

Environmental authority EPML00744813 – Foxleigh Mine

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

Permit¹ number: EPML00744813

Takes Effect From: 17 February 2017

Anniversary date: 21 September

Environmental authority holder(s)

Name	Registered address
CAML Resources Pty Ltd	Level 12 300 Queen Street BRISBANE CITY QLD 4000
Nippon Steel & Sumitomo Metal Australia Pty Ltd	
Foxleigh Coal Pty Ltd	

Environmentally relevant activity and location details

Environmentally relevant activity(ies)	Location(s)
Environmental Protection Regulation 2008, Schedule 2A: ERA13 Mining black coal	
Environmental Protection Regulation 2008, Schedule 2: ERA 31 Mineral processing, Threshold 2 – Processing, in a year, the following quantities of mineral products, other than coke – (b) more than 100,000t. ERA 8 Chemical storage, Threshold 3 – Storing more than 500m ³ total quantity of chemicals of Class 1 or C2 combustible liquids under AS 1940 or dangerous goods class 3 under subsection 1(c). ERA 15 Fuel burning – Using fuel burning equipment that is capable of burning at least 500kg of fuel in an hour. ERA 16 Extractive and screening activities, Threshold 3 – Screening, in a year, the following quantity of material – (c) more than 1,000,000t. ERA 33 Crushing, milling grinding or screening – Crushing, grinding, milling or screening more than 5,000t of material in a year.	ML70171 ML70309 ML70310 ML70429 ML70430 ML70431 ML70470

¹ Permit includes licences, approvals, permits, authorisations, certificates, sanctions or equivalent/similar as required by legislation

ERA 56 Regulated waste storage – Receiving and storing regulated waste.	
ERA 60 Waste disposal, Threshold 1 – Operating a facility for disposing of, in a year, the following quantity of waste mentioned in subsection (1)(a) – (a) less than 50,000t.	

Additional information for applicants*Environmentally relevant activities*

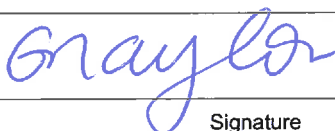
The description of any environmentally relevant activity (ERA) for which an environmental authority is issued is a restatement of the ERA as defined by legislation at the time the approval is issued. Where there is any inconsistency between that description of an ERA and the conditions stated by an environmental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

An environmental authority authorises the carrying out of an ERA and does not authorise any environmental harm unless a condition stated by the authority 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 if an owner or occupier of land becomes aware a notifiable activity (as defined in Schedule 3 and Schedule 4) is being carried out on the land, or that the land has been, or is being, contaminated by a hazardous contaminant, the owner or occupier must, within twenty-two (22) business days after becoming so aware, give written notice to the chief executive.



Signature



Date

Gillian Naylor
Department of Environment and Heritage Protection
Delegate of the administering authority
Environmental Protection Act 1994

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Protection
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Obligations under the *Environmental Protection Act 1994*

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

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

Conditions of environmental authority

Schedule A - General	
Condition number	Condition
A1	This environmental authority authorises environmental harm referred to in the conditions. Where there is no condition or this environmental authority is silent on a matter, the lack of a condition or silence does not authorise environmental harm.
A2	In carrying out the mining activity authorised by this environmental authority, the holder of this environmental authority must comply with <i>Appendix 1 - Figure 1: Approved Foxleigh Mine Activities</i> attached to this environmental authority.
Maintenance of measures, plant and equipment	
A3	The holder of this environmental authority must: - install all measures, plant and equipment necessary to ensure compliance with the conditions of this environmental authority; - maintain such measures, plant and equipment in a proper and efficient condition; - operate such measures, plant and equipment in a proper and efficient manner; and - ensure all instruments and devices used for the measurement or monitoring of any parameter under any condition of this environmental authority are properly calibrated.
Monitoring	
A4	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 10 business days or an alternative timeframe agreed between the administering authority and the holder.
A5	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.

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A6	Except where specified otherwise in another condition of this authority, all monitoring records or reports required by this environmental authority must be kept for a period of not less than 5 years.
Financial assurance	
A7	The activity must not be carried out until the environmental authority holder has given financial assurance in accordance with the most recent edition of the administering authority's: <i>Guideline—Calculating financial assurance for mining projects</i> , to the administering authority as security for compliance with this environmental authority and any costs or expenses, or likely costs or expenses, mentioned in <i>section 298</i> of the <i>EP Act</i> .
A8	The amount of financial assurance must be reviewed by the holder of this environmental authority when a plan of operations is amended or replaced or the authority is amended.
Risk management	
A9	The holder of this environmental authority must develop and implement a risk management system for mining activities which mirrors the content requirement of the <i>Standard for Risk Management (ISO31000:2009)</i> , or the latest edition of an Australian standard for risk management, to the extent relevant to environmental management, by three (3) months from the issue of this EA.
Notification of emergencies, incidents and exceptions	
A10	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 results in the release of contaminants not in accordance, or reasonably expected to be not in accordance with the conditions of this environmental authority.
A11	Within ten (10) business days following the initial notification of an emergency or incident, or receipt of monitoring results, whichever is the latter, further written advice must be provided to the administering authority, including the following: a) results and interpretation of any samples taken and analysed; b) outcomes of actions taken at the time to prevent or minimise unlawful environmental harm; and c) proposed actions to prevent a recurrence of the emergency or incident.
Chemicals and flammable or combustible liquids	
A12	All explosives, hazardous chemicals, corrosive substances, toxic substances, gases and dangerous goods must be stored and handled in accordance with the current Australian standard where such is applicable.
A13	Minimise the potential for contamination of land and waters by diverting stormwater around contaminated areas and facilities used for the storage of chemicals and flammable or combustible liquids.

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Complaint Response	
A14	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) conclusions formed; f) actions taken to resolve the complaint; g) any abatement measures implemented; and, h) any person responsible for resolving the complaint.
A15	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 an analysis and interpretation of the monitoring results) and abatement measures, where implemented, must be provided to the administering authority within ten (10) business days of completion of the investigation, or no later than ten (10) business days after the end of the timeframe nominated by the administering authority to undertake the investigation.
Third-party reporting	
A16	The holder of this environmental authority must: a) within one (1) year of the commencement of this authority, obtain from a suitably qualified and experienced third party a report on compliance with the conditions of this environmental authority; b) obtain further such reports at regular intervals not exceeding three (3) years 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.
A17	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, or where the amendment or change relates specifically to regulated structures referred to in condition J37, the time specified in that condition; and b) until compliance with the amended or changed standard, policy or guideline is achieved, continue to remain in compliance with the corresponding provision that was current immediately prior to the relevant amendment or change.



Schedule B - Air	
Dust nuisance	
B1	The proponent 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 measured 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 recent version of <i>Australian Standard AS3580.10.1 Methods for sampling and analysis of ambient air—Determination of particulate matter—Deposited matter – Gravimetric method</i>; b) a concentration of particulate matter with an aerodynamic diameter of less than 10 micrometres (PM₁₀) suspended in the atmosphere of 50 micrograms per cubic metre over a 24-hour averaging time, for no more than five (5) exceedances recorded each year, when monitored in accordance with the most recent version of either: i) <i>Australian Standard AS3580.9.6 Methods for sampling and analysis of ambient air—Determination of suspended particulate matter—PM10 high volume sampler with size-selective inlet – Gravimetric method</i>, or ii) <i>Australian Standard AS3580.9.9 Methods for sampling and analysis of ambient air—Determination of suspended particulate matter—PM10 low volume sampler—Gravimetric method</i>; c) a concentration of particulate matter suspended in the atmosphere of 90 micrograms per cubic metre over a 1 year averaging time, when monitored in accordance with the most recent version of <i>AS/NZS3580.9.3:2003 Methods for sampling and analysis of ambient air—Determination of suspended particulate matter—Total suspended particulate matter (TSP)—High volume sampler gravimetric method</i>.
Meteorological monitoring	
B2	The environmental authority holder must establish and maintain a permanent automatic meteorological station to continuously measure and record wind speed, wind direction, temperature, relative humidity and rainfall intensity. <i>Note: It is possible for environmental authority holders to utilise relevant and available weather monitoring information collected by other parties as reference data for the purposes of this condition.</i>
Odour nuisance	
B3	The release of noxious or offensive odour(s) or any other noxious or offensive airborne contaminant(s) resulting from the mining activity must not cause an environmental nuisance at any nuisance sensitive or commercial place.
B4	When requested by the administering authority, odour monitoring must be undertaken within a reasonable and practicable timeframe nominated by the administering authority to investigate any complaints (which is neither frivolous nor vexatious nor based on mistaken belief in the opinion of the authorised officer) of environmental nuisance at any sensitive or commercial place, and the results must be notified within fourteen (14) days to the administering authority following completion of monitoring.
B5	If the administering authority determines the odour released to constitute an environmental nuisance, then the environmental authority holder must: a) address the complaint including the use of appropriate dispute resolution if required; and b) immediately implement odour abatement measures so that emissions of odour from the activity do not result in further environmental nuisance.

Schedule C - Waste management	
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 the extraction activities provided the activities does not cause environmental harm at any environmentally sensitive place and adheres to the following conditions: a) be in accordance with a Permit to Burn issued under the <i>Fire and Rescue Service Act 1990</i>; b) ensure retained trees are not damaged by the burn; c) ensure any infrastructure is not damaged or affected by the burn; d) be twenty (20) metres from any watercourse; e) any nearby neighbors must be notified; and, f) fire authorities must be notified.
Tailings disposal	
C3	Tailings must be managed in accordance with procedures contained within the plan of operations. These procedures must include provisions for: a) containment of tailings; b) the management of seepage and leachates both during operation 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.
Acid sulphate soils	
C4	Treat and manage acid sulphate soils in accordance with the latest edition of the <i>Queensland Acid Sulfate Soil Technical Manual</i> .

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Waste rock	
C5	A waste rock and spoil disposal plan should be developed and include, where relevant, 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 and 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) rehabilitation strategy.
Schedule D - Noise and vibration	
Noise nuisance	
D1	Subject to condition D2 noise from the mining activity must not cause an environmental nuisance at any sensitive or commercial place.
D2	When requested by the administering authority, noise monitoring must be undertaken within a reasonable and practicable timeframe nominated by the administering authority to investigate any complaint (which is neither frivolous nor vexatious nor based on mistaken belief in the opinion of the authorised officer) of environmental nuisance at any sensitive or commercial place, and the results must be notified within ten (10) business days to the administering authority following completion of monitoring.
D3	The method of measurement and reporting of noise levels must comply with the latest edition of the administering authority's <i>Noise Measurement Manual</i> .
Vibration nuisance	
D4	Subject to condition D5 vibration from the mining activity must not cause an environmental nuisance at any sensitive or commercial place.
D5	When requested by the administering authority, vibration monitoring must be undertaken within a reasonable and practicable timeframe nominated by the administering authority to investigate any complaint (which is neither frivolous nor vexatious nor based on mistaken belief in the opinion of the authorised officer) of environmental nuisance at any sensitive or commercial place, and the results must be notified within ten (10) business days to the administering authority following completion of monitoring.
Airblast overpressure nuisance	
D6	The airblast overpressure level from blasting operations must not exceed the limits defined in <i>Table 1: Airblast overpressure level</i> at any sensitive or commercial place.

Table 1: Airblast overpressure level

Location		Airblast overpressure measured
Sensitive or commercial place		Air blast overpressure level of 115 db (Linear peak) for nine (9) out of ten (10) consecutive blasts initiated and not greater than 120 db (Linear peak) at any time.

D7	When requested by the administering authority, airblast overpressure monitoring must be undertaken within a reasonable and practicable timeframe nominated by the administering authority to investigate any complaint (which is neither frivolous nor vexatious nor based on mistaken belief in the opinion of the authorised officer) of environmental nuisance at any sensitive or commercial place, and the results must be notified within ten (10) business days to the administering authority following completion of monitoring.
D8	Airblast overpressure monitoring must include the following descriptors, characteristics and conditions: a) location of the blast(s) within the mining area; b) atmospheric conditions including temperature, relative humidity and wind speed and direction; and c) location, date and time of recording.
D9	If monitoring indicates exceedence of the relevant limits in <i>Table 1: Airblast overpressure level</i>, then the environmental authority holder must: a) address the complaint including the use of appropriate dispute resolution if required; and b) immediately implement airblast overpressure abatement measures so that airblast overpressure from the activity does not result in further environmental nuisance.
D10	The method of measurement and reporting of airblast overpressure levels must comply with the current edition of the administering authority's <i>Noise Measurement Manual</i> .
Schedule E - Groundwater	
E1	The holder of this environmental authority must not release contaminants to groundwater.
E2	All determinations of groundwater quality and biological monitoring must be performed by an appropriately qualified person.
E3	The holder of the environmental authority must develop and implement a groundwater monitoring program to monitor groundwater quality and levels by 31 August 2016 . Groundwater monitoring locations and frequencies as per <i>Table 2: Groundwater monitoring locations and frequency</i> , quality triggers and limits as per <i>Table 3: Groundwater quality triggers and limits</i> and level trigger thresholds as per <i>Table 4: Groundwater Level Monitoring</i> must be finalised based on background groundwater monitoring program defined in condition E4 and be submitted to the administering authority by 31 August 2016 .

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Table 2: Groundwater monitoring locations and frequency

Monitoring point	Easting (GDA 94)	Northing (GDA 94)	Surface RL (m) ¹	Monitoring frequency
GMP1	678180	7465000	To be supplied to the administering authority in accordance with condition E3.	Levels collected from Rewan and underlying coal measure formations and analysed monthly for the initial twelve (12) months of baseline data collection and following that, quarterly.
GMP2	678370	7470200	To be supplied to the administering authority in accordance with condition E3.	Levels collected from Rewan and underlying coal measure formations and analysed monthly for the initial twelve (12) months of baseline data collection and following that, quarterly.
GMP3	681400	7470100	To be supplied to the administering authority in accordance with condition E3.	Levels collected from underlying coal measure formations and analysed monthly for the initial twelve (12) months of baseline data collection and following that, quarterly.
GMP4	681400	7470100	To be supplied to the administering authority in accordance with condition E3.	Samples collected from alluvium and analysed monthly for the initial twelve (12) months of baseline data collection and following that, quarterly. Standing water levels to be measured monthly.

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Table 3: Groundwater quality triggers and limits

Water quality indicator	Unit	Contaminant triggers	Contaminant limit
Aluminium	µg/L	To be supplied to the administering authority as required by condition E3	To be supplied to the administering authority as required by condition E3.
Antimony	µg/L	To be supplied to the administering authority as required by condition E3	To be supplied to the administering authority as required by condition E3.
Arsenic	µg/L	To be supplied to the administering authority as required by condition E3	To be supplied to the administering authority as required by condition E3.
Calcium	µg/L	To be supplied to the administering authority as required by condition E3	To be supplied to the administering authority as required by condition E3.
Chlorine	µg/L	To be supplied to the administering authority as required by condition E3	To be supplied to the administering authority as required by condition E3.
CO ₃	µg/L	To be supplied to the administering authority as required by condition E3	To be supplied to the administering authority as required by condition E3.
Dissolved Solids (Total)	µg/L	To be supplied to the administering authority as required by condition E3	To be supplied to the administering authority as required by condition E3.
Electrical Conductivity	µS/cm	To be supplied to the administering authority as required by condition E3	To be supplied to the administering authority as required by condition E3.
HCO ₃	µg/L	To be supplied to the administering authority as required by condition E3	To be supplied to the administering authority as required by condition E3.
Iron	µg/L	To be supplied to the administering authority as required by condition E3	To be supplied to the administering authority as required by condition E3.
Magnesium	µg/L	To be supplied to the administering authority as required by condition E3	To be supplied to the administering authority as required by condition E3.
Mercury	µg/L	To be supplied to the administering authority as required by condition E3	To be supplied to the administering authority as required by condition E3.
Molybdenum	µg/L	To be supplied to the administering authority as required by condition E3	To be supplied to the administering authority as required by condition E3.
pH	pH Units	To be supplied to the administering authority as required by condition E3	To be supplied to the administering authority as required by condition E3.
Potassium	µg/L	To be supplied to the administering authority as required by condition E3	To be supplied to the administering authority as required by condition E3.
Selenium	µg/L	To be supplied to the administering authority as required by condition E3	To be supplied to the administering authority as required by condition E3.
Silver	µg/L	To be supplied to the administering authority as required by condition E3	To be supplied to the administering authority as required by condition E3.
SO ₄	µg/L	To be supplied to the administering authority as required by condition E3	To be supplied to the administering authority as required by condition E3.
Sodium	µg/L	To be supplied to the administering authority as required by condition E3	To be supplied to the administering authority as required by condition E3.

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Table 4: Groundwater level monitoring

Monitoring point	Level trigger threshold
GMP1	To be supplied to the administering authority as required by condition E3
GMP2	To be supplied to the administering authority as required by condition E3
GMP3	To be supplied to the administering authority as required by condition E3
GMP4	To be supplied to the administering authority as required by condition E3

E4	A background groundwater monitoring program must be developed to include the following: a) groundwater monitoring locations (bore(s)) that are located an appropriate distance from potential sources of impact from mining activities and are representative of the aquifers potentially affected by mining activities b) representative groundwater samples from each of the bores; c) containment parameters, background groundwater levels, quality triggers and contaminant limits must be determined; d) sampling at a frequency of not less than monthly must be undertaken to determine groundwater levels and quality; e) finalise the required information relating to groundwater under <i>Table 3: Groundwater quality triggers and limits</i>, <i>Table 2: Groundwater monitoring locations and frequencies</i> and <i>Table 5: Mine affected water release points, sources and receiving waters</i> of this environmental authority; Review of the results from the groundwater monitoring program must occur to determine if further assessment on the following aspects below would be warranted: a) groundwater interactions with surface waters of Cockatoo Creek; b) impacts on potential shallow alluvial stygofauna; c) impacts on potential groundwater dependent ecosystems across the site; and d) the role of the Rewan formation and groundwater storage in associated sediments. <i>Note: If a review of the results indicate deficiencies in data recorded, or, warrants that further assessment is required, the holder of the environmental authority must undertake a more detailed assessment and present a report to the department outlining associated risks within the time period specified by the department.</i>
E5	The groundwater level and the water quality indicators specified in <i>Table 3: Groundwater quality triggers and limits</i> must be monitored for at the locations in <i>Table 2: Groundwater monitoring locations and frequency</i> and <i>Appendix 1, Figure 2: Groundwater monitoring locations (bores)</i> at the frequencies in <i>Table 2: Groundwater monitoring locations and frequency</i>.
E6	Groundwater levels when measured at the monitoring locations specified in <i>Table 2: Groundwater monitoring locations and frequency</i> and <i>Appendix 1, Figure 2: Groundwater monitoring locations (bores)</i> must not exceed the groundwater level trigger thresholds specified in <i>Table 4: Groundwater level monitoring</i>.
E7	If water quality indicators listed in <i>Table 3: Groundwater quality triggers and limits</i> are found to exceed any of the contaminant limits stated in <i>Table 3: Groundwater quality triggers and limits</i>, or, groundwater levels stated in <i>Table 4: Groundwater level monitoring</i> are found to exceed any of the level trigger thresholds, the holder of this environmental authority must complete an investigation in accordance with the ANZECC and ARMCANZ 2000.

E8	Results of monitoring groundwater from compliance bores identified in <i>Table 2: Groundwater monitoring locations and frequency</i> must not exceed any of the contaminant limits defined in <i>Table 3: Groundwater quality triggers and limits</i> .
Bore construction and maintenance and decommissioning	
E9	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
Schedule F - Water	
Contaminant release	
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 <i>Table 5: Mine affected water release point, sources and receiving waters</i> and depicted in <i>Appendix 1, Figure 3: Release Points and Monitoring Point Locations</i> attached to this environmental authority.

Table 5: 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
				Water flow	Water quality	
RP 1	-22.9180	148.7890	ML4 Pits, Foxleigh and Foxleigh Plains mining areas	Cockatoo Creek US	Roper Creek DS2	Cockatoo Creek
RP 2	-22.9679	148.7992	Foxleigh and Foxleigh Plains mining areas	Cockatoo Creek US	Roper Creek DS2	Cockatoo Creek
RP 3	-23.0164	148.8196	Far South, Foxleigh and Foxleigh Plains mining areas	Roper Creek US	Roper Creek DS2	Roper Creek

F3	The release of mine affected water to internal water management infrastructure installed and operated in accordance with a water management plan that complies with conditions F30 and F31 is permitted.
F4	The release of mine affected water to waters in accordance with condition F2 must not exceed the release limits stated in <i>Table 6: Mine affected water release limits</i> when measured at the monitoring points specified in <i>Table 5: Mine affected water release points, sources and receiving waters</i> , <i>Table 8a: Flow triggers to start mine affected water release</i> and <i>Table 8b: Flow triggers to cease mine affected water release</i> for each quality characteristic.

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Table 6: Mine affected water release limits

Quality characteristic	Release limits	Monitoring frequency
Electrical Conductivity ($\mu\text{S/cm}$)	Electrical conductivity ($\mu\text{S/cm}$) <10,000	Daily during release (the first sample must be taken within two (2) hours of commencement of release)
pH (pH Unit)	6.5 (minimum) 9.0 (maximum)	Daily during release (the first sample must be taken within two (2) hours of commencement of release)
Turbidity (NTU)	Current limit or limit derived from suspended solids limit and demonstrated correlation between turbidity to suspended solids historical monitoring data for dam water*	Daily during release* (first sample within two hours of commencement of release) Note: Turbidity is required to assess ecosystems impacts and can provide instantaneous results.
Suspended solids (mg/L)	650* Limit to be determined based on receiving water reference data and achievable best practice sedimentation control and treatment*	Daily during release* (first sample within two hours of commencement of release)
Sulphate (SO_4^{2-}) (mg/L)	Sulphate (SO_4^{2-}) (mg/L) < 3,000	Daily during release* (first sample within two hours of commencement of release)

Note: *Limit for suspended solids can be omitted if turbidity limit is included. Limit for turbidity not required if suspended solids limit included. Both indicators should be measured in all cases.

F5	The release of mine affected water to waters from the release points must be monitored at the locations specified in <i>Table 5: Mine affected water release points, sources and receiving waters</i> for each quality characteristics and at the frequency specified in <i>Table 6: Mine affected water release limits</i> and <i>Table 8a: Flow triggers to start mine affected water release</i> and <i>Table 8b: Flow Triggers to cease mine affected water release</i>. Note: The administering authority will take into consideration any extenuating circumstances prior to determining an appropriate enforcement response, in the event condition F5 is contravened due to a temporary lack of safe or practical access. The administering authority expects the environmental authority holder to take all reasonable and practicable measures to maintain safe and practical access to designated monitoring locations.
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Table 7: Release contaminant trigger investigation levels, potential contaminants

Quality characteristic	Trigger levels (µg/L)	Comment on trigger level	Monitoring frequency
Aluminium	55	For aquatic ecosystem protection, based on SMD guideline	Commencement of release and thereafter weekly during release
Arsenic	13	For aquatic ecosystem protection, based on SMD guideline	
Cadmium	0.2	For aquatic ecosystem protection, based on SMD guideline	
Chromium	1	For aquatic ecosystem protection, based on SMD guideline	
Copper	2	For aquatic ecosystem protection, based on SMD guideline	
Iron	300	For aquatic ecosystem protection, based on low reliability guideline	
Lead	4	For aquatic ecosystem protection, based on SMD guideline	
Mercury	0.2	For aquatic ecosystem protection, based on LOR for CV FIMS	
Nickel	11	For aquatic ecosystem protection, based on SMD guideline	
Zinc	8	For aquatic ecosystem protection, based on SMD guideline	
Boron	370	For aquatic ecosystem protection, based on SMD guideline	
Cobalt	90	For aquatic ecosystem protection, based on low reliability guideline	
Manganese	1900	For aquatic ecosystem protection, based on SMD guideline	
Molybdenum	34	For aquatic ecosystem protection, based on low reliability guideline	
Selenium	10	For aquatic ecosystem protection, based on LOR for ICPMS	
Silver	1	For aquatic ecosystem protection, based on LOR for ICPMS	
Uranium	1	For aquatic ecosystem protection, based on LOR for ICPMS	
Vanadium	10	For aquatic ecosystem protection, based on LOR for ICPMS	
Ammonia	900	For aquatic ecosystem protection, based on LOR for ICPMS	
Nitrate	1100	For aquatic ecosystem protection, based on ambient Qld WQ Guidelines (2006) for TN	
Sodium*	TBA – to be provided to the administering authority by 30 June 2017 .		
Petroleum hydrocarbons (C6-C9)	20		
Petroleum hydrocarbons (C10-C36)	100		
Fluoride (total)	2000	Protection of livestock and short term irrigation guideline	
Suspended Solids*	Limit to be determined based on receiving water reference data and achievable best practice sedimentation control and treatment and provided to the administering authority by 30 June 2017 .		
Sulphate (SO ₄ ²⁻) (mg/L)*	Limit to be determined based on receiving water reference data and achievable best practice sedimentation control and treatment and provided to the administering authority by 30 June 2017 .	Drinking water environmental values from NHMRC 2006 guidelines OR ANZECC	

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Environmental authority EPML00744813 – Foxleigh Mine

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 3 can be reviewed once the results of two years monitoring data is available, or if sufficient data is available to adequately demonstrate negligible environmental risk. It may be determined that a reduced monitoring frequency is appropriate or certain quality characteristics can be removed from Table 3 by amendment.
3. SMD—slightly moderately disturbed level of protection, guideline refers ANZECC & ARMCANZ (2000).
4. LOR—typical reporting for method stated. ICPMS/CV FIMS—analytical method required to achieve LOR.

* Trigger levels contained in Table 7: Release contaminant trigger investigation levels, potential contaminants, for Sodium, Suspended Solids and Sulphate (SO_4^{2-}) must be provided to the administering authority by **30 June 2017**.

Table 8a: Flow triggers to start mine affected water release

Receiving waters / stream	Release point	Monitoring point	Monitoring point latitude (decimal degree, GDA94)	Monitoring point longitude (decimal degree, GDA94)	Receiving water flow recording frequency	Receiving water flow criteria to start discharge (m^3/s)	Maximum release rate for all combined RP flows
Cockatoo Creek	RP 1	Cockatoo Creek US	-22.8904	148.7661	Continuous (minimum daily)	0.66	2 m^3/s
Cockatoo Creek	RP 2	Cockatoo Creek US	-22.8904	148.7661	Continuous (minimum daily)	0.66	
Roper Creek	RP 3	Roper Creek US	-22.8762	148.6719	Continuous (minimum daily)	0.95	

Table 8b: Flow triggers to cease mine affected water release

Receiving waters / stream	Release point (RP)	Monitoring point	Monitoring point latitude (decimal degree, GDA94)	Monitoring point longitude (decimal degree, GDA94)	Receiving water flow recording frequency	Minimum receiving water flow criteria to continue discharge (m^3/s)
Cockatoo Creek	RP 1	Roper Creek DS2	-23.0105	148.8415	Continuous (minimum daily)	0.5
Cockatoo Creek	RP 2	Roper Creek DS2	-23.0105	148.8415	Continuous (minimum daily)	0.5
Roper Creek	RP 3	Ropers Creek DS2	-23.0105	148.8415	Continuous (minimum daily)	0.5

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F6	If quality characteristics of the release exceed any of the trigger levels specified in <i>Table 7: Release contaminant trigger investigation levels, potential contaminants</i> during a release event, the environmental authority holder must compare the downstream results in the receiving waters to the trigger values specified in <i>Table 7: Release contaminant trigger investigation levels, potential contaminants</i> and: 1) where the trigger values are not exceeded then no action is to be taken; or 2) where the downstream results exceed the trigger values specified <i>Table 7: Release contaminant trigger investigation levels, potential contaminants</i> for any quality characteristic, compare the results of the downstream site to the data from background monitoring sites and: a) if the result is less than the background monitoring site data, then no action is to be taken; or b) 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 2) b) of this condition, no further reporting is required for subsequent trigger events for that quality characteristic.</i>
F7	If an exceedance in accordance with condition F6 2) b) is identified, the holder of the authority must notify the administering authority in writing within twenty-four (24) hours of receiving the result.
Mine affected water release events	
F8	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 <i>Table 7: Release contaminant trigger investigation levels, potential contaminants</i>.
F9	Notwithstanding any other condition of this environmental authority, the release of mine affected water to waters in accordance with condition F2 must only start when natural flow in the receiving environment meets the trigger values specified in <i>Table 8a: Flow triggers to start mine affected water release</i> for the release point(s) specified in <i>Table 5: Mine affected water release points, sources and receiving waters</i>.
F10	The releases of mine affected water to waters in accordance with conditions F6 must not exceed a maximum release rate for all combined release points flows of 2m³/s
F11	The electrical conductivity (EC) values recorded at the downstream monitoring point on Roper Creek (Roper Creek DS2) must not exceed 2000µS/cm at any time during the release influence period.
F12	The electrical conductivity (EC) values recorded at the Barwon Park monitoring station on Roper Creek (Roper Creek Barwon Park) must not exceed 1500 µS/cm at any time during the release influence period.
F13	If electrical conductivity (EC) recorded at Bingegang Weir exceeds 650µS/cm during a release event, the environmental authority holder must immediately notify the administering authority and seek written approval to continue releasing mine affected water.
F14	The daily quantity of mine affected water released from each release point must be measured and recorded.

F15	Releases to waters must be undertaken so as not to cause erosion of the bed and banks of the receiving waters, or cause a material build-up of sediment in such waters.
Notification of release event	
F16	The environmental authority holder must notify the administering authority 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 through a notification to the WaTERS database.</i>
F17	The environmental authority holder must notify the administering authority as soon as practicable and no later than twenty-four (24) hours after the cessation of a release event, of the cessation of a release notified under condition F16, and within twenty-eight (28) days provide the following information in writing: a) release cessation date/time; b) natural flow volume in receiving water; c) volume of water released; d) details regarding the compliance of the release with the conditions of Schedule F - Water of this environmental authority (i.e. contamination 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 F16 and F17, provided the relevant details of the release are included within the notification provided in accordance with conditions F16 and F17.</i>
Notification of release event exceedance	
F18	If the release limits defined in <i>Table 6: Mine affected water release limits</i>, <i>Table 8a: Flow triggers to start mine affected water release</i> and <i>Table 8b: Flow triggers to cease mine affected water release</i> are exceeded, the holder of the environmental authority must notify the administering authority within twenty-four (24) hours of receiving the results.

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F19	The environmental authority holder must, within twenty-eight (28) days of a release that exceeds the conditions of this authority, provide a report to the administering authority detailing: a) the reason for the release; b) the location of the release; c) the total volume of the release and which (if any) part of this volume was non-compliant; d) the total 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 non-compliance; g) all calculations; and h) any other matters pertinent to the water release event.
F20	In the event that water storages defined in <i>Table 9: On-site water storage contaminant limits</i> exceed the contaminant limits defined in <i>Table 9: On-site water storage contaminant limits</i>, the holder of the environmental authority must implement measures, where practicable, to prevent access to waters by all livestock.



Table 9: On-site water storage contaminant limits

Quality characteristic	Test value	Contaminant limit
pH (pH unit)	Range	4 - 9 [^]
EC (µS/cm)	Maximum	5970*
Sulphate (mg/L)	Maximum	1000*
Fluoride (mg/L)	Maximum	2*
Aluminium (mg/L)	Maximum	5*
Arsenic (mg/L)	Maximum	0.5*
Cadmium (mg/L)	Maximum	0.01*
Cobalt (mg/L)	Maximum	1*
Copper (mg/L)	Maximum	1*
Lead (mg/L)	Maximum	0.1*
Nickel (mg/L)	Maximum	1*
Zinc (mg/L)	Maximum	20*

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

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

Note: Total measurements (unfiltered) must be taken and analysed.

Receiving environment monitoring and contaminant trigger levels

F21	The quality of the receiving waters must be monitored at the locations specified in <i>Table 11: Receiving water upstream background sites and downstream monitoring points</i> for each quality characteristic and at the monitoring frequency stated in <i>Table 10: Receiving waters contaminant trigger levels</i> .
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Table 10: Receiving waters contaminant trigger levels

Quality characteristic	Trigger level	Monitoring frequency
pH	6.5 – 8.0	Daily during the release
Suspended solids (mg/L)	650	
Sulphate (SO ₄ ²⁻) (mg/L)	250 (Protection of drinking water environmental value)	
Sodium (mg/L)	To be supplied to the administering authority by 30 June 2017 .	

Table 11: Receiving water upstream background sites and downstream monitoring points

Monitoring points and receiving waters location description	Latitude (Decimal degree, GDA94)	Longitude (Decimal degree, GDA94)
Upstream background monitoring points		
Roper Creek US	-22.87623	148.6719
Cockatoo Creek US	-22.8904	148.7661
Carlo Creek US	-22.9241	148.8266
Parrot Creek DS (Downstream of Capcoal Mine and Upstream of Foxleigh Mine)	- 22.9218	148.6665
Downstream monitoring points		
Roper Creek DS2	-23.00984	148.84109
Roper Creek at Barwon Park	-23.0570	148.8881
Cockatoo Creek DS	-23.0036	148.8326

Note: The data from background monitoring points must not be used where they are affected by releases from other mines.

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F22	If quality characteristics of the receiving water at the downstream monitoring points exceed any of the trigger levels specified in <i>Table 10: Receiving waters contaminant trigger levels</i> during a release event the environmental authority holder must compare the downstream results to the upstream results in the receiving waters and: a) where the downstream result is the same or a lower value than the upstream value for the quality characteristic then no action is to be taken; or b) where the downstream results exceed the upstream results complete an investigation into the potential for environmental harm and provide a written report to the administering authority in the next annual return, outlining: i) details of the investigations carried out; and ii) actions taken to prevent environmental harm. <i>Note: Where an exceedance of a trigger level has occurred and is being investigated, in accordance with F22 b) of this condition, no further reporting is required for subsequent trigger events for that quality characteristic.</i>
F23	All determinations of water quality and biological monitoring must be performed by an appropriately qualified person.
Receiving environment monitoring program (REMP)	
F24	The environmental authority holder must develop and implement a Receiving Environment Monitoring Program (REMP) to monitor, identify and describe any adverse impacts to surface water environmental values, quality and flows due to the authorised mining activity. This must include monitoring the effects of the mine on the receiving environment periodically (under natural flow conditions) and while mine affected water is being discharged from the site. For the purposes of the REMP, the receiving environment is the waters of Roper Creek 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.
F25	A REMP design document that addresses the requirements of the REMP must be prepared and made available to the administering authority upon request.
F26	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.
Water reuse	
F27	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).

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Annual water monitoring reporting	
F28	The following information must be recorded in relation to all water monitoring required under the conditions of this environmental authority and submitted to the administering authority in the specified format: 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.
Temporary interference with waterways	
F29	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) <i>Guideline - Activities in a Watercourse, Lake or Spring Associated with Mining Activities</i>.
Water management plan	
F30	A Water Management Plan must be developed by an appropriately qualified person and implemented.
Stormwater and water sediment controls	
F31	An Erosion and Sediment Control Plan must be developed by an appropriately qualified person and implemented for all stages of the mining activities on the site to minimise erosion and the release of sediment to receiving waters and contamination of stormwater.
F32	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 F31; and b) water management infrastructure that is installed and operated, in accordance with a Water Management Plan that complies with condition F30, for the purpose of ensuring water does not become mine affected water.
F33	The maintenance and cleaning of any vehicles, plant or equipment must not be carried out in areas from which contaminants can be released into any receiving waters.



Schedule G - Watercourse diversions	
Permanent watercourse diversions (Foxleigh Plains ML70431)	
G1	Permanent watercourse diversions, or the re-establishment of a pre-existing watercourse where a temporary watercourse diversion is being replaced, must be designed, constructed and operated to: a) incorporate natural features (including geomorphic and vegetation) present at the location of the diversion; and b) maintain the pre-existing hydrologic characteristics of surface water and groundwater systems for the area in which the watercourse diversion is located; and c) maintain the hydraulic characteristics of the permanent watercourse diversion that are equivalent to other local watercourses and are suitable for the area in which the diversion is located without using artificial structures that require on-going maintenance; and d) maintain sediment transport and water quality regimes that allow the diversion to be self-sustaining, while minimising any adverse impacts to upstream and downstream water quality, geomorphology, fauna and vegetation; and e) maintain equilibrium and functionality in all substrate conditions at the location of the diversion.
Design plan	
G2	A certified Design Plan that achieves condition G1 for a permanent watercourse diversion, must be submitted to the administering authority at least ten (10) business days before commencing construction of the diversion.
G3	The certified Design Plan for any temporary or permanent watercourse diversion must be consistent with the functional design/s (B. Phillips - Hatch Hydrobiology, 14 March 2016, <i>Technical Report – Foxleigh Plains Diversion – Functional Design Report</i> , Revision 1) that formed a part of the application documents for this environmental authority.
Construction and operation	
G4	A certified set of 'as constructed' drawings and specifications must be submitted to the administering authority within sixty (60) business days from the completion of construction of any temporary or permanent watercourse diversions, and/or re-establishment of the pre-existing watercourse.
G5	The certified set of 'as constructed' drawings and specifications must state: a) that the 'as constructed' drawings and specifications meet the original intent of the design plan for the watercourse diversion; and b) construction of the watercourse diversion is in accordance with the design plan.

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Register	
G6	The details of watercourse diversions planned and constructed under this environmental authority must be accurately recorded in a Register of Watercourse Diversions, required to be kept by the holder of this environmental authority.
G7	An electronic copy of the Register of Watercourse Diversions required under condition G6 must be provided to the administering authority on request.
Annual inspection report	
G8	Each permanent watercourse diversion must be inspected each calendar year by a suitably qualified and experienced person.
G9	At each annual inspection, the condition and adequacy of all components of the permanent watercourse diversion must be assessed and a suitably qualified and experienced person must prepare an annual inspection report containing details of the assessment, and include a recommendations section, with any recommended actions to ensure the integrity of the permanent watercourse diversion, or a positive statement that no recommendations are required.
G10	The annual inspection report specified in condition G9 must assess: a) if the permanent watercourse diversion is functioning as intended in the design plan and <i>Appendix 2 – Rehabilitation requirements</i> of this environmental authority; and b) if the permanent watercourse diversion meets the outcomes for the operation and monitoring of permanent diversions as per the Department of Natural Resources and Mines <i>Guideline: Works that interfere with water in a watercourse – watercourse diversions</i>.
G11	The holder must within twenty (20) business days of receipt of the annual inspection report, provide to the administering authority: a) the recommendations section of the annual inspection report; and b) if applicable, any actions being taken in response to those recommendations.
G12	If, following receipt of the recommendations and (if applicable) recommended actions, as per condition G11 , the administering authority requests a copy of the annual inspection report from the holder, the holder must provide this to the administering authority within ten (10) business days of receipt of the request.
Schedule H - Land	
Rehabilitation	
H1	Land disturbed by mining must be rehabilitated in accordance with <i>Appendix 2: Rehabilitation requirements</i> of this environmental authority.
H2	Rehabilitation completion criteria for the Foxleigh Plains watercourse diversion (ML70431) must be submitted to the administering authority by way of an amendment to this environmental authority within ten (10) business days of submitting the 'as constructed' Design Plans to the administering authority, as required by condition G4.
H3	Rehabilitation must commence progressively in accordance with the Plan of Operations.



Contaminated land	
H3	Before applying for surrender of a mining lease, the holder must (if applicable) provide to the administering authority a site investigation report under the Act, in relation to any part of the mining lease which has been used for notifiable activities or which the holder is aware is likely to be contaminated land, and also carry out any further work that is required as a result of that report to ensure that the land is suitable for its final land use.
H4	Before applying for progressive rehabilitation certification for an area, the holder must (if applicable) provide to the administering authority a site investigation report under the Act, in relation to any part of the area the subject of the application which has been used for notifiable activities or which the holder is aware is likely to be contaminated land, and also carry out any further work that is required as a result of that report to ensure that the land is suitable for its final land use under condition H1.
H5	Minimise the potential for contamination of land by hazardous contaminants.
Infrastructure	
H6	All bunding for coal stockpiles must be a minimum of 30m from the lease boundary.
Biodiversity offsets	
H7	The holder of this environmental authority must provide an offset for impacts on applicable state significant biodiversity values, in accordance with <i>Queensland Biodiversity Offset Policy</i>. The biodiversity offset must be consistent with the requirements for an offset as identified in the Biodiversity Offset Strategy (as per condition H8) and must be provided: a) prior to impacting on state significant biodiversity values; or b) where a land based offset is to be provided, within twelve (12) months of the later of either of the following i) the date of issue of this environmental authority; or ii) the relevant stage identified in the Biodiversity Offset Strategy submitted under condition H8; or c) where an offset payment is to be provided, within four (4) months of the later of either of the following i) the date of issue of this environmental authority; or ii) the relevant stage identified in the Biodiversity Offset Strategy submitted under conditions H8.
H8	A Biodiversity Offset Strategy must be developed and submitted to the administering authority within either thirty (30) days, or a lesser period agreed to by the administering authority, prior to impacting on the applicable state significant biodiversity values.
H9	Significant residual impacts to prescribed environmental matters are not authorised under this environmental authority or the <i>Environmental Offsets Act 2014</i>, unless: a) the impacts were authorised by an existing authority issued before the commencement of the <i>Environmental Offsets Act 2014</i>; or b) the impacts are covered by the offset requirements of EPBC Approval No 2010/5421, issued under the <i>Environment Protection and Conservation Act 1999</i> (Cth).

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H10	Records demonstrating that each impact to a prescribed environmental matter did not, or is not likely to, result in a significant residual impact to that matter must be: a) completed by an appropriately qualified person; and b) kept for the life of the environmental authority.
Schedule J - Regulated structures	
J1	The consequence category of any structure must be assessed by a suitably qualified and experienced person in accordance with the <i>Manual for assessing consequence categories and hydraulic performance of structures (ESR/2016/1933)</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.
J2	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.
J3	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>.
Design and construction of a regulated structure	
J4	Conditions J5 to J9 inclusive do not apply to existing structures.
J5	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>.
J6	Construction of a regulated structure is prohibited unless: a) the holder has submitted a consequence category assessment report and certification to the administering authority; and b) certification for the design, design plan and the associated operating procedures has been certified by a suitably qualified and experienced person in compliance with the relevant condition of this authority.
J7	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 (ESR/2016/1933)</i>, and must be recorded in the Register of Regulated Structures.

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J8	Regulated structures must: a) be designed and constructed in compliance with the <i>Manual for assessing consequence categories and hydraulic performance of structures (ESR/2016/1933)</i>; b) be designed and constructed with due consideration given to ensuring that the design integrity would not be compromised on account of: i) floodwaters from entering the regulated dam from any watercourse or drainage line; and ii) wall failure due to erosion by floodwaters arising from any watercourse or drainage line.
J9	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.
Notification of affected persons	
J10	All affected persons must be provided with a copy of the emergency action plan in place for each regulated structure: a) for existing structures that are regulated structures, within ten (10) business days of this condition taking effect; b) prior to the operation of the new regulated structure; and c) if the emergency action plan is amended, within five (5) business days of it being amended.
Operation of a regulated structure	
J11	Operation of a regulated structure, except for an existing structure, is prohibited unless the holder has submitted to the administering authority in respect of regulated structure, all of the following: a) one paper copy and one electronic copy of the design plan and certification of the 'design plan' in accordance with condition J6; b) a set of 'as constructed' drawings and specifications; c) certification of the 'as constructed drawings and specifications' in accordance with condition J9; d) where the regulated structure is to be managed as part of an integrated containment system for the e) purpose of sharing the design storage allowance (DSA) volume across the system, a copy of the certified system design plan; f) the requirements of this authority relating to the construction of the regulated structure have been met; g) the holder has entered the details required under this authority, into a Register of Regulated Structures; and h) there is a current operational plan for the regulated structure.

J12	For existing structures that are regulated structures: a) where the existing structure that is a regulated structure is to be managed as part of an integrated containment system for the purpose of sharing the DSA volume across the system, the holder must submit to the administering authority within twelve (12) months of the commencement of this condition a copy of the certified system design plan including that structure; and b) there must be a current operational plan for the existing structures.
J13	Each regulated structure must be maintained and operated, for the duration of its operational life until decommissioned and rehabilitated, in compliance with the current operational plan and, if applicable, the current design plan and associated certified 'as constructed' drawings.
Mandatory reporting level	
J14	Conditions J15 to J16 inclusive only apply to regulated structures which have not been certified as low consequence category for 'failure to contain – overtopping'.
J15	The Mandatory Reporting Level (MRL) must be marked on a regulated dam in such a way that during routine inspections of that dam, it is clearly observable.
J16	The holder must, as soon as practicable but within forty-eight (48) hours of becoming aware, notify the administering authority when the level of the contents of a regulated dam reaches the MRL.
J17	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.
J18	The holder must record any changes to the MRL in the Register of Regulated Structures.
Design storage allowance	
J19	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.
J20	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 DSA volume for the dam (or network of linked containment systems).
J21	The holder must, as soon as practicable but within forty-eight (48) hours of becoming aware that the regulated dam (or network of linked containment systems) will not have the available storage to meet the DSA volume on 1 November of any year, notify the administering authority.
J22	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.
Annual inspection report	
J23	Each regulated structure must be inspected each calendar year by a suitably qualified and experienced person.

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J24	At each annual inspection, the condition and adequacy of all components of the regulated structure must be assessed and a suitably qualified and experienced person must prepare an annual inspection report containing details of the assessment and include a recommendations section, with any recommended actions to ensure the integrity of the regulated structure or a positive statement that no recommendations are required.
J25	The suitably qualified and experienced person who prepared the annual inspection report must certify the report in accordance with the <i>Manual for assessing consequence categories and hydraulic performance of structures (ESR/2016/1933)</i> .
J26	The holder must within twenty (20) business days of receipt of the annual inspection report, provide to the administering authority: a) the recommendations section of the annual inspection report; and b) if applicable, any actions being taken in response to those recommendations; and c) if, following receipt of the recommendations and (if applicable) recommended actions, the administering authority requests a copy of the annual inspection report from the holder, provide this to the administering authority within ten (10) business days of receipt of the request.
Transfer arrangements	
J27	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.
Decommissioning and rehabilitation	
J28	Regulated structures must not be abandoned but be either: a) decommissioned and rehabilitated to achieve compliance with condition J29; or b) be left in-situ for a use by the landholder provided that: i) it no longer contains contaminants that will migrate into the environment; and ii) it contains water of a quality that is demonstrated to be suitable for its intended use(s); and c) the holder of the environmental authority and the landholder agree in writing that the: i) dam will be used by the landholder following the cessation of the environmentally relevant activity(ies); and ii) landholder is responsible for the dam, on and from an agreed date.
J29	Before surrendering this environmental authority the site must be rehabilitated to achieve a safe, stable and non-polluting landform in accordance with <i>Appendix 2: Rehabilitation requirements of this environmental authority</i> .
Register of regulated structures	
J30	A Register of Regulated Structures must be established and maintained by the holder for each regulated structure.
J31	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.

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J32	The holder must make a final entry of the required information in the Register of Regulated Structures once compliance with condition J11 and J12 has been achieved.
J33	The holder must ensure that the information contained in the Register of Regulated Structures is current and complete on any given day.
J34	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.
J35	The holder must, at the same time as providing the annual return, supply to the administering authority a copy of the records contained in the Register of Regulated Structures, in the electronic format required by the administering authority.
Transitional arrangements	
J36	All existing structures that have not been assessed in accordance with either the <i>Manual for assessing consequence categories and hydraulic performance of structures (ESR/2016/1933)</i> or the former <i>Manual for Assessing Hazard Categories and Hydraulic Performance of Dams</i> must be assessed and certified in accordance with the <i>Manual for assessing consequence categories and hydraulic performance of structures (ESR/2016/1933)</i> by 6 November 2016 .
J37	All existing structures must subsequently comply with the timetable for any further assessments in accordance with the Manual specified in <i>Table 12: Transitional hydraulic performance requirements for existing structures</i> , depending on the consequence category for each existing structure assessed in the most recent previous certification for that structure.
J38	<i>Table 12: Transitional hydraulic performance requirements for existing structures</i> ceases to apply for a structure once any of the following events has occurred: a) it has been brought into compliance with the hydraulic performance criteria applicable to the structure under the Manual; or b) it has been decommissioned; or c) it has been certified as no longer being assessed as a regulated structure..
J39	Certification of the transitional assessment required by J36 and J37 (as applicable) must be provided to the administering authority within 6 months of amendment of the authority adopting this schedule, being 6 November 2016 .



Table 12: Transitional hydraulic performance requirements for existing structures

Transitional period required for existing structures to achieve the requirements of the <i>Manual for Assessing Consequence Categories and Hydraulic Performance of Dams</i>			
Compliance with criteria	High consequence	Significant consequence	Low consequence
>90% and a history of good compliance performance in last 5 years.	No transition required.	No transition required.	No transitional conditions apply. Review consequence assessment every 7 years.
>70%-≤90%	Within 7 years, unless otherwise agreed with the administering authority, based on no history of unauthorised releases.	Within 10 years, unless otherwise agreed with the administering authority, based on no history of unauthorised releases.	No transitional conditions apply. Review consequence assessment every 7 years.
>50-≤70%	Within 5 years unless otherwise agreed with the administering authority, based on no history of unauthorised releases.	Within 7 years unless otherwise agreed with the administering authority, based on no history of unauthorised releases.	Review consequence assessment every 7 years.
≤50%	Within 5 years or as per compliance requirements (e.g. TEP timing).	Within 5 years or as per compliance requirements (e.g. TEP timing).	Review consequence assessment every 5 years.
Regulated levee designed to prevent the ingress of clean flood water <100% Compliant.*	Within 5 years unless otherwise agreed with the administering authority.		

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

Definitions

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

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

‘Administering authority’ means the Department of Environment and Heritage Protection or its successor.

‘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).

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

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

‘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.

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

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

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

‘associated works’ means in relation to a dam,

- 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 departmental 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.

‘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’.

‘chemical’ means:

- a) an agricultural chemical product or veterinary chemical product within the meaning of the *Agricultural and Veterinary Chemicals Code Act 1994* (Commonwealth); or
- b) a dangerous good under the Australian Code for the Transport of Dangerous Goods by Road and Rail approved by the Australian Transport Council; or
- c) a lead hazardous substance within the meaning of the Workplace Health and Safety Regulation 1997;
- d) a drug or poison in the Standard for the Uniform Scheduling of Drugs and Poisons prepared by the Australian Health Ministers’ Advisory Council and published by the Commonwealth; or
- e) any substance used as, or intended for use as:
 - i) a pesticide, insecticide, fungicide, herbicide, rodenticide, nematocide, miticide, fumigant or related product; or
 - ii) a surface active agent, including, for example, soap or related detergent; or
 - iii) a paint solvent, pigment, dye, printing ink, industrial polish, adhesive, sealant, food additive, bleach, sanitiser, disinfectant, or biocide; or
 - iv) a fertiliser for agricultural, horticultural or garden use; or
 - v) a substance used for, or intended for use for mineral processing or treatment of metal, pulp and paper, textile, timber, water or wastewater; or
 - vi) manufacture of plastic or synthetic rubber.

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

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

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

‘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.

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

‘construction’ or ‘constructed’, in relation to **watercourse diversions**, is the process of building, or modifying an existing diversion, but does not include investigations and testing necessary for the purpose of preparing a design plan

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

‘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 (eg via spillway).

‘designer’ for the purposes of a regulated dam, means the certifier of the design plan for the regulated dam.

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

‘design 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.

‘design storage allowance’ or ‘DSA’ means an available volume, estimated in accordance with the *Manual for Assessing Hazard Categories and Hydraulic Performance of Dams (EM635)* published by the administering authority, must be provided in a dam as at 1 November each year in order to prevent a discharge from that dam to an annual exceedance probability (AEP) specified in that manual.

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

‘disturbance’ of land includes:

- a) compacting, removing, covering, exposing or stockpiling of earth;
- b) removal or destruction of vegetation or topsoil or both to an extent where the land has been made susceptible to erosion;
- c) carrying out mining within a watercourse, waterway, wetland or lake;
- d) the submersion of areas by tailings or hazardous contaminant storage and dam/structure walls;
- e) temporary infrastructure, including any infrastructure (roads, tracks, bridges, culverts, dam/structures, bores, buildings, fixed machinery, hardstand areas, airstrips, helipads etc) which is to be removed after the mining activity has ceased; or
- f) releasing of contaminants into the soil, or underlying geological strata.

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

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

'EC' means electrical conductivity.

'effluent' means treated waste water released from sewage treatment plants.

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

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

'Environmental authority holder' means the holder of this environmental authority.

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

'existing authority' has the meaning in section 94 of the *Environmental Offsets Act 2014*.

'existing structure' means a structure that prior to <<TBA insert date when EA is issued with new dam manual conditions>> meets any or both of the following, a structure:

- a) with a design that is in accordance with the March 2016, Version 5.00 *Manual for Assessing Consequence Categories and Hydraulic Performance of Structures* and that is considerably in progress;
- b) that is under considerable construction or that is constructed.

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

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

'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.

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

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- a) geomorphic and vegetation assessment of the existing watercourse;
- b) hydrologic conditions of the existing watercourse;
- c) the proposed watercourse diversion route;
- d) results from hydrologic, hydraulic and sediment transportation modelling used in the design of the diversion.

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

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

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

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

'infrastructure' means water storage dams, 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 Table # (page #) 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 (ESR/2016/1933)*

'm' means metres.

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

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



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

‘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:
 - 1) areas that are been capped and have monitoring data demonstrating hazardous material adequately contained with the site;
 - 2) 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.

‘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.

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

‘NATA’ means National Association of Testing Authorities, Australia.

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

‘non-polluting’ means having no adverse impacts upon the receiving environment.

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

‘operational plan’ includes:

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

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

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

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

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

‘Probable Maximum Flood (PMF)’ means the flood that may be expected from the most severe combination of critical meteorological and hydrologic conditions that are reasonably possible in a particular drainage area.

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

- a) a marine park under the *Marine Parks Act 1992*; or
- b) a World Heritage Area.

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

- a) a watercourse;
- b) groundwater; and
- c) an area of land that is not specified in Figure 1 of this environmental authority.

‘receiving waters’ means the waters into which this environmental authority authorises releases of mine affected water.

‘register of regulated structures’ includes:

- a) Date of entry in the register;
- b) Name of the structure, its purpose and intended/actual contents;
- c) The consequence category of the dam as assessed using the *Manual for assessing consequence categories and hydraulic performance of structures (ESR/2016/1933)*;
- d) Dates, names, and reference for the design plan plus dates, names, and reference numbers of all document(s) lodged as part of a design plan for the dam;
- e) Name and qualifications of the suitably qualified and experienced person who certified the design plan and 'as constructed' drawings;
- f) For the regulated dam, other than in relation to any levees –
 - i. The dimensions (metres) and surface area (hectares) of the dam measured at the footprint of the dam;
 - ii. Coordinates (latitude and longitude in GDA94) within five metres at any point from the outside of the dam including its storage area

- iii. Dam crest volume (megalitres);
- iv. Spillway crest level (metres AHD).
- v. Maximum operating level (metres AHD);
- vi. Storage rating table of stored volume versus level (metres AHD);
- vii. Design storage allowance (megalitres) and associated level of the dam (metres AHD);
- viii. Mandatory reporting level (metres AHD);
- g) The design plan title and reference relevant to the dam;
- h) The date construction was certified as compliant with the design plan;
- i) The name and details of the suitably qualified and experienced person who certified that the constructed dam was compliant with the design plan;
- j) Details of the composition and construction of any liner;
- k) The system for the detection of any leakage through the floor and sides of the dam;
- l) Dates when the regulated dam underwent an annual inspection for structural and operational adequacy, and to ascertain the available storage volume for 1 November of any year;
- m) Dates when recommendations and actions arising from the annual inspection were provided to the administering authority;
- n) Dam water quality as obtained from any monitoring required under this authority as at 1 November of each year.

‘regulated dam’ means any dam in the significant or high hazard category as assessed using the *Manual for Assessing Hazard Categories and Hydraulic Performance of Dams (EM635)* published by the administering authority.

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

- a fabricated or manufactured tank or container, designed and constructed to an Australian Standard that deals with strength and structural integrity of that tank or container;
- a sump or earthen pit used to store residual drilling material and drilling fluid only for the duration of drilling and well completion activities;
- a flare pit.

‘rehabilitation’ 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 licensed place.

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

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

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

‘revegetation’ is the re-establishment of vegetation¹ of a species and density of cover similar to surrounding undisturbed areas or the landform that existed before mining activities on soil surfaces associated with the construction or rehabilitation of a watercourse diversion.

‘saline drainage’ The movement of waters, contaminated with salts, as a result of the mining activity.

¹Not including a species declared under the Land Protection (Pest and Stock Route Management) Regulation 2003 as a category class 1 pest, category class 2 pest or category class 3 pest.

‘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 1992* 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 & educational institution, childcare or kindergarten, school or playground, hospital, surgery or other medical institution, commercial & 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 a 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.

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

‘spillway’ means a weir, channel, conduit, tunnel, gate or other structure designed to permit discharges 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.

'structure' in relation to **regulated structures** means dam or levee.

'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 micro siemens 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) a river, creek or stream in which water flows permanently or intermittently—
 - i. in a natural channel, whether artificially improved or not; or
 - ii. in an artificial channel that has changed the course of the watercourse.
- b) Watercourse includes the bed and banks and any other element of a river, creek or stream confining or containing water.

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

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

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

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

END OF DEFINITIONS

Appendix 1

Figure 1: Approved Foxleigh Mine Activities

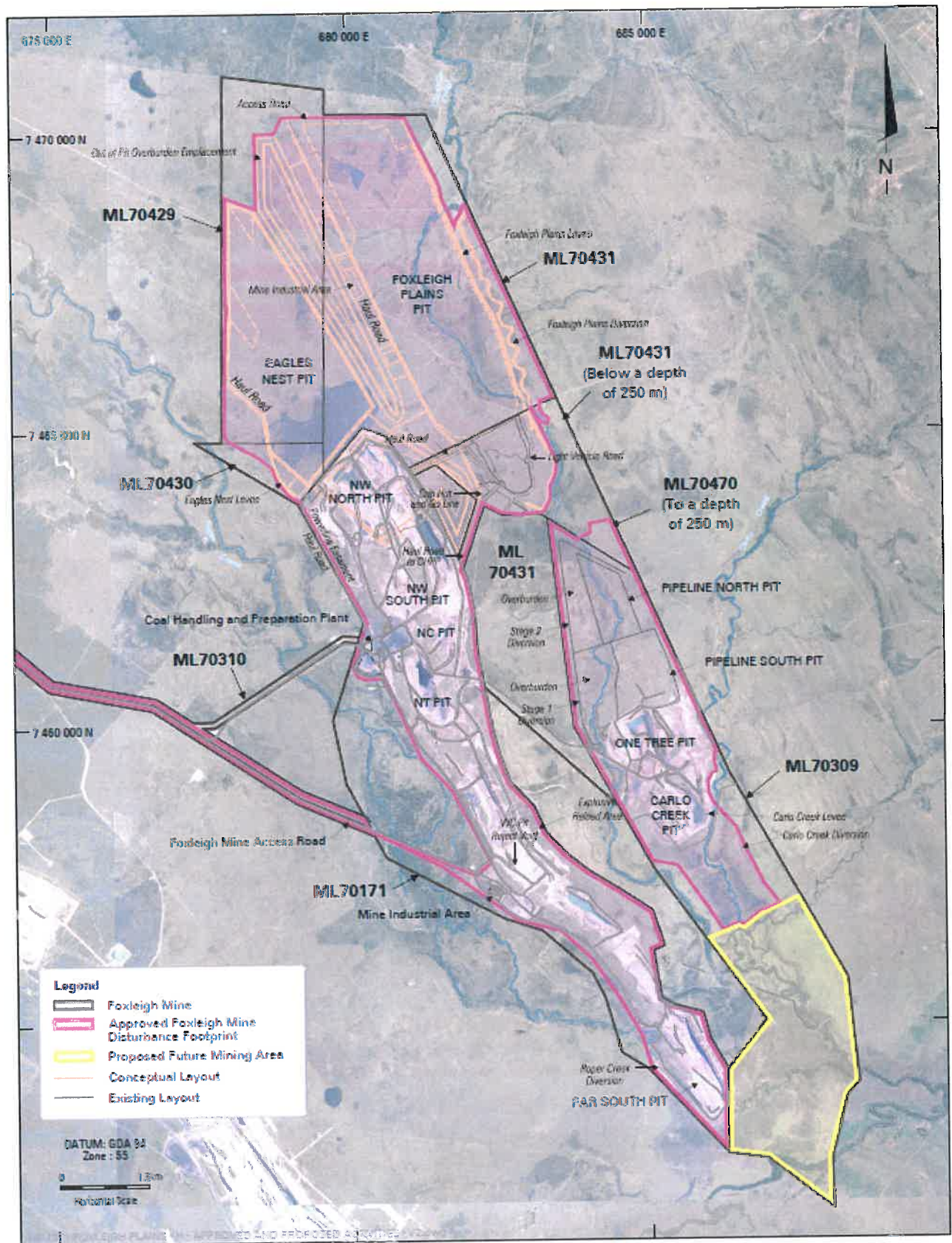
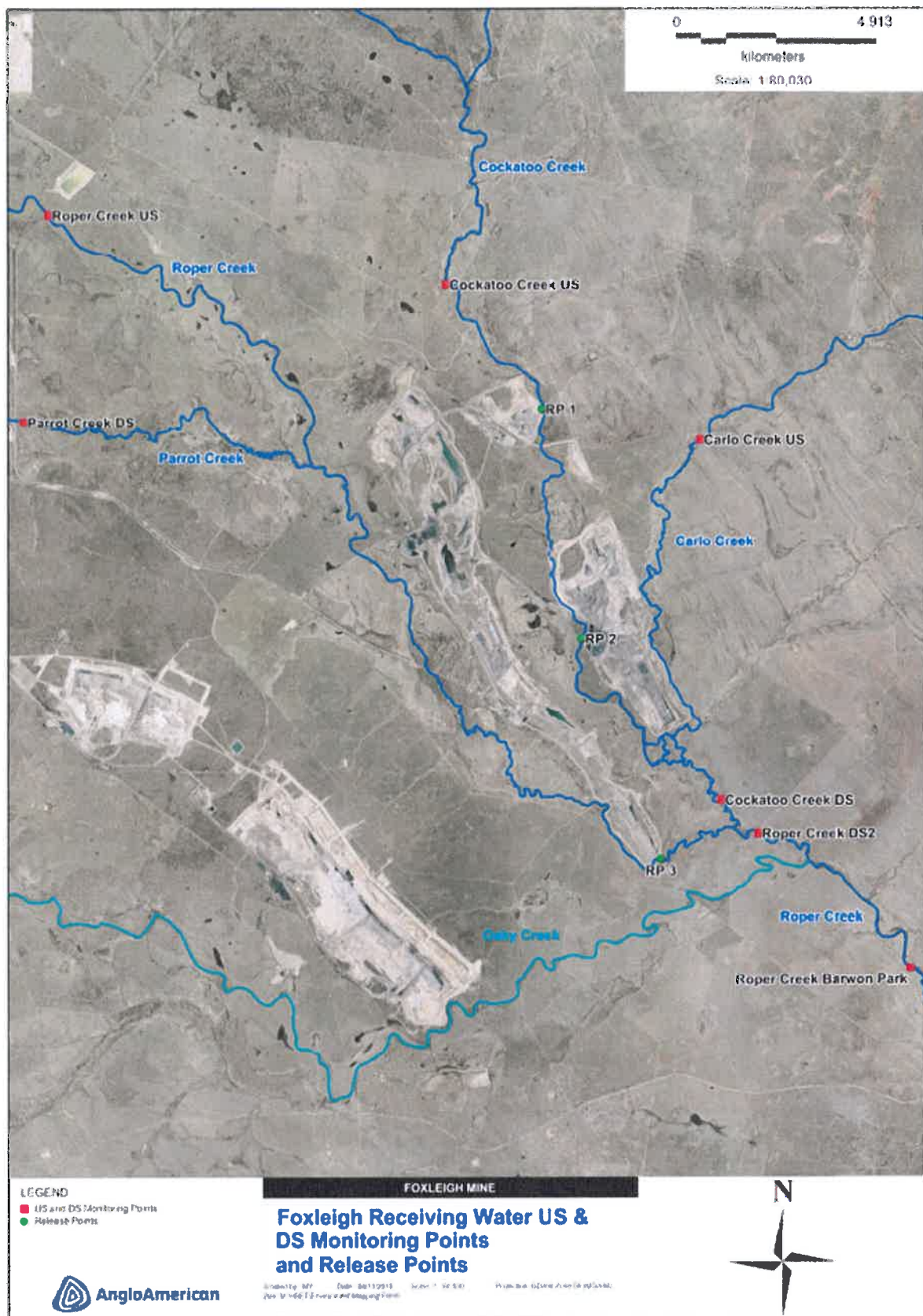


Figure 2: Groundwater monitoring locations (bores)



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Figure 3: Release point and monitoring point locations



Appendix 2:

Rehabilitation Requirements

Mine Domain	Mine Feature Name	Rehabilitation Goal	Rehabilitation Objectives	Indicators	Completion Criteria
All mine surface features	- Infrastructure areas: - Raw and mine-affected water storage dams - Roads and tracks - ROM stockpile areas - MIA (workshops and associated laydown, hardstand, fuel storage, washdown bay areas) - CHPP - Administration offices - Explosive magazine - Power reticulation network - Fencing - Mining areas: - Residual Voids - Spoil emplacement areas - Mine residue storage areas	- Safe for humans and wildlife - Non polluting - Stable - Able to sustain agreed post-mining land use	To return a self-sustaining, low maintenance vegetation state with similar structure, composition and function to that of a native terrestrial or riparian ecosystem of the brigalow belt. Where agricultural land use applies, to return self-sustaining grazing land that is sustainable and economically viable.	Infrastructure removed as required and revegetated to a light grazing post mining land use. Potential for erosion of waste dump slopes is reduced by correct spoil placement and functional drainage. Adequate access areas used for agriculture that can be maintained into the future. Suitable vegetation is planted for agricultural uses. Adequate shade and water is available for stock use. Topsoil spread minimum 15cm depth, with no bare areas greater than 100m². Ripping to a minimum depth of 50cm at 1m spacing. Revegetation seed mix complies with final agreed land use.	Any infrastructure that is to remain post closure, shall have a written agreement between the post mining land owner and Foxleigh Management Pty Ltd. Surface water run off quality is similar to the water quality of the surrounding catchment and within the EA conditions. Infrastructure areas land reshaped to slope range <10%. Adequate erosion control structures have been installed, with no sites of significant wind or gully erosion that will cause harm to fauna. Vegetation established across areas with a suitable species mix for the agreed final land use. Areas where agricultural land use applies, have pasture grass species present and provide stock with nutritional requirements, as well as being capable of setting viable seed and flowering similar to reference sites in the Middlemount area and/or with a land suitability class (grazing) of 4.

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Mine Domain	Mine Feature Name	Rehabilitation Goal	Rehabilitation Objectives	Indicators	Completion Criteria
Mining areas	Residual voids	- Safe for humans and wildlife - Non polluting - Stable - Able to sustain agreed post-mining land use	Residual void water bodies are able to be accessed by wildlife, used for water supplies and/or used as recreational facilities according to the final land use for that area.	Stable highwalls left standing at the slope created by the final blast and a diversion bank provided at the top for safety and drainage. Any exposed coal seam covered with material to minimise highly saline water leaching into void water stores. Drains constructed to redirect surface water from flowing over the highwall or lowwall. Geotechnical stability and risk assessments conducted to determine the appropriate treatments prior to closure.	Final voids reshaped to a slope range of <70% for competent material or <45% for non-competent material or as stated in an appropriate risk assessment conducted by a suitably qualified person. Drainage structures along highwalls and lowwalls have been revegetated, with water drainage that flows naturally without pooling or flooding.
	Spoil emplacement areas		To return a self-sustaining, low maintenance vegetation state with similar structure, composition and function to that of a native terrestrial or riparian ecosystem of the brigalow belt.	Outer spoil slopes reshaped to 17%. Internally draining spoil slopes reshaped to <45% with appropriate spoil placement, functional drainage and erosion control structures to reduce slope erosion potential. Final rehabilitated spoil dumps will be hills with a mix of pasture and native species. Topsoil spread with no bare areas greater than 100m².	Spoil top of dump (out of pit and in-pit) surfaces have been constructed to a slope range < 10%. Side slopes have been constructed to a slope range < 17%. Outer spoil slopes are no longer than 100m without being broken by a bench.
	Mineral residue storage areas		To return a self-sustaining, low maintenance vegetation state with similar structure, composition and function to that of a native terrestrial or riparian ecosystem of the brigalow belt.	Tailings material will be physically and chemically assessed to determine the appropriate capping required. Mineral residue material capped with coarse reject and/or spoil and revegetated with a mix of pasture and native species.	Mineral residue material capped with a suitable vegetation species mix established to meet the agreed final land use. Surface water run off quality is similar to the water quality of the surrounding catchment and within

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Mine Domain	Mine Feature Name	Rehabilitation Goal	Rehabilitation Objectives	Indicators	Completion Criteria
Watercourse diversions				Topsoil spread with no bare areas greater than 100m ² .	the EA conditions. Coarse reject landforms shaped to a slope range <10%.
	Creek diversions and levees	- Safe for humans and wildlife - Non polluting - Stable - Able to sustain agreed post-mining land use	Creek diversions that operate in equilibrium with adjoining reaches of the watercourse.	Creek diversion must incorporate similar geomorphic and riparian vegetation features to those of the pre-existing watercourse and adjoining landscape. Surface water qualities of flow events through the diversion are similar to the water quality of the surrounding catchment and within the EA conditions. Remediation of the disturbed area within the watercourse diversion and adjoining floodplain is stable with evidence of vegetation achieving a trajectory of self-sustainability. Topsoil spread with no bare areas greater than 100m². Revegetation seed mix complies with final agreed land use.	In accordance with condition H2
All mine surface features	Infrastructure areas:	- Safe for humans and wildlife - Non polluting - Stable - Able to sustain agreed post-mining land use	To return a self-sustaining, low maintenance vegetation state with similar structure, composition and function to that of a native terrestrial or riparian ecosystem of the brigalow belt. Where agricultural land use	Infrastructure removed as required and revegetated to a light grazing post mining land use. Potential for erosion of waste dump slopes is reduced by correct spoil placement and functional drainage.	Any infrastructure that is to remain post closure, shall have a written agreement between the post mining land owner and Foxleigh Management Pty Ltd. Surface water run off quality is similar to the water quality of the surrounding catchment and within
	- Raw and mine-affected water storage dams - Roads and tracks - ROM stockpile areas - MIA (workshops and associated				

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Mine Domain	Mine Feature Name	Rehabilitation Goal	Rehabilitation Objectives	Indicators	Completion Criteria
	laydown, hardstand, fuel storage, washdown bay areas) - CHPP - Administration offices - Explosive magazine - Power reticulation network - Fencing Mining areas: - Residual Voids - Spoil emplacement areas - Mine residue storage areas		applies, to return self-sustaining grazing land that is sustainable and economically viable.	Adequate access areas used for agriculture that can be maintained into the future. Suitable vegetation is planted for agricultural uses. Adequate shade and water is available for stock use. Topsoil spread minimum 15cm depth, with no bare areas greater than 100m². Ripping to a minimum depth of 50cm at 1m spacing. Revegetation seed mix complies with final agreed land use.	the EA conditions. Infrastructure areas land reshaped to slope range <10%. Adequate erosion control structures have been installed, with no sites of significant wind or gully erosion that will cause harm to fauna. Vegetation established across areas with a suitable species mix for the agreed final land use. Areas where agricultural land use applies, have pasture grass species present and provide stock with nutritional requirements, as well as being capable of setting viable seed and flowering similar to reference sites in the Middlemount area and/or with a land suitability class (grazing) of 4.
Mining areas	Residual voids	- Safe for humans and wildlife - Non polluting - Stable - Able to sustain agreed post-mining land use	Residual void water bodies are able to be accessed by wildlife, used for water supplies and/or used as recreational facilities according to the final land use for that area.	Stable highwalls left standing at the slope created by the final blast and a diversion bank provided at the top for safety and drainage. Any exposed coal seam covered with material to minimise highly saline water leaching into void water stores. Drains constructed to redirect surface water from flowing over the highwall or lowwall. Geotechnical stability and risk assessments conducted to determine the appropriate treatments prior to closure.	Final voids reshaped to a slope range of <70% for competent material or <45% for non-competent material or as stated in an appropriate risk assessment conducted by a suitably qualified person. Drainage structures along highwalls and lowwalls have been revegetated, with water drainage that flows naturally without pooling or flooding.

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Mine Domain	Mine Feature Name	Rehabilitation Goal	Rehabilitation Objectives	Indicators	Completion Criteria
	Spoil emplacement areas		To return a self-sustaining, low maintenance vegetation state with similar structure, composition and function to that of a native terrestrial or riparian ecosystem of the brigalow belt.	Outer spoil slopes reshaped to 17%. Internally draining spoil slopes reshaped to <45% with appropriate spoil placement, functional drainage and erosion control structures to reduce slope erosion potential. Final rehabilitated spoil dumps will be hills with a mix of pasture and native species. Topsoil spread with no bare areas greater than 100m ² .	Spoil top of dump (out of pit and in-pit) surfaces have been constructed to a slope range < 10%. Side slopes have been constructed to a slope range < 17%. Outer spoil slopes are no longer than 100m without being broken by a bench.
	Mineral residue storage areas		To return a self-sustaining, low maintenance vegetation state with similar structure, composition and function to that of a native terrestrial or riparian ecosystem of the brigalow belt.	Tailings material will be physically and chemically assessed to determine the appropriate capping required. Mineral residue material capped with coarse reject and/or spoil and revegetated with a mix of pasture and native species. Topsoil spread with no bare areas greater than 100m ² .	Mineral residue material capped with a suitable vegetation species mix established to meet the agreed final land use. Surface water run off quality is similar to the water quality of the surrounding catchment and within the EA conditions. Coarse reject landforms shaped to a slope range <10%.

END OF PERMIT

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