Completion Criteria
			Final void water storage is contained in the void, with no over flows into external surface water systems.	Update final void model using data collected over mine life and ensure no modelled releases. Certification by appropriately qualified person that final void water level modelling demonstrates no risk of release to external surface water systems. There are no modelled scenarios where the void releases water to the surface environment.
			Final void protected from flooding.	Certification by a suitably qualified and experienced person in the FRR that the final void has an adequate protection system to prevent inundation from a 1:100 year annual exceedance probability flood event.
	Stable	Landform design achieves void wall stability.	Geotechnical studies.	Evidence in the FRR that a risk assessment has been done and mitigation measures (if any) have been documented and implemented.
			Slope angle and length.	Evidence in the FRR that the rehabilitated slopes have been designed to the following specifications. High wall slopes are stable and angled at a maximum slope angle of 45° (to be determined from geotechnical investigations). Low wall slopes are stable with slope angles not exceeding 45°. Tip faces are stable with slope angles not exceeding 37°.
			Engineered structures to control water flow.	Evidence in the FRR that required structures to control or prevent flow of water into the final void and other required measures are in place and functioning.
				Drainage will be generally directed away from the highwall to limit slope deterioration.
	Self-sustaining	Future potential use of the void is maximised (where practicable)	Identify potential opportunities for use, in any.	Stakeholders consulted on potential opportunities for use.
		Void is isolated from surface water flows.	Modelled void water level.	The void will be configured for overflow immunity using a permanent self-sustaining bund around the final void.

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