

Permit

Environmental Protection Act 1994

Environmental authority EPML00885513

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

Environmental authority number: EPML00885513

Environmental authority takes effect on 27 June 2024

Environmental authority holder(s)

Name(s)	Registered address
SOUTHERN CROSS FERTILISERS PTY LTD	Level 8, 28 Freshwater PI SOUTHBANK VIC 3006 Australia

Environmentally relevant activity and location details

Environmentally relevant activity/activities	Location(s)
Resource Activity, Schedule 3, 21: A mining activity that is an ineligible ERA, other than a mining activity mentioned in items 9 to 20	ML5556 ML5543 ML5551 ML90068
Resource Activity, Ancillary 07 – Chemical Manufacturing, 4: Manufacturing, in a year, the following quantities of fertiliser, (b) more than 5,000t	ML5556 ML5543 ML5551
Resource Activity, Ancillary 16 – Extractive and Screening, 3: Screening, in a year, the following quantity of material, (a) 5,000t to 100,000t	ML5556 ML5543 ML5551
Resource Activity, Ancillary 60 – Waste disposal, 2: Operating a facility for disposing of, in a year, the following quantity of waste mentioned in subsection (1)(b), (a) less than 2,000t	ML5556 ML5543 ML5551
Resource Activity, Ancillary 54 – Mechanical Waste Reprocessing, 2(a): Operating a facility for receiving and mechanically reprocessing, in a year, the following quantity of general waste – 5,000t or less	ML5556 ML5543 ML5551
Resource Activity, Ancillary 63 – Sewage Treatment, 1: Operating sewage treatment works, other than no-release works, with a total daily peak design capacity	ML5556 ML5543 ML5551



Environmentally relevant activity/activities	Location(s)
of, (a) 21 to 100EP, (i) if treated effluent is discharged from the works to an infiltration trench or through an irrigation scheme	
Resource Activity, Ancillary 63 – Sewage Treatment, 1: Operating sewage treatment works, other than no-release works, with a total daily peak design capacity of, (b) more than 100 but not more than 1500EP, (i) if treated effluent is discharged from the works to an infiltration trench or through an irrigation scheme	ML5556 ML5543 ML5551
Resource Activity, Ancillary 14 – Electricity Generation, 1: Generating electricity by using gas at a rated capacity of 10MW electrical or more	ML5556 ML5543 ML5551
Resource Activity, Ancillary 56 – Regulated Waste Storage, Receiving and storing regulated waste	ML5556 ML5543 ML5551
Resource Activity, Ancillary 60 – Waste disposal, 1: Operating a facility for disposing of, in a year, the following quantity of waste mentioned in subsection (1)(a), (d) more than 200,000t	ML5556 ML5543 ML5551
Resource Activity, Ancillary 31 – Mineral processing, 2: Processing, in a year, the following quantities of mineral products, other than coke, (b) more than 100,000t	ML5556 ML5543 ML5551
Resource Activity, Ancillary 33 – Crushing, milling, grinding or screening: Crushing, grinding milling or screening more than 5,000t of material in a year	ML5556 ML5543 ML5551
Resource Activity, Ancillary 08 - Chemical Storage - 3 - Storing more than 500 cubic metres of chemicals of class C1 or C2 combustible liquids under AS 1940 or dangerous goods class 3 under subsection (1)(c)	ML90068
Resource Activity, Ancillary 50 - Mineral and bulk material handling - 1(b) - Loading or unloading 100t or more of minerals in a day, other than loading or unloading mentioned in item 3, or storing 50,000t or more of minerals - at another place	ML90068

Additional information for applicants

Environmentally relevant activities

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

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

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

Contaminated land

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

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

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

Take effect

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

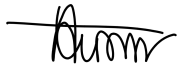
- a) if the authority is for a prescribed ERA and it states that it takes effect on the day nominated by the holder of the authority in a written notice given to the administering authority – on the nominated day; or
- b) if the authority states a day or an event for it to take effect – on the stated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

However, if the EA is authorising an activity that requires an additional authorisation (a relevant tenure for a resource activity, a development permit under the *Planning Act 2016* or an SDA Approval under the *State Development and Public Works Organisation Act 1971*), this EA will not take effect until the additional authorisation has taken effect.

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

The anniversary day of this environmental authority is the same day each year as the effective date. The payment of the annual fee will be due each year on this day. An annual return will be due each year on 01 April.

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



Signature

27 June 2024

Date

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

Enquiries:
Minerals Business Centre
Department of Environment, Science and
Innovation
Phone: 07 4222 5352
Email: ESCairns@des.qld.gov.au

Obligations under the *Environmental Protection Act 1994*

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

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

Other permits required

This permit only provides an approval under the *Environmental Protection Act 1994*. In order to lawfully operate you may also require permits / approvals from your local government authority, other business units within the department and other State Government agencies prior to commencing any activity at the site. For example, this may include permits / approvals with your local Council (for planning approval), the Department of Transport and Main Roads (to access State controlled roads), the Department of Resources (to clear vegetation), and the Department of Agriculture and Fisheries (to clear marine plants or to obtain a quarry material allocation).

Legislative Requirements and Conditions of Environmental Authority (PART A – This section relates to Mining lease (ML) ML5556, ML5543, ML5551)

Schedule A - General

- A1 This environmental authority authorises environmental harm referred to in the conditions. Where there is no condition or this environmental authority is silent on a matter, the lack of a condition or silence does not authorise environmental harm.
- A2 The environmental authority holder must ensure that the activity is carried out in accordance with Table A1 – Authorised Mining Activities and Schedule K, Map K1(A) – Mine Infrastructure Layout, Map K1(B) – Rimmer Hill Exploration Area, Map K1(C) – Western Shale Deposit Area and Map K1(D) – Central Exploration Area.

Table A1 – Authorised Mining Activities

Mine Domain	Mine Feature Name	Tenure Type and Number	Map Reference (GDA94, MGA, Zone 54)		Maximum area of disturbance (ha) for mine feature	Maximum area of disturbance (ha) allowing for nested and/or collocated features and/or combined disturbance areas
			Easting	Northing		
Plant Area	Process Plant	ML5543	394190	7580060	45.05	45.05
	Temporary Ore Sorting Pilot Plant ²	ML5443	393836	7580184	4	4
	Communications Tower	ML5443	393875	7579824	0.02	0.02
	Weighbridge	ML5443	393960	7580439	1	1
	ERT Training Ground	ML5443	393822	7580035	0.5	0.5
	Main Entry Laydown	ML5443	393898	7580261	7.55	7.55
	Process Water Pond	ML5543	383850	7579900	0.83	0.83
	Stormwater Retention	ML5543	394216	7580099	2.5	2.5
	Slimes Dam	ML5543	394350	7578850	43.56	43.56
	Slimes Interim Storage – North	ML5543	393780	7580330	6.17	6.17
	Slimes Interim Storage – South	ML5543	394750	7578000	28.89	28.89
	Topsoil - Slimes	ML5543	394397	7578325	2.7	2.7
	Rail Loop	ML5543	394740	7578980	1.86	1.86
	Old Landfill	ML5543	394914	7579064	3.14	3.14
Gypsum Disposal Facility	Cells 1 & 2	ML5543	394280	7581130	42.61	42.61
	Cell 3A	ML5543	394180	7581740	17.49	17.49
	Cell 3B	ML5543	394480	7581740	12.14	12.14
	Cell 3C	ML5543	394830	7581580	22	27

	Cell 3C spoils	ML5543	TBD	TBD	2	
	Temporary site office and laydown area (Cell 3C)	ML5543	TBD	TBD	3	
	Cell 3D	ML5543	393620	7582190	33.8	42.5
	Construction access and temp facilities (Cell 3D)	ML5543	393832	7582000	7.2	
	Laydown areas (Cell 3D)	ML5543	393792	7582206	1.5	
	Cell 4A	ML5543	394190	7582270	72.47	72.47
	Cell 4B	ML5543	394030	7582850		
	Cell 5A	ML5543	393172	7582622	65.5	65.5
	Cell 5B	ML5543	393175	7583420	51	67
	Construction access, laydown, and temp facilities (Cell 5B)	ML5543	393315	7583899	8	
	Topsoil Stockpile (Cell 5B)	ML5543	392873	7583817	8	
	Topsoil – East Gypsum, North Pile	ML5543	394500	7582930	5.27	5.27
	Topsoil – East Gypsum, South Pile	ML5543	394800	7582050	5.33	5.33
	Eastern Stormwater Drain	ML5543	394519	7581082	13.98	13.98
	Emergency Dump	ML5543	394130	7580600	4.21	4.21
	Evaporation Pond	ML5543	394410	7580550	3.58	3.58
	Disturbed Area Adjacent to Evaporation Pond	ML5543	394360	7580400	1.8	1.8
Mine Area	Jabiru Pit and Bund Wall	ML5543	394070	7576170	37.5	37.5
	Corella Pit and Bund Wall	ML5543	394070	7576900	61.98	61.98
	Brolga / Magpie Pit and Bund Wall	ML5543	392958	7578210	206.86	206.86
	Eagle Pit	ML5543	391990	7577960	48.8	48.8
	Galah Pit and Bund Wall	ML5543	393565	7579705	90.54	93.8
	Landfill Stage 2	ML5543	393460	7580480	3.26	
	Jabiru Waste Rock Dump	ML5543	393890	7575850	2.64	2.64
	Corella Waste Rock Dump	ML5543	393610	7576280	54	54
	Brolga Waste Rock Dump	ML5543	392610	7578570	50.71	50.71
	Magpie Waste Rock Dump	ML5543	393030	7576960	23.1	82.7
	Eagle Waste Rock Dump	ML5543	391964	7577488	59.6	
	Galah NAC (Not Across Creek) Dump	ML5543	393095	7579742	34.62	34.62
	Bioremediation Area	ML5543	393340	7580544	0.27	

	Landfill Stage 1	ML5543	393510	7580690	1.37	
	DAC (Dump Across Creek) Dump	ML5543	392790	7579610	12.85	12.85
	Low Grade Ore Stockpile	ML5543	393730	7581020	2.39	2.39
	ROM Pad	ML5543	394040	7579550	10.77	10.77
	Topsoil – Corella East	ML5543	394290	7576614	1.32	1.32
	Haul Roads	ML5543	-	-	29.28	29.28
	Minor Tracks and drill pads ¹	ML5543	-	-	108.35	108.35
	Mehaffey Creek Diversion	ML5543	393460	7576797	6.01	6.01
	Monument Village	ML5551	387770	7592970	30.91	35.3
	Town Yard	ML5551	387504	7592404	TBD	
	Camp Power Station	ML5551	387949	7592395	TBD	
	Sewage Treatment Plant	ML5551	387649	7592411	TBD	
	Sporting Oval Irrigation Area	ML5551	387840	7592690	1.8	
	Golf Course Irrigation Area	ML5551	387590	7592600	1.36	1.36
	New Irrigation Area	ML5551	388540	7592160	11.5	11.5
	Airport	ML5543	388890	7587620	70	70
	Monument to Phosphate Hill Road	ML5543	-	-	15.16	20.47
	Monument to Phosphate Hill Road	ML5551	-	-	1.31	
	Monument to Phosphate Hill Road	ML5556	-	-	4	
	Osborne Road	ML5543	-	-	1.68	1.68
	Duchess Monument Road (unsealed)	ML5543	-	-	4.95	4.95
	Temporary Construction Camp ³	ML5543	392224	7585750	6	6
Exploration	Exploration/Sampling	ML5543	-	-	Authorised exploration drilling area extents depicted on EA Map K1(A) – Mine Infrastructure Layout, Map K1(B) – Rimmer Hill Exploration Area, Map K1(C) – Western Shale Deposit Area and Map K1(D) – Central Exploration Area. Cumulative drilling disturbance must not exceed 145	
Other	Fence Line	ML5543	-	-	1.7	1.7

1 Authorised disturbance located wholly within the Minor Tracks mine feature includes 62 Test Pits, 62 Core Sample Bore Holes and 47 Drill holes for the Duchess Embayment Aquifer Water Reserves Drilling Campaign.

2 Temporary Ore Sorting Pilot Plant to be decommissioned and the administering authority notified of this action upon completion of trial, but not later than 2030.

3 Temporary Construction Camp to be decommissioned and the administering authority notified of this action upon completion of construction of Sulfuric Acid Plant, but not later than 2030.

- A3 The Environmental Authority holder must:
- a) Install all measures, plant and equipment necessary to ensure compliance with the conditions of this environmental authority;
 - b) Maintain such measures, plant and equipment in a proper and efficient condition;
 - c) Operate such measures, plant and equipment in a proper and efficient manner; and,
 - d) Ensure all instruments and devices used for the measurement or monitoring of any parameter under any condition of this environmental authority are properly calibrated.
- A4 **Monitoring**
The Environmental Authority holder must record, compile and keep for a minimum of five (5) years all monitoring results required by this environmental authority and make available for inspection all or any of these records upon request by the administering authority.
- A5 **Financial Assurance**
The activity must not be carried out until the environmental authority holder has given financial assurance to the administering authority as security for compliance with this environmental authority and any costs or expenses, or likely costs or expenses, mentioned in section 298 of the Act.
- A6 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.
- A7 **Risk Management**
The holder of this environmental authority must develop and implement a risk management system for mining activities which mirrors the content requirement of the Standard for Risk Management (ISO31000:2009), or the latest edition of an Australian standard for risk management, to the extent relevant to environmental management, by 30 June 2014.
- A8 **Notification of Emergencies, Incidents and Exceptions**
The holder of this environmental authority must notify the administering authority by written notification within 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.
- A9 Within 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
 - c) proposed actions to prevent a recurrence of the emergency or incident.
- A10 **Complaints**
The holder of this environmental authority must record all environmental complaints received about the mining activities including:
- a) name, address and contact number for of the complainant
 - b) time and date of complaint
 - c) reasons for the complaint
 - d) investigations undertaken
 - e) conclusions formed
 - f) actions taken to resolve the complaint
 - g) any abatement measures implemented.
 - h) person responsible for resolving the complaint

- A11 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 10 business days of completion of the investigation, or no later than 10 business days after the end of the timeframe nominated by the administering authority to undertake the investigation.
- A12 **Third Party Auditing**
The holder of this environmental authority must:
a) obtain from an appropriately qualified person a report on compliance with the conditions of this environmental authority
b) obtain further such reports at regular intervals, not exceeding 3 yearly intervals, from the completion of the report referred to above; and
c) provide each report to the administering authority within 90 days of its completion.
- A13 **Transition to New Standards**
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 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 Schedule I — Regulated Dams, the time specified in that condition.
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.
- A14 **Exploration**
All exploration activities carried out on the mining leases must comply with each of the Standard Environmental Conditions contained in the department's published *Eligibility criteria and standard conditions for exploration and mineral development projects—Version 2* (ESR/2016/1985, version 2.00). Where there is a discrepancy between the standard conditions and this environmental authority, the conditions of the environmental authority apply.
- A15 **Definitions**
Words and phrases used throughout the environmental authority are defined in Schedule J — Definitions. Where a definition for a term used in the environmental authority is sought and the term is not defined within the environmental authority, the definitions in the *Environmental Protection Act 1994*, its Regulations and Environmental Protection Policies must be used.

Schedule B - Air

B1 General

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

B2 The holder of this environmental authority must ensure that vehicles (including trains) used for transporting bulk materials to and from the mining tenement, enter and leave the site with appropriate load preparation to prevent the spillage and/or loss of particulate matter and/or windblown dust to the receiving environment during transport.

B3 Point Source Release of Contaminants to the Atmosphere

Discharges of contaminants to air from the activity, other than dust and particulate matter addressed by condition B5, must be in accordance with Table B1— Release Points and Contaminant Limits.

B4 Conduct a monitoring program of contaminant releases to the atmosphere at the release points, frequency and for the contaminants specified in Table B1— Release Points and Contaminant Limits and which complies with the most recent edition of AS4323.1 Stationary source emissions method 1: Selection of sampling positions, and the most recent edition of the administering authority's air quality sampling manual.

Table B1 – Release Points and Contaminant Limits

Release Point	Minimum release height (metres)	Minimum velocity (m/sec)	Contaminant release	Contaminant Trigger Level ¹	Maximum release limit ¹	Sampling frequency
Power Station - Taurus 60 Gas Turbine x 4	15	20	NO _x as NO ₂	NA	17,200 g/hr	Annually
Power Station - Taurus 60 Gas Turbine x 4	15	20	CO	NA	3,500 g/hr	Annually
Phosphoric Acid Plant - Exhaust stack	35	13.1	F (gaseous)	NA	0.05 g/Nm ³	Annually
Granulation Plant - Flue Stack	46.7	16.5	F (gaseous)	NA	0.05 g/Nm ³	Annually
Granulation Plant - Flue Stack	46.7	16.5	Ammonia	NA	0.098 g/Nm ³	Annually
Granulation Plant - Flue Stack	46.7	16.5	Particulates	NA	0.25 g/Nm ³	Annually
Granulation Plant - Flue Stack	46.7	16.5	Sulfur Dioxide	NA	0.025 ⁴ g/Nm ³	Annually
					0.600 ⁵ g/Nm ³	Annually
Sulfur Melter Stack ²	8	16.6	Sulfur Dioxide	NA	NA	Event based ²
Sulfuric Acid Plant (SAP) Stack ^{2, 3}	60	15	Sulfur Dioxide	1.756 g/Nm ³	3.804g/Nm ³	Continuous, hourly sample averages

¹ Measured in the stack;

² In the event that ambient monitoring shows exceedance of a limit defined in Schedule B – Table 3 (Ambient Sulfur Dioxide Limits), the holder of this environmental authority must undertake monitoring on the Sulfur Melter Stack and investigate the cause of the exceedance;

3 Sulfur Dioxide triggers and limits apply except during operational start up, shut down or emergency shutdown periods. All reasonable and practicable measures must be taken to minimise the frequency of start-up and shut downs, and to limit Sulfur dioxide emissions during these periods. Operational start up, shut down or emergency shutdown periods is defined as:

- (a) Start-up - refers to the process of taking the SAP from cold and non-operational (e.g., air blower offline, no Sulfur feed to furnace) through to introducing Sulfur feed and stabilising for 4 hours. After 4 hours of continuous Sulfur feed to the furnace the start-up has concluded;
- (b) Shutdown - refers to the process of taking the SAP from hot and operational (e.g., air blower online and Sulfur feed on to furnace) through to cold and non-operational. The shutdown has concluded once the plant is cold and air blower offline;
- (c) Emergency shutdown - refers to the process of the SAP being taken to a non-operational mode (e.g., air blower offline, no Sulfur feed to furnace) in a rapid manner as a result of an abnormal operating scenario (e.g., power failure, equipment failure, etc.).

4 Maximum release limit during normal fertiliser product manufacturing;

5 Maximum release limit during Sulfur-fortified fertiliser product manufacturing.

NA – Not Applicable

NOTE: Florida Standard applies only to granulation plant flue stack as sampling ports have been installed to this standard, not Australian Standard.

B5 Dust and Particulate Matter Monitoring

The holder of this environmental authority must 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 1 month, when monitored in accordance with the most recent version of Australian Standard AS3580.10.1 Methods for sampling and analysis of ambient air—Determination of particulate matter—Deposited matter — Gravimetric method.
- (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 5 exceedances recorded each year, when monitored in accordance with the most recent version of either:
 - a. Australian Standard AS3580.9.6 Methods for sampling and analysis of ambient air—Determination of suspended particulate matter—PM₁₀ high volume sampler with size-selective inlet — Gravimetric method; or
 - b. Australian Standard AS3580.9.9 Methods for sampling and analysis of ambient air—Determination of suspended particulate matter—PM₁₀ low volume sampler—Gravimetric method.
- (c) A concentration of particulate matter with an aerodynamic diameter of less than 2.5 micrometres (PM_{2.5}) suspended in the atmosphere of 25 micrograms per cubic metre over a 24-hour averaging time, when monitored in accordance with the most recent version of AS/NZS3580.9.10 Methods for sampling and analysis of ambient air—Determination of suspended particulate matter—PM (sub)2.5/(sub) low volume sampler—Gravimetric method.
- (d) A concentration of particulate matter suspended in the atmosphere of 90 micrograms per cubic metre over a 1 year averaging time, when monitored in accordance with the most recent version of AS/NZS3580.9.3:2003 Methods for sampling and analysis of ambient air—Determination of suspended particulate matter—Total suspended particulate matter (TSP)—High volume sampler gravimetric method

B6 Ambient Air Quality - Sulfur Dioxide Monitoring

The holder of this environmental authority must carry out an ambient air quality monitoring program for Sulfur dioxide at the monitoring locations and at the frequency specified in Table B2 (Sulfur Dioxide Monitoring Locations) and Schedule K, Map K7 - Sulfur Dioxide Monitoring Locations¹.

Table B2 - Sulfur Dioxide Monitoring Locations

Monitoring Location	Map Reference (GDA94, MGA, Zone 54)		Monitoring Frequency
	Easting	Northing	
TBA ¹	TBA ¹	TBA ¹	Continuous ²
TBA ¹	TBA ¹	TBA ¹	
TBA ¹	TBA ¹	TBA ¹	
TBA ¹	TBA ¹	TBA ¹	

1 To be advised at least one (1) month prior to commissioning of Sulfuric acid plant. Monitoring locations must be:

(a) Developed by an appropriate qualified person and meet the requirements of the Environmental Protection (Air) Policy 2008;

(b) Sufficient in numbers to monitor impacts on the receiving environment and any sensitive receptors in order to make statistically valid conclusions;

(c) Installed in accordance with the relevant Australian Standards.

2 Monitoring which provides data equal to at least 75 percent of the total possible data required in any period of:

(a) twelve (12) calendar months; and

(b) three (3) calendar months, satisfies this requirement.

- B7 Emissions from the site must not cause an exceedance of the maximum Sulfur Dioxide concentrations specified in Table B3 - Ambient Sulfur Dioxide Limits when measured at the monitoring locations defined in Table B2 - Sulfur Dioxide Monitoring Locations.

Table B3 - Ambient Sulfur Dioxide Limits

Averaging Time	Maximum Sulfur Dioxide Concentration (µg/m ³)
Annual	22
1 day	230
1 hour	570

Schedule C – Waste Management

- C1 General waste must only be disposed of into the waste disposal trench facility of ML5543 and identified in Schedule K, Map K6 - Waste Disposal Trench Location.
- C2 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.
- C3 The holder of this environmental authority may burn vegetation cleared in the course of carrying out extraction activities provided the activity does not cause environmental harm at any sensitive place or commercial place.
- C4 The holder of this environmental authority may burn limited quantities of waste timber pallets for emergency response and fire management training purposes provided the activity does not cause environmental harm at any sensitive place or commercial place.
- C5 **Waste Disposal**
Regulated waste, other than that authorised to be disposed of on site under this authority, must only be removed and transported from the site by a person who holds a current authority to transport such wastes to a facility that is lawfully able to accept the waste under the *Environmental Protection Act 1994*.
- C6 The only waste that can be disposed of on site is waste generated on site and is limited to:
- a) Waste rock
 - b) Gypsum
 - c) Rejects (waste contaminated fertiliser and fertiliser additives, acid contaminated sludge and scales)
 - d) Slimes
 - e) General waste including construction and demolition waste, green waste and putrescible and domestic wastes
 - f) Tyres/Conveyor belt/rubber moulded products
 - g) Contaminated Plant Consumables (acid-contaminated fiberglass pipes, filter cloths, bricks, cooling tower mist eliminators, Personal protective equipment (PPE), spill neutralisation and clean-up material, anti-scaling agent, mixed bed resins)
 - h) HDPE pipes contaminated with gypsum to the Gypsum Storage Facility, provided the disposal does not impact on the stability of the facility.
- C7 The environmental authority holder must seek written approval from the administering authority beforehand to dispose of any regulated waste not currently approved for disposal on site under this authority. The environmental authority holder must provide details to the administering authority of the waste to be disposed including:
- a) Name of waste
 - b) Type of waste
 - c) Chemical composition of waste
 - d) Proposed waste destination
 - e) Volume/Amount of waste
 - f) Risk assessment of disposing waste onsite
 - g) Assessment of alternative waste management options.

C8 Slimes (Tailings) Disposal

Slimes must be managed in accordance with procedures contained within the current Environmental Management Plan. These procedures must include provisions for:

- a) Containment of slimes in accordance with design plan;
- b) The management of seepage and leachates both during operation and post closure;
- c) The control of fugitive emissions to air;
- d) Rehabilitation strategy which meets the rehabilitation objectives specified in Schedule H – Land and Rehabilitation; and
- e) Monitoring of rehabilitation, research and/or trials to verify the requirements and methods for decommissioning and final rehabilitation of slimes, including the prevention and management of acid drainage, erosion minimisation and establishment of vegetation cover.

C9 Waste Rock Disposal

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
- g) rehabilitation strategy

C10 The holder must develop, document and implement procedures and guidelines for the acceptance, handling, storage and processing of regulated waste at the designated Bioremediation Area identified in Schedule K, Map K6 – Waste Disposal Trench.

C11 The bioremediation activity must be undertaken in accordance with written procedures that:

- a) ensure that only waste suitable for bioremediation is accepted for storage and processing within the designated Bioremediation Area
- b) identify potential risks to the environment from the activity during routine operations, closure and an emergency
- c) establish and maintain control measures that minimise the potential for environmental harm
- d) ensure that staff are trained in and aware of their obligations under the *Environmental Protection Act 1994*
- e) ensure that reviews of environmental performance are undertaken at least annually

C12 An area which provides an impervious barrier to subsoil and groundwater must be used for:

- a) receiving, storing, mixing and processing materials associated with the bioremediation activity
- b) collecting and storing leachate.

C13 Stormwater runoff from disturbed areas associated with the bioremediation area, generated by (up to and including) a 24 hour storm event with an average recurrence interval of one-in-ten years must be retained on site and can only be released after the event where:

- a) beneficial reuse on site is not viable
- b) a release is required to maintain the required stormwater retention capacity
- c) there are no contaminants present or at concentrations which may cause environmental harm

- C14 All reasonable and practicable measures must be taken to exclude vectors and pest species from the bioremediation area to the extent necessary to prevent:
- a) environmental nuisance to occupiers of neighbouring premises
 - b) any danger or risk to the health of any persons.
- C15 The holder of this environmental authority must ensure detailed records are maintained of all waste accepted for storage, treatment and processing at the Bioremediation Area, including the date accepted, and the origin, quantity and chemical composition of the waste.

Schedule D – Noise and Vibration

D1 Noise limits

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

Table D1 – Noise Limits, Sensitive Place

Noise Level (d(b)A measured as:	Monday to Saturday			Sundays and Public Holidays		
	7am–6pm	6pm–10pm	10pm–7am	9am–6pm	6pm–10pm	10pm–9am
LAeq, adj, 15 mins	CV = 50 AV = 5	CV = 45 AV = 5	CV = 40 AV = 0	CV = 45 AV = 5	CV = 40 AV = 5	CV = 35 AV = 0
LA1, adj, 15 mins	CV = 55 AV = 10	CV = 50 AV = 10	CV = 45 AV = 5	CV = 50 AV = 10	CV = 45 AV = 10	CV = 40 AV = 5

Notes:

a) CV: Critical Value, AV: Adjustment Value

b) To calculate noise limits;

If $bg \leq (CV-AV)$: Noise limit = $bg + AV$

If $(CV-AV) < bg \leq CV$: Noise limit = CV

If $bg > CV$: Noise limit = $bg+0$

c) In the event that measured bg (LA90,adj, 15 mins) is less than 30 dB(A), then 30 dB(A) can be substituted for the measured background level.

d) Bg = background noise level (LA90, adj, 15 mins) measured over 3 – 5 days at the nearest sensitive receptor.

e) If the project is unable to meet the noise limits as calculated above alternative limits may be calculated using the process outlined in the 'Planning for Noise Control' guideline.

D2 Air Blast Overpressure Nuisance

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

Table D2 - Blasting Noise Limits

Blasting noise limits	Sensitive or commercial place limits	
	7am to 6pm	6pm to 7am
Air blast overpressure	115 dB (Linear) Peak for nine (9) out of ten (10) consecutive blasts initiated and not greater than 120 bB (Linear) Peak at any time	No Blasting
Ground vibration peak particle velocity	5mm/second peak particle velocity for nine (9) out of ten (10) consecutive blasts and not greater than 10 mm/second peak particle velocity at any time	No Blasting

D3 Monitoring and Reporting

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

a) LAN,T (where N equals the statistical levels of 1, 10 and 90 and T = 15 mins)

b) background noise LA90

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

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

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

f) location, date and time of monitoring

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

Schedule E – Groundwater

E1 Groundwater

The holder of this environmental authority must not release contaminants to groundwater.

- E2 Groundwater quality and levels must be monitored at the locations and frequencies defined in Table – E1 – Groundwater Monitoring Locations and Frequency and Schedule K, Map K2(A) – Groundwater Monitoring Sites – Gypsum Stacks, Map K2(B) – Groundwater Monitoring Sites – Slimes Dams and Map K2(C) – Groundwater Monitoring Sites – SAP for quality characteristics identified in Table E2 - Groundwater Quality Contaminant Triggers and Limits.

Table E1 - Groundwater Monitoring Locations and Frequency

Monitoring point	Map Reference (GDA94, MGA, Zone 54)		Surface RL (m) (Top of Steel)	Monitoring frequency
	Easting	Northing		
Compliance Bores				
EPMB1	394618	7581185	272.78	Quarterly
EPMB2	394555	7580742	269.93	
EPMB4	394478	7580014	265.52	
GSMB1A	394055	7580565	269.58	
GSMB2A	394077	7581033	270.58	
GSMB4B	393970	7581658	270.89	
GSMB9	394207	7580521	266.63	
GSMB15A	394677	7581509	273.39	
SAPMB01	TBD ¹	TBD ¹	TBD ¹	
SAPMB02	TBD ¹	TBD ¹	TBD ¹	
SAPMB03	TBD ¹	TBD ¹	TBD ¹	
SAPMB04	TBD ¹	TBD ¹	TBD ¹	
Reference Bore				
GW05A	394277	7580069	267.68	Quarterly
Observation Bores ³				
GSMB7A	394645	7582037	273.13	6 monthly
GSMB11	393879	7582145	272.98	
GSMB12	393713	7582968	274.77	
GSMB13	393963	7583175	276.26	
GSMB14	394468	7582732	274.68	
GSMB17	392851	7582790	274.08	
GSMB28	393268	7582031	272.2	
GSMB29	393609	7581873	273.3	
GSMB30	393260	7583867	279.6	
GSMB31	393596	7583575	278.3	
WAS-RB	392619	7583475	282.08	
DPMB1	TBD ²	TBD ²	TBD ²	
DPMB2	TBD ²	TBD ²	TBD ²	
DPMB3	TBD ²	TBD ²	TBD ²	
SDMB01	394289	7578528	262.18	
SDMB02	394955	7577686	260.63	

SDMB03	394834	7578865	261.56	
SDMB04	394826	7578360	261.43	

¹ – To be determined prior to commissioning of Sulfuric Acid Plant.

² – To be advised prior to construction of Decant Pond Cell 3C.

³ – Contaminant trigger level and contaminant limits are not applicable to 'Observation Bores'.

Table E2 - Groundwater Quality Contaminant Triggers and Limits

Parameter	Unit	Contaminant Trigger Level ¹	Contaminant Limit ¹
pH	pH	6.0 ² (minimum) 7.5 ² (maximum)	5.0 (minimum) 9.0 (maximum)
Electrical Conductivity	µS/cm	1500 or 80 th percentile of reference, whichever is higher	5970 or 95 th percentile of reference ¹ , whichever is lower
Chloride	For Interpretation Purposes		
Fluoride	mg/L	80 th percentile of reference	2.0 ³ or 95 th percentile of reference, whichever is lower
Sulphate	mg/L	80 th Percentile of reference	1000 ³ or 95 th percentile of reference ¹ , whichever is lower
Total Nitrogen	mg/L	0.15 ² or 80 th percentile of reference, whichever is higher	95 th percentile of reference
Filterable Reactive Phosphorus	mg/L	0.04 ⁵ or 80 th percentile of reference, whichever is higher	95 th percentile of reference
Total Phosphorus	mg/L	3.12 ⁵ or 80 th percentile of reference, whichever is higher	95 th percentile of reference
Aluminium	mg/L	0.055 ² or 80 th percentile of reference, whichever is higher	5 ³ or 95 th percentile of reference ¹ , whichever is lower
Arsenic	mg/L	0.013 ² or 80 th percentile of reference, whichever is higher	0.5 ³ or 95 th percentile of reference ¹ , whichever is lower
Cadmium	mg/L	0.0015 ⁵ or 80 th percentile of reference, whichever is higher	0.01 ³ or 95 th percentile of reference ¹ , whichever is lower
Chromium	mg/L	0.008 ⁴ or 80 th percentile of reference, whichever is higher	0.5 ³ or 95 th percentile of reference ¹ , whichever is lower
Cobalt	mg/L	0.0028 ² or 80 th percentile of reference, whichever is higher	1 ³ or 95 th percentile of reference ¹ , whichever is lower
Copper	mg/L	0.0126 ⁴ or 80 th percentile of reference, whichever is higher	1 ³ or 95 th percentile of reference ¹ , whichever is lower
Lead	mg/L	0.06 ⁵ or 80 th percentile of reference, whichever is higher	0.1 ³ or 95 th percentile of reference ¹ , whichever is lower
Mercury	mg/L	0.0006 ² or 80 th percentile of reference, whichever is higher	0.002 ³ or 95 th percentile of reference ¹ , whichever is lower
Nickel	mg/L	0.025 ⁵ or 80 th percentile of reference, whichever is higher	1 ³ or 95 th percentile of reference ¹ , whichever is lower
Selenium	mg/L	0.011 ² or 80 th percentile of reference, whichever is higher	0.02 ³ or 95 th percentile of reference ¹ , whichever is lower
Uranium	mg/L	0.008 or 80 th percentile of reference, whichever is higher	0.2 ³ or 95 th percentile of reference ¹ , whichever is lower
Zinc	mg/L	0.072 ⁴ or 80 th percentile of reference, whichever is higher	20 ³ or 95 th percentile of reference ¹ , whichever is lower
Hardness	Interpretational purposes only		
Alkalinity	Interpretational purposes only		

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. Contaminant limits apply for metal/metalloids if total results exceed limits.

² ANZECC/ARMCANZ (2000) trigger values for aquatic ecosystems indicative of slightly-to-moderately disturbed tropical Australian upland river ecosystems Tables 3.3.4 and Table 3.4.1 and moderate or low reliability trigger values (Section 8.3) if no value available in Table 3.4.1.

³ Contaminant limits based on ANZECC/ARMCANZ (2000) livestock drinking water guidelines

⁴ Hardness modified trigger value; extremely hard water (400 mg/L as CaCO₃); refer to ANZECC/ARMCANZ (2000) Table 3.4.4 for the approximate factors to apply to soft water trigger value in fresh water.

⁵ Site specific trigger value (April 2014).

Notes:

* In any given sampling event, where the contaminant limit is exceeded and the reference site also exceeds the contaminant limit, the value of the reference data applies.

*** The quality characteristics required to be monitored as per Table E2 - Groundwater Quality Contaminant Triggers and Limits can be reviewed once the results of 2 years monitoring data is available, or if sufficient data is available to adequately demonstrate negligible environmental risk.*

- E3 If quality characteristics of groundwater from compliance bores identified in Table E1 - Groundwater Monitoring Locations and Frequency exceed any of the trigger levels stated in Table E2 - Groundwater Quality Contaminant Triggers and Limits, the holder of this environmental authority must compare the compliance monitoring bore results to the reference bore results and
- (a) If the level of contaminants at the compliance monitoring bores does not exceed the reference bore results, then no action is to be taken; and,
 - (b) If the level of contaminants at the compliance monitoring bore is greater than the reference bore results, complete an investigation in accordance with the ANZECC and ARMCANZ 2000, into the potential for environmental harm and provide a written report to the administering authority within three (3) months, outlining:
 - i. Details of the investigations carried out; and,
 - ii. Actions taken to prevent environmental harm.

Note: Where an exceedance of a trigger level has occurred and is being investigated in accordance with E3(b) of this condition, no further reporting is required for subsequent trigger events for that quality characteristic within the three month investigation period.

- E4 Results of monitoring of groundwater from compliance bores identified in Table E1 - Groundwater Monitoring Locations and Frequency, must not exceed any of the contaminant limits stated in Table E2 - Groundwater Quality Contaminant Triggers and Limits.

Schedule F – Water

- F1 The release of contaminants to waters must:
- (a) only occur during flow events in the receiving waters;
 - (b) only occur from a release point specified in Table F1 – Contaminant Release Points and identified in Schedule K, Map K3 – Contaminant Release Points; and,
 - (c) be monitored at the release point and frequency specified in Table F1 – Release Points for each parameter specified in Table F2 – Release Quality Objectives.

Table F1 – Contaminant Release Points

Release Point	Map Reference (GDA94, MGA, Zone 54)		Contaminant Source, Location, and Description of Release Point	Receiving Waters Description	Monitoring Frequency
	Easting	Northing			
Main Stormwater Pond	394216	7580102	Stormwater runoff from the granulation plant and phosphoric acid plant – from the main stormwater pond spillway	Railway Creek	Daily during release (the first sample must be taken within 2 hours of commencement of release if safe to do so)
Beneficiation Pond	394271	7579678	Beneficiation plant, runoff from heavy equipment workshop	Railway Creek	
Ammonia Pond	394219	7580289	Stormwater runoff from the gypsum conveyor (south) and ammonia plant –Ammonia Pond spillway.	Railway Creek	
Gypsum Conveyor Sump	394256	7580494	Stormwater runoff from the gypsum conveyor (north) –Gypsum Conveyor Sump spillway.	Railway Creek	

Table F2 – Release Quality Objectives

Quality Characteristics	Release Quality Objectives ¹ (mg/L unless otherwise specified)
pH (pH units)	6.0 ² or 20 th percentile of reference site concentration ³ , whichever is lower. 7.5 ² or 80 th percentile of reference site concentration ³ , whichever is higher.
EC (µS/cm)	Dilution Factor ⁴ x 435 or Dilution Factor ⁴ x 80 th percentile of reference site concentration ³ whichever is higher
Suspended Solids	For interpretational purposes only
Dissolved oxygen	For interpretational purposes only
Sulphate	Dilution Factor ⁴ x 80 th percentile of reference site concentration ³
Fluoride	Dilution Factor ⁴ x 80 th percentile of reference site concentration ³
Total Nitrogen	Dilution Factor ⁴ x 0.15 ² or Dilution Factor ⁴ x 80 th percentile of reference site concentration ³ whichever is higher
Filterable Reactive Phosphorus	Dilution Factor ⁴ x 0.04 ⁵ or Dilution Factor ⁴ x 80 th percentile of reference site concentration ³ whichever is higher
Total Phosphorus	Dilution Factor ⁴ x 3.12 ⁵ or Dilution Factor ⁴ x 80 th percentile of reference site concentration ³ whichever is higher
Major cations	

Major anions	For interpretative purposes only
Aluminium	Dilution Factor ⁴ x 0.055 ² or Dilution Factor ⁴ x 80 th percentile of reference site concentration ³ whichever is higher
Arsenic	Dilution Factor ⁴ x 0.013 ² or Dilution Factor ⁴ x 80 th percentile of reference site concentration ³ whichever is higher
Cadmium	Dilution Factor ⁴ x 0.0002 ² or Dilution Factor ⁴ x 80 th percentile of reference site concentration ³ whichever is higher
Chromium	Dilution Factor ⁴ x 0.001 ² or Dilution Factor ⁴ x 80 th percentile of reference site concentration ³ whichever is higher
Cobalt	Dilution Factor ⁴ x 0.0028 ² or Dilution Factor ⁴ x 80 th percentile of reference site concentration ³ whichever is higher
Copper	Dilution Factor ⁴ x 0.0014 ² or Dilution Factor ⁴ x 80 th percentile of reference site concentration ³ whichever is higher
Lead	Dilution Factor ⁴ x 0.0034 ² or Dilution Factor ⁴ x 80 th percentile of reference site concentration ³ whichever is higher
Mercury	Dilution Factor ⁴ x 0.0006 ² or Dilution Factor ⁴ x 80 th percentile of reference site concentration ³ whichever is higher
Nickel	Dilution Factor ⁴ x 0.011 ² or Dilution Factor ⁴ x 80 th percentile of reference site concentration ³ whichever is higher
Selenium	Dilution Factor ⁴ x 0.005 ² or Dilution Factor ⁴ x 80 th percentile of reference site concentration ³ whichever is higher
Uranium	Dilution Factor ⁴ x 0.0005 ² or Dilution Factor ⁴ x 80 th percentile of reference site concentration ³ whichever is higher
Zinc	Dilution Factor ⁴ x 0.008 ² or Dilution Factor ⁴ x 80 th percentile of reference site concentration ³ whichever is higher
Alkalinity	For interpretative purposes only
Total Hardness	For interpretative purposes only
Total petroleum hydrocarbons	No detectable film or odour

¹ For release quality objectives (RQO) parameters, all metals and metalloids must be measured and reported as both total (unfiltered) and dissolved (field filtered) levels.

² ANZECC/ARMCANZ (2000) values for aquatic ecosystems indicative of slightly-to-moderately disturbed tropical Australian upland river ecosystems Tables 3.3.4 and Table 3.4.1 (high reliability trigger values) and moderate or low reliability trigger values (Section 8.3) if no value available in Table 3.4.1.

³ Reference site concentration determined from reference points specified in Table F3 – Receiving Water Monitoring Locations and Frequency.

⁴ Dilution Factor is the volume ratio of receiving water flow to contaminated water release. The volume of flow in the receiving water (Railway Creek) must be at least 20 times the volume of contaminated waters released as specified in EA condition F2.

⁵ Site specific water quality objective (April 2014).

Note: (1) The quality characteristics required to be monitored as per Table F2 – Release Quality Objectives can be reviewed once the results of 2 years monitoring data is available, or if sufficient data is available to adequately demonstrate negligible environmental risk.

F2 At the time of release from the authorised release point specified in Table F1 — Contaminant Release Points the modelled water flow volume in the respective receiving water must be at least twenty (20) times the volume at which respective contaminated waters are released.

F3 The release of contaminants to waters must not exceed the release quality objectives stated in Table F2 – Release Quality Objectives for each quality characteristic.

- F4 The holder of this environmental authority must notify the administering authority as soon as practicable of a release event (no later than twenty four (24) of having commenced releasing mine affected water to the receiving environment). Notification must include the submission of written verification to the administering authority of the following information:
- release commencement date/time;
 - expected release cessation date/time;
 - release point/s;
 - release volume (estimated);
 - receiving water/s including the natural flow rate; and
 - any details (including available data) regarding likely impacts on the receiving water(s).
- F5 The holder of this environmental authority must notify the administering authority as soon as practicable, (nominally within twenty four (24) hours after cessation of a release) of the cessation of a release notified under Condition F4 and within twenty-eight (28) days provide the following information in writing:
- release cessation date/time;
 - natural flow volume in receiving water;
 - volume of water released;
 - details regarding the compliance of the release with the conditions of Agency Interest: Water of this environmental authority (i.e., contamination limits, natural flow, discharge volume);
 - all in-situ water quality monitoring results; and
 - any other matters pertinent to the water release event.
- F6 **Receiving Environment Monitoring and Contaminant Trigger Levels**
The quality of the receiving waters must be monitored at the locations and frequency specified in Table F3 - Receiving Water Monitoring Locations and Frequency and depicted in Schedule K, Map K4 – Surface Water and Sediments Monitoring Locations for each quality characteristic stated in Table F4 - Receiving Water Trigger Levels and Contaminant Limits.

Table F3 – Receiving Water Monitoring Locations and Frequency

Monitoring point	Map Reference (GDA94, MGA, Zone 54)		Monitoring frequency
	Easting	Northing	
Compliance Sites			
KC (Kolar Creek)	394963	7577235	Each stream flow event
KC1 (Kolar Creek 1)	403095	7572067	Each stream flow event
RC (Railway Creek)	394935	7578326	Each stream flow event
Reference Sites ¹			
DHC (Dead Horse Creek)	391718	7579274	Each stream flow event
PHO-9	393988	7583968	Each stream flow event
GC1 (Galah Creek 1)	390778	7586252	Each stream flow event
RCT (Railway Creek Tributary)	395133	7579732	Each stream flow event
Observation Sites ²			
RC1 (Railway Creek 1)	394076	7580806	Each stream flow event
RC2 (Railway Creek 2)	394467	7580710	Each stream flow event
KC3 (Kolar Creek 3)	398072	7575607	Each stream flow event

NOTES:

¹ Reference sites must:

- be from the same bio-geographic and climatic region;
- have similar geology, soil types and topography;
- contain a range of habitats similar to those at the test sites;
- be of a similar follow regime; and
- not be so close to the test sites that any disturbances at the test site also results in a change at the reference site.

² Observation sites are to assist in characterisation of Railway Creek and Kolar Creek. Receiving water trigger levels and contaminant limits are not applicable.

Table F4 – Receiving Water Trigger Levels and Contaminant Limits

Quality Characteristic	Unit	Contaminant Trigger Level ^{1,3}	Contaminant Limit ^{1,2,3}
pH (pH Unit)	pH	6.0 (minimum) 7.5 (maximum)	5.0 (minimum) or 5th percentile of reference site concentration, whichever is higher. 9.0 (maximum) or 95th percentile of reference site concentration, whichever is lower.
Electrical conductivity	µs/cm	435 or 80 th percentile of reference site concentration, whichever is higher	1000 or 95th percentile of reference site concentration, whichever is lower
Sulphate (SO ₄ ²⁻)	mg/L	80 th percentile of reference site concentration	1000 ⁵ or 95th percentile of reference site concentration, whichever is lower
Fluoride	mg/L	80 th percentile of reference site concentration	2 ⁵ or 95 th percentile of reference site concentration, whichever is lower
Total Nitrogen	mg/L	0.15 ⁴ or 80 th percentile of reference site concentration, whichever is higher	95 th percentile of reference site concentration
Filterable Reactive Phosphorus (FRP)	mg/L	0.04 ⁶ or 80 th percentile of reference site concentration, whichever is higher	95 th percentile of reference site concentration
Total Phosphorus	mg/L	3.12 ⁶ or 80 th percentile of reference site concentration, whichever is higher	95 th percentile of reference site concentration
Aluminium (At KC1 and KC2)	mg/L	0.055 ⁴ or 80 th percentile of reference site concentration, whichever is higher	19.62 ⁷
Aluminium (At RC)	mg/L	0.055 ⁴ or 80 th percentile of reference site concentration, whichever is higher	5 ⁵ or 95th percentile of reference site concentration, whichever is lower
Arsenic	mg/L	0.013 ⁴ or 80 th percentile of reference site concentration, whichever is higher	0.5 ⁵ or 95th percentile of reference site concentration, whichever is lower
Cadmium	mg/L	0.0002 ⁴ or 80 th percentile of reference site concentration, whichever is higher	0.01 ⁵ or 95th percentile of reference site concentration, whichever is lower
Chromium	mg/L	0.001 ⁴ or 80 th percentile of reference site concentration, whichever is higher	1 ⁵ or 95th percentile of reference site concentration, whichever is lower
Cobalt	mg/L	0.0028 ⁴ or 80 th percentile of reference site concentration, whichever is higher	1 ⁵ or 95th percentile of reference site concentration, whichever is lower
Copper	mg/L	0.0014 ⁴ or 80 th percentile of reference site concentration, whichever is higher	1 ⁵ or 95th percentile of reference site concentration, whichever is lower
Lead	mg/L	0.0034 ⁴ or 80 th percentile of reference site concentration, whichever is higher	0.1 ⁵ or 95th percentile of reference site concentration, whichever is lower
Mercury	mg/L	0.0006 ⁴ or 80 th percentile of reference site concentration, whichever is higher	0.002 ⁵ or 95% of reference site concentration, whichever is lower
Nickel	mg/L	0.011 ⁴ or 80 th percentile of reference site concentration, whichever is higher	1 ⁵ or 95th percentile of reference site concentration, whichever is lower
Selenium	mg/L	0.011 ⁴ or 80 th percentile of reference site concentration, whichever is higher	0.02 ⁵ or 95th percentile of reference site concentration, whichever is lower
Uranium	mg/L	0.008 or 80 th percentile of reference site concentration, whichever is higher	0.2 ⁵ or 95th percentile of reference site concentration, whichever is lower
Zinc	mg/L	0.008 ⁴ or 80 th percentile of reference site concentration, whichever is higher	20 ⁵ or 95th percentile of reference site concentration, whichever is lower
Total Hardness	Interpretational purposes only		
Suspended Solids	Interpretational purposes only		
Alkalinity	Interpretational purposes only		

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. Contaminant limits apply for metal/metalloids if total results exceed limits.

² The alternative contaminant limit '95th percentile of reference' is not applicable where the 95th percentile of reference (Totals) for a Quality Characteristic is determined to be lower than the specified trigger level (Dissolved) for the respective Quality Characteristic.

³ Reference site concentration determined from reference points specified in Table F3 – Receiving Water Monitoring Locations.

⁴ ANZECC/ARMCANZ (2000) values for aquatic ecosystems indicative of slightly-to-moderately disturbed tropical Australian upland river ecosystems Tables 3.3.4 and Table 3.4.1 (high reliability trigger values) and moderate or low reliability trigger values (Section 8.3) if no value available in Table 3.4.1.

⁵ Contaminant limits based on ANZECC/ARMCANZ (2000) livestock drinking water guidelines.

⁶ Site specific trigger value (April 2014).

⁷ Interim site specific limit - based on a C&R Consulting Pty Ltd (2017) report "Phosphate Hill Mine: Methods for determining site specific trigger levels and contaminant limits" (Version: Final).

Notes:

* In any given sampling event, where the contaminant limit is exceeded and the reference site also exceeds the contaminant limit, the value of the reference data applies.

** The quality characteristics required to be monitored as per Table F4 – Receiving Water Trigger Levels and Contaminant Limits can be reviewed once the results of 2 years monitoring data is available, or if sufficient data is available to adequately demonstrate negligible environmental risk.

- F7 If quality characteristics of the receiving water at the downstream monitoring points exceed any of the trigger levels specified in Table F4 - Receiving Water Trigger Levels and Contaminant Limits the holder of this environmental authority must compare the downstream results to the reference site results in the receiving waters and:

(a) where the downstream result is the same or a lower value than the reference site value for the quality characteristic during the same sampling event then no action is to be taken; or
(b) where the downstream results exceed the reference site, complete an investigation in accordance with the ANZECC & ARMCANZ 2000 methodology, into the potential for environmental harm and provide a written report to the administering authority in the next annual return, outlining:

- i. details of the investigations carried out; and
- ii. actions taken to prevent environmental harm.

Note: Where an exceedance of a trigger level has occurred and is being investigated, in accordance with F7(b) of this condition, no further reporting is required for subsequent trigger events for that quality characteristic.

- F8 The release of contaminants to surface waters must not result in exceedance of contaminant limits stated in Table F4 – Receiving Water Trigger Levels and Contaminant Limits.
- F9 Sediment quality of monitoring locations defined in Table F3 – Receiving Water Monitoring Locations and identified on Schedule K, Map K4 –Surface Water and Sediments Monitoring Locations must be monitored twice a year (once at the end of the wet season and once at the end of the dry season) for the parameters defined in Table F5 - Stream Sediment Trigger Levels and Contaminant Limits.

Table F5 - Stream Sediment Trigger Levels and Contaminant Limits

Parameter	Unit	Trigger Level	Contaminant Limit
Cobalt	mg/kg	Reference value ¹	3 times the reference value ¹
Copper	mg/kg	65 ² or reference value ¹ , whichever is higher.	270 ³ or 3 times the reference value ¹ , whichever is higher
Fluoride	mg/kg	Reference value ¹	3 times the reference value ¹
Lead	mg/kg	50 ² or reference value ¹ , whichever is higher.	220 ³ or 3 times the reference value ¹ , whichever is higher
Manganese	mg/kg	Reference value ¹	3 times the reference value ¹
Nickel	mg/kg	21 ² or reference value ¹ , whichever is higher.	52 ³ or 3 times the reference value ¹ , whichever is higher.
Phosphorus	mg/kg	Reference value ¹	3 times the reference value ¹
Uranium	mg/kg	Reference value ¹	3 times the reference value ¹
Zinc	mg/kg	200 ² or reference value ¹ , whichever is higher	410 ³ or 3 times the reference value ¹ , whichever is higher
Phosphate	mg/kg	Interpretational purposes only	
Nitrogen	mg/kg	Interpretational purposes only	
Particle size distribution		Interpretational purposes only	

¹ Reference sites are defined in Table F3 – Receiving Water Monitoring Locations and Frequency.

² ANZECC (2000) Interim Sediment Quality Guidelines – low values based on total sediments

³ ANZECC (2000) Interim Sediment Quality Guidelines – high values based on total sediments

Notes:

** All analytes excluding Phosphate and Nitrogen must be measured as total (digested) on a <63µm wet sieved sediment fraction. Anions and nutrients must be measured on a deionised water ASLP leachate as dissolved (0.45µm filtered).*

*** The reference value is the 80th percentile of reference site concentration for both Railway Creek system and combined Dead Horse and Galah Creek for Kolar Creek system monitoring.*

**** The quality characteristics required to be monitored as per Table F5 – Stream Sediments Trigger Levels and Contaminant Limits can be reviewed once the results of 2 years monitoring data is available, or if sufficient data is available to adequately demonstrate negligible environmental risk.*

F10 If quality characteristics of the stream sediments exceed any of the trigger levels specified in Table F5 - Stream Sediment Trigger Levels and Contaminant Limits, the holder of this environmental authority must compare the results of the downstream site to the data from reference monitoring sites and:

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

Note: Where an exceedance of a trigger level has occurred and is being investigated, in accordance with F10(b) of this condition, no further reporting is required for subsequent trigger events for that quality characteristic within the investigation period.

F11 Releases of contaminants must not result in an exceedance of sediment contaminant limits stated in Table F5 - Stream Sediment Trigger Levels and Contaminant Levels.

F12 **Duchess Embayment Aquifer Water Reserves Drilling Campaign**

The disposal of water from the water extraction test bores for the Duchess Embayment Aquifer Water Reserves Drilling Campaign must:

- a) not cause environmental harm;
- b) not be released to waters;
- c) prevent surface ponding and run off beyond the disposal area;
- d) not cause erosion;
- e) not change or damage vegetation health;
- f) not change or damage the soils and sub soils including structure, pH, salinity and sodicity and cation exchange capacity.

F13 A monitoring program must be developed, documented and implemented that includes: an assessment of compliance against the requirements of condition F12, and an assessment of the impact of the disposal.

F14 The results of the monitoring program required by condition F13 must be provided to the administering authority on request.

F15 **Receiving Environment Monitoring Program (REMP)**

A REMP must be developed and implemented within 6 months from the date this Environmental Authority takes effect to monitor and record the effects of the release of contaminants on the receiving environment periodically and whilst contaminants are being discharged from the site, with the aims of identifying and describing the extent of any adverse impacts to local environmental values, and monitoring any changes in the receiving water. A copy of the REMP must be provided to the administering authority prior to its implementation and due consideration given to any comments made on the REMP by the administering authority.

For the purposes of the REMP, the receiving environment is the waters of the downstream environment and connected waterways within 10km downstream of the release.

- F16 A REMP design document that addresses the requirement of the REMP must be prepared and made available to the administering authority upon request.
- F17 A report outlining the findings of the REMP, including all monitoring results and interpretations must be prepared annually and made available to the administering authority upon request. 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.
- F18 **Annual Water Monitoring Reporting**
The following information must be recorded in relation to all water monitoring required under the conditions of this environmental authority and submitted to the administering authority in the specified format when requested:
- a) The date on which the sample was taken;
 - b) The time at which the sample was taken;
 - c) The monitoring point at which the sample was taken;
 - d) The measured or estimated 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;
 - g) Water quality monitoring data must be provided to the administering authority in the specified electronic format upon request.
- F19 **Water Management Plan**
A Water Management Plan must be developed by an appropriately qualified person and implemented.
- F20 **Stormwater, Sediment and Erosion Controls**
An Erosion and Sediment Control Plan must be developed by an appropriately qualified person and implemented for all stages of the mining activities on the site to prevent or minimise erosion and the release of sediment to receiving waters and the contamination of storm water.

Schedule G – Sewage Treatment

- G1 The only contaminant permitted to be released to land is treated sewage effluent in compliance with the release limits stated in Table G1 - Contaminant Release Limits to Land.

Table G1 – Contaminant Release Limits to Land

Contaminant	Unit	Release limit	Limit type	Frequency
pH	pH units	6.0 - 9.0	Range	Monthly
5 day Biochemical oxygen demand (uninhibited)	mg/L	20	Maximum	Monthly
Total Suspended Solids	mg/L	30	Maximum	Monthly
Nitrogen	mg/L	30	Maximum	Monthly
Phosphorus	mg/L	15	Maximum	Monthly
E coli	Organisms/100ml	1000	Maximum	Monthly

- G2 Treated sewage effluent may only be released to land in accordance with the conditions of this approval at the following locations:
- (a) within the nominated area(s) identified in Schedule K, Map K5 –Approved Irrigation Areas.
 - (b) other land for the purpose of dust suppression and/or firefighting.
- G3 The application of treated effluent to land must be carried out in a manner such that:
- a) vegetation is not damaged
 - b) there is no surface ponding of effluent
 - c) there is no run-off of effluent
- G4 If areas irrigated with effluent are accessible to employees or the general public, prominent signage must be provided advising that effluent is present, and care should be taken to avoid consuming or otherwise coming into unprotected contact with the effluent.
- G5 All sewage effluent released to land must be monitored at the frequency and for the parameters specified in Table G1 - Contaminant Release Limits to Land.
- G6 The daily volume of effluent release to land must be measured and records kept of the volumes of effluent released.
- G7 When circumstances prevent the irrigation or beneficial reuse of treated sewage effluent such as during or following rain events, waters must be directed to a wet weather storage or alternative measures must be taken to store/lawfully dispose of effluent.
- G8 A minimum area of 0.5 ha of land, excluding any necessary buffer zones, must be utilised for the irrigation and/or beneficial reuse of treated sewage effluent.
- G9 Sewage tank sludge, pond sludge and residues resulting from periodic maintenance of onsite sewage treatment plants may be accepted to the designated Bioremediation Area in compliance with environmental authority conditions C10 to C15.

Schedule H – Land and Rehabilitation

H1 Land disturbed by mining must be rehabilitated in accordance with Table H1 - Rehabilitation Requirements.

Table H1 – Rehabilitation Requirements

Mine Domain	Mine Feature Names	Rehabilitation Goal	Rehabilitation Objective	Indicators	Completion Criteria
Open Pit	Brolga Pit, Corella Pit, Galah Pit, Jabiru Pit, Magpie Pit, Eagle Pit	Safe	Site safe for human and animals	Engineered structures and signage to preclude humans and animals (e.g., safety bund wall and fencing)	Rehabilitation report: that all safety precautions have been taken in accordance with the relevant legislation.
		Non-polluting	Hazardous and contaminated material adequately managed.	Hazard assessment of material by suitably qualified person.	Rehabilitation report: appropriate hazard assessment and measures undertaken.
		Stable	Minimal probability of wall failure or rock falls that will cause significant environmental harm.	Geotechnical studies of final voids	Rehabilitation report: geotechnical studies to determine whether final landform is stable.
				Risk assessment of final landform	Rehabilitation report: appropriate risk assessment and control measures undertaken.
Waste Rock Dump	Brolga WRD, Corella WRD, Galah WRD, Jabiru WRD, Magpie WRD, Eagle WRD	Safe	Site safe for humans and animals	Safety assessment of final landform by suitably qualified person.	Rehabilitation report: certification structurally sound and safe
		Non-polluting	Hazardous and contaminated material adequately managed.	Engineers assessment of cover or final landform design	Engineer's certification in rehabilitation report that the waste disposal site has been securely covered to minimise release of seepage or contaminants to the receiving environment.
				Rehabilitation monitoring plan in place to monitor downstream surface/ground water	Rehabilitation report: monitoring data demonstrates the cover is functioning in minimising release of seepage or contaminants to the receiving environment.
		Stable	Minimal probability of	Geotechnical studies of final	Rehabilitation report: geotechnical studies

			subsidence or rock falls that will cause significant environmental harm	landforms	to determine whether final landform is stable.
			Vegetation cover to minimise erosion	Vegetation assessment	Rehabilitation report: revegetation meets the limits with reference to analogue site or an acceptable standard.
		Self-sustaining	Soil properties that support desired land use	Soil monitoring program in place to ensure remaining soil is able to support post-mining land use	Rehabilitation report: all soil chemical, physical and biological properties are within acceptable limits that ensure soil is able to support post-mining land use.
			Self-sustaining natural vegetation and habitat established	Vegetation assessment	Rehabilitation report: Certification that key species are present, suitable diversity has been achieved and cover/density is adequate. Rehabilitation report: certification that the weed management plan has been successful.
Gypsum Stack	Cell 1/2, Cell 4A/4B, Cell 5A/5B	Safe	Site safe for human and animals	Safety assessment of final landform by Suitably qualified person.	Rehabilitation report: certification structurally sound and safe
		Non-polluting	Hazardous and contaminated material adequately managed	Hazard assessment of material by suitably qualified person.	Rehabilitation report: appropriate hazard assessment and measures undertaken.
				Engineers assessment of cover or final landform design	Engineer's certification in rehabilitation report that the stack has been securely covered to minimise release of contaminants to the receiving environment.
			Runoff and seepage of water quality that is not likely to affect known environmental values	Rehabilitation monitoring plan in place to monitor downstream surface / groundwater	Rehabilitation report: monitoring data meets specified contaminant and trigger levels that ensure environmental values are not being compromised.
		Stable	Minimal	Geotechnical	Rehabilitation report:

			probability of subsidence that will cause significant environmental harm	studies of final landforms	Geotechnical studies to determine whether final landform is stable
				Risk assessment of final landform	Rehabilitation report: appropriate risk assessment and control measures have been undertaken.
			Landform achieves appropriate erosion rates	Design and construction of structures to control water flow	Structures are adequately designed and constructed to control water flow and runoff.
			Vegetation cover to minimise erosion	Vegetation assessment	Rehabilitation report: revegetation meets the limits with reference to analogue site or an acceptable standard.
		Self-sustaining	Self-sustaining natural vegetation and habitat established	Vegetation assessment	Rehabilitation report: certification that key species are present, suitable diversity has been achieved and cover/density is adequate. Certification that the weed management plan has been successful.
Infrastructure, Roads & Exploration Areas	ROM Pad, stockpiles and loading areas, workshops, accommodation camp and facilities, STP, fuel storage area, beneficiation, crushing area, acid storage, process plant and associated buildings, power facility, explosives storage, internal access haul roads, tracks, office carpark	Safe	Site safe for humans and animals	Safety assessment of final landform by suitably qualified person	Rehabilitation report: Certification structurally sound and safe.
		Non-polluting	Hazardous and contaminated material adequately managed	Contaminated land assessment	Evidence of remediated landform in a contaminated land assessment report.
			Runoff and seepage of good quality water that is not likely to affect known environmental values	Rehabilitation monitoring plan in place to monitor downstream surface/ground water	Rehabilitation report: monitoring data meets specified contaminant and trigger levels that ensure environmental values are not being compromised.
		Stable	Landform achieves appropriate erosion rates	Engineers assessment of design and construction of structures to control water flow	Rehabilitation report: Engineer certification that infrastructure sites (both remaining and decommissioned) have the required structures to control water flow and runoff.
			Vegetation	Vegetation	Rehabilitation report:

			cover to minimise erosion	assessment	revegetation meets the limits with reference to analogue site or an acceptable standard.
		Self-sustaining	Soil properties that support desired land use	Soil monitoring program in place to ensure remaining soil is able to support post-mining land use.	Rehabilitation report: all soil chemical, physical and biological properties are within acceptable limits that ensure soil is able to support post-mining land use.
			Self-sustaining natural vegetation and habitat established	Vegetation assessment	Rehabilitation report: Certification that key species are present, suitable diversity has been achieved and cover/density is adequate. Rehabilitation report: certification that the weed management plan has been successful.
Dams	Beneficiation pond, main stormwater pond, Slimes Dams, Gypsum Cells	Safe	Site safe for humans and animals	Safety assessment of final landform by suitably qualified person. Safety barriers and signage	Rehabilitation report: Certification structurally sound and safe, all precautions implemented.
		Non-polluting	Dams to remain on closure will not contribute contaminants to the environment.	Rehabilitation monitoring plan in place to monitor water in the dam and downstream surface/ground water	Rehabilitation report: closure monitoring (water quality) is compliant with established and applicable limits.
		Stable	Minimal probability or subsidence that will cause significant environmental harm	Geotechnical studies of final landforms	Rehabilitation report: geotechnical studies to determine whether final landform is stable.
				Risk assessment of final landform	Rehabilitation report: appropriate risk assessment and control measures have been undertaken.
	Sump and STP irrigation area	Non-polluting	Rehabilitated sump will not contribute contaminants to the environment	Rehabilitation monitoring plan in place to monitor downstream surface/ground water	Rehabilitation report: monitoring data meets specified contaminant and trigger levels.

		Stable	Vegetation cover to minimise erosion	Vegetation assessment	Rehabilitation report: revegetation meets the limits with reference to analogue site or an acceptable standard.
		Self-sustaining	For sump to be rehabilitated, soil properties that support desired land use	Soil monitoring program in place to ensure remaining soil is able to support post-mining land use	Rehabilitation report: all soil chemical, physical and biological properties are within acceptable limits that ensure soil is able to support post-mining land use.
	Stormwater drains/diversions	Non-polluting	Discharge will be of good quality water that is not likely to affect known environmental values	Rehabilitation monitoring plan in place to monitor downstream surface water	Rehabilitation report: monitoring data meets specified contaminant and trigger levels that ensure environmental values are not being compromised.
		Stable	Minimal probability or subsidence that will cause significant environmental harm	Geotechnical studies of final landforms	Rehabilitation report: geotechnical studies to determine whether final landform is stable.
		Self-sustaining	Establish safe and stable drains with a low risk of environmental harm	Water quality established by monitoring or modelling validated by monitoring structural report on integrity of structure.	Rehabilitation report: that the structures meet water quality guidelines, Engineers certificate of structure.
			Self-sustaining natural vegetation and habitat established	Vegetation assessment	Rehabilitation report: certification that key species are present, suitable diversity has been achieved and cover/density is adequate. Certification that the weed management plan has been successful.

H2 Rehabilitation must commence progressively in accordance with the plan of operations.

H3 Contaminated Land

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 **Fluoride Management**
The holder of this environmental authority must undertake bi-annual monitoring of fluoride in vegetation in accordance with documented site procedures and the Plan of Operations. An associated monitoring report must be prepared and submitted to the administering authority with the next annual return.
- H6 The holder of this environmental authority must conduct a Flora Survey every three years focusing on the impacts of fluoride to the vegetation. A copy of the Flora Survey Report must be submitted to the administering authority with the next annual return.
- H7 **Sulfur Management**
Sulfur stored on site must be stored under cover.
- H8 Storage, handling and transfer of Sulfur on site must be carried out in a manner which minimises the release of dust and particulate matter, and prevents or minimises the contamination of land and stormwater.
- H9 **Chemicals and Flammable or Combustible Liquids**
All explosives, hazardous chemicals, corrosive substances, toxic substances, gases, flammable or combustible liquids and dangerous goods must be stored and handled in accordance with the current, relevant Australian Standard where such is applicable.
- H10 Notwithstanding the requirements of any Australian Standard, any liquids stored on site that have the potential to cause environmental harm must be stored in or serviced by an effective containment system that is impervious to the materials stored and managed to prevent the release of liquids to waters or land.
- H11 Where no relevant Australian Standard is available, the following must be applied:
a) Storage tanks must be bunded so that the capacity and construction of the bund is sufficient to contain at least 110% of a single storage tank or 100% of the largest storage tank plus 10% of the second largest storage tank in multiple storage areas; and
b) Drum storages must be bunded so that the capacity and construction of the bund is sufficient to contain at least 25% of the maximum design storage volume within the bund.
- H12 All containment systems must be designed to minimise rainfall collection within the system.

H13 Biodiversity Offsets

The holder of this environmental authority must provide an offset for impacts on applicable state significant biodiversity values, in accordance with Queensland Biodiversity Offset Policy. The biodiversity offset must be consistent with the requirements for an offset as identified in the Biodiversity Offset Strategy (as per condition H14) 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 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 H14; or
- (c) where an offset payment is to be provided, within 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 H14.

- H14** A Biodiversity Offset Strategy must be developed and submitted to the administering authority within either 30 days, or a lesser period agreed to by the administering authority, prior to impacting on the applicable state significant biodiversity values.

H15 Impacts to Prescribed Environmental Matters

Significant residual impacts to prescribed environmental matters other than if the impacts were authorised by an existing authority issued before the commencement of the *Environmental Offsets Act 2014*, are not authorised under this environmental authority or the *Environmental Offsets Act 2014*.

- H16** 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 I – Regulated Dams

I1 Assessment of Consequence Category

The consequence category of any structure must be assessed by a suitably qualified and experienced person in accordance with the *Manual for Assessing Consequence Categories and Hydraulic Performance of Structures* (ESR/2016/1933; formerly EM635) at the following times:

- a) prior to the design and construction of the structure, if it is not an existing structure; or
- b) prior to any change in its purpose or the nature of its stored contents.

I2 A consequence assessment report and certification must be prepared for each structure assessed and the report may include a consequence assessment for more than one structure.

I3 Certification must be provided by the suitably qualified and experienced person who undertook the assessment, in the form set out in the *Manual for Assessing Consequence Categories and Hydraulic Performance of Structures* (ESR/2016/1933; formerly EM635).

I4 Design and Construction of a Regulated Structure

Conditions I5 to I9 inclusive do not apply to existing structures.

I5 All regulated structures must be designed by, and constructed under the supervision of, a suitably qualified and experienced person in accordance with the requirements of the *Manual for Assessing Consequence Categories and Hydraulic Performance of Structures* (ESR/2016/1933; formerly EM635).

I6 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) 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 environmental authority.

I7 Certification must be provided by the suitably qualified and experienced person who oversees the preparation of the design plan, in the form set out in the *Manual for Assessing Consequence Categories and Hydraulic Performance of Structures* (ESR/2016/1933; formerly EM635) and must be recorded in the Register of Regulated Structures.

I8 Regulated structures must:

- a) be designed and constructed in accordance with and conform to the requirements of the *Manual for Assessing Consequence Categories and Hydraulic Performance of Structures* (ESR/2016/1933; formerly EM635).
- b) be designed and constructed with due consideration given to ensuring that the design integrity would not be compromised on account of:
 - i floodwaters from entering the regulated dam from any watercourse or drainage line; and
 - ii wall failure due to erosion by floodwaters arising from any watercourse or drainage line.
- c) have the floor and sides of the dam designed and constructed to prevent or minimise the passage of the wetting front and any entrained contaminants through either the floor or sides of the dam during the operational life of the dam and for any period of decommissioning and rehabilitation of the dam.

- I9 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.
- I10 **Operation of a Regulated Structure**
Operation of a regulated structure, except for an existing structure, is prohibited unless:
- a) the holder has submitted to the administering authority:
 - i. one paper copy and one electronic copy of the design plan and certification of the 'design plan' in accordance with condition I6;
 - ii. a set of 'as constructed' drawings and specifications;
 - iii. certification of those 'as constructed drawings and specifications' in accordance with condition I9; and
 - iv. where the regulated structure is to be managed as part of an integrated containment system for the purpose of sharing the DSA volume across the system, a copy of the certified system design plan; and
 - b) the requirements of this authority relating to the construction of the regulated structure have been met;
 - c) the holder has entered the details required under this authority, into a Register of Regulated Dams; and,
 - d) there is a current operational plan for the regulated structures.
- I11 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 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.
- I12 Each regulated structure must be maintained and operated, for the duration of its operational life until decommissioned and rehabilitated, in a manner that is consistent with the current operational plan and, if applicable, the current design plan and associated certified 'as constructed' drawings
- I13 **Mandatory Reporting Level**
Conditions I14 to I17 inclusive only apply to Regulated Structures which have not been certified as low consequence category for 'failure to contain – overtopping'.
- I14 The Mandatory Reporting Level (the MRL) must be marked on a regulated dam in such a way that during routine inspections of that dam, it is clearly observable.
- I15 The holder of this environmental authority must, as soon as practical and within forty-eight (48) hours of becoming aware, notify the administering authority when the level of the contents of a regulated dam reaches the MRL.
- I16 The holder of this environmental authority must, immediately on becoming aware that the MRL has been reached, act to prevent the occurrence of any unauthorised discharge from the regulated dam.
- I17 The holder of this environmental must record any changes to the MRL in the Register of Regulated Structures.

I18 Design Storage Allowance

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

I19 By 1 November of each year, storage capacity must be available in each regulated dam (or network of linked containment systems with a shared DSA volume), to meet the Design Storage Allowance (DSA) volume for the dam (or network of linked containment systems).

I20 The holder of this environmental authority must, as soon as possible and within forty-eight (48) hours of becoming aware that the regulated dam (or network of linked containment systems) will not have the available storage to meet the DSA volume on 1 November of any year, notify the administering authority.

I21 The holder of this environmental authority 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.

I22 Annual Inspection Report

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

I23 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.

I24 The suitably qualified and experienced person who prepared the annual inspection report must certify the report in accordance with the *Manual for Assessing Consequence Categories and Hydraulic Performance of Structures* (ESR/2016/1933; formerly EM635).

I25 The holder of this environmental authority must:

- (a) within twenty (20) business days of receipt of the annual inspection report, provide to the administering authority:
 - i the recommendation section of the annual inspection report; and,
 - ii if applicable, any actions being taken in response to those recommendations; and
- (b) If, following receipt of the recommendations and (if applicable) actions, the administering authority requests a full copy of the annual inspection report from the holder, provide this to the administering authority within 10 business days of receipt of the request.

I26 Transfer Arrangements

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

I27 Decommissioning and Rehabilitation

Dams must not be abandoned but be either:

- a) decommissioned and rehabilitated to achieve compliance with condition H1; or
- b) be left in-situ for a beneficial use(s) provided that:
 - i it no longer contains contaminants that will migrate into the environment; and
 - ii it contains water of a quality that is demonstrated to be suitable for its intended beneficial use(s); and
 - iii the administering authority, the holder of the environmental authority and the landholder agree in writing that the dam will be used by the landholder following the cessation of the environmentally relevant activity(ies).

I28 Register of Regulated Structures

A Register of Regulated Structures must be established and maintained by the holder for each regulated structure.

I29 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.

I30 The holder must make a final entry of the required information in the Register of Regulated Structures once compliance with condition I10 and I11 has been achieved.

I31 The holder must ensure that the information contained in the Register of Regulated Structures is current and complete on any given day.

I32 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.

I33 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.

I34 Transitional arrangements

All existing structures that have not been assessed in accordance with either the Manual or the former Manual for Assessing Hazard Categories and Hydraulic Performance of Dams must be assessed and certified in accordance with the Manual within 6 months of amendment of the authority adopting this schedule.

I35 All existing structures must subsequently comply with the timetable for any further assessments in accordance with the Manual specified in Table 1 (Transitional requirements for existing structures), depending on the consequence category for each existing structure assessed in the most recent previous certification for that structure.

I36 Table 1 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.

I37 Certification of the transitional assessment required by I34 and I35 (as applicable) must be provided to the administering authority within 6 months of amendment of the authority adopting this schedule.

Table I1 – Transitional Hydraulic Performance Requirements for Existing Structures

Transition 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	Significant	Low
>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.		

I38 Regulated Structures Location and Performance

Each regulated dam must be wholly located within the control points defined in Table I2 – Location of Regulated Dams Containing Hazardous Waste.

Table I2 – Location of Regulated Dams Containing Hazardous Waste

Name of Regulated Dam Containing Hazardous Waste	Map Reference (GDA94, MGA, Zone 54)	
	Easting	Northing
Slimes Dam 1	393948	7579362
	394253	7579367
	394331	7579003
	394089	7578993
Slimes Dam 3A	394260	7578787
	394526	7578913
	394785	7578774
	394361	7578557
Slimes Dam 3B	394360	7578557
	394785	7578774
	394791	7578352
	394537	7578246
Gypsum Cells 1 & 2	394031	7581493
	394384	7581564
	394561	7581517
	394498	7581077
	394451	7580680
	394097	7580739
	394110	7581116

Gypsum Cell 3A	393957 394382 394385 394031	7581879 7582027 7581564 7581493
Gypsum Cell 3B	394382 394385 394561 394609	7582027 7581564 7581517 7582110
Gypsum Cell 3D	393640 393383 393229 393081 393036 393714 393848 393793	7581894 7581841 7582103 7582072 7582333 7582461 7581851 7581810
Gypsum Cell 4A & 4B	394589 394007 393741 394212	7582141 7581899 7583107 7583200
Gypsum Cell 5A	393618 393758 392970 392830	7583259 7582486 7582338 7583109
Gypsum Cell 5B	TBD ² TBD ² TBD ² TBD ²	TBD ² TBD ² TBD ² TBD ²
Emergency Dump Pond	394092 394243 394232 394082	7580690 7580672 7580580 7580600
Evaporation Pond	394347 394435 394409 394318	7580687 7580675 7580468 7580479
Decant Pond Cell 3C	TBD ¹ TBD ¹ TBD ¹ TBD ¹	TBD ¹ TBD ¹ TBD ¹ TBD ¹
Gypsum Cell 3D	393640 393383 393229 393081 393036 393714 393848 393793	7581894 7581841 7582103 7582072 7582333 7582461 7581851 7581810

NOTE: In circumstances where slimes dams meet the criteria for high hazard dams containing hazardous waste, the Code of Environmental Compliance for High Hazard Dams Containing Hazardous Waste must be complied with.

TBD¹ – To be determined prior to construction of Decant Pond Cell 3C.

TBD² – To be determined prior to the operation of Gypsum Cell 5B.

- I39 Each regulated dam must be consistent with the basic details in Table I3 – Size and Purpose of Dams Containing Hazardous Waste below.

Table I3 – Size and Purpose of Regulated Dams Containing Hazardous Waste

Name of Regulated Dam Containing Hazardous Waste	Maximum Surface Area of Contents in Dam (ha)	Maximum Volume of Dam (m ³)	Maximum Depth of Dam (m)	Purpose of Dam
Slimes Dam 1	7.1	406,304 m ³	9	Site water management and storage of slimes
Slimes Dam 3A	7.4	269,840 m ³	5	Site water management and storage of slimes
Slimes Dam 3B	11.5	528,040 m ³	6.4	Site water management and storage of slimes
Gypsum Cells 1 & 2	25	5 x 10 ⁶ m ³ gypsum with an additional 325,000 m ³ process water catchment	38	Acidic water management and permanent storage of gypsum and acid residue
Gypsum Cell 3A	13.4	628,859 m ³	7	Acidic water management
Gypsum Cell 3B	11.1	391,500 m ³	4.4	Acidic water management
Gypsum Cell 4A	38	12 x 10 ⁶ m ³ gypsum with an additional 460,000 m ³ process water catchment	70	Acidic water management and permanent storage of gypsum and acid residue
Gypsum Cell 4B	31	9.85 x 10 ⁶ m ³ gypsum with an additional 320,000 m ³ process water catchment	70	Acidic water management and permanent storage of gypsum and acid residue
Gypsum Cell 5A	47.1	16 x 10 ⁶ m ³ gypsum with an additional 513,000 m ³ process water catchment	70	Acidic water management and permanent storage of gypsum and acid residue
Gypsum Cell 5B	45	30,463,800 m ³	70	Acidic water management and permanent storage of gypsum and acid residue
Emergency Dump Pond	4.7	11,145 m ³	3.9	Emergency storage of gypsum and acid residue ²
Evaporation Pond	1.87	42,051 m ³	3.1	Site water management and emergency storage of gypsum and acid residue ^{1,2}
Decant Pond Cell 3C	14.5	356,000 m ³	3.9	Acidic water management
Gypsum Cell 3D	28	1,208,665 m ³	5.8	Acidic water management

¹ Gypsum may be stored in the Evaporation Pond in an emergency event only when the Emergency Dump Pond has reached its Mandatory Reporting Level.

² Gypsum stored in the Emergency Dump Pond and Evaporation Pond must be removed as close to the liner as safely possible, as soon as practicable and no later than 3 months following the emergency event.

- I40 Each regulated dam must meet the hydraulic performance criteria specified in Table I4 – Hydraulic Performance of Regulated Dams.

Table I4 – Hydraulic Performance of Regulated Dams

Dam Name		Design Storage Allowance	Spillway Design Storm	Mandatory Reporting Level
Slimes Dam 1		450 mm below spillway	1 in 100 year ARI	1:100 year ARI
Slimes Dam 3A		450 mm below spillway	1 in 100 Year ARI	1:100 year ARI
Slimes Dam 3B		450 mm below spillway	1 in 100 Year ARI	1:100 year ARI
Gypsum Storage Facility ¹	Cells 1 & 2	1:100 AEP	0.002 AEP critical storm	RL275.14 in respect to Cell 3D and RL270.85 in respect to the Surge Ditch
	Cells 3A & 3B		0.005 AEP critical storm	
	Cell 3D		0.001 AEP critical storm	
	Cells 4A & 4B		0.001 AEP critical storm	
	Cell 5A		0.001 AEP critical storm	
	Cell 5B ³		0.001 AEP critical storm	
	Surge Ditch		0.005 AEP critical storm	
Evaporation Pond		1 in 10 year, 3 month wet or 1 in 200 year, 3 month wet ²	1 in 100 Year ARI	1:10 year ARI
Decant Pond Cell 3C		1 in 100, 3 month wet	1 in 10 000 Year ARI	1:100 year ARI

1. Cells 1 & 2, 3A & 3B, 3D, 4A & 4B, 5A and surge ditch (comprising the Gypsum Storage Facility) are to be managed as part of an integrated containment system for the purpose of sharing the DSA volume across the system in accordance with the linked system plan "IPL – Phosphate Hill Operations Gypsum Storage Facility Linked System Plan" that is certified (25/06/2018) by Dr. Susan Jane Henderson (RPEQ 4952).

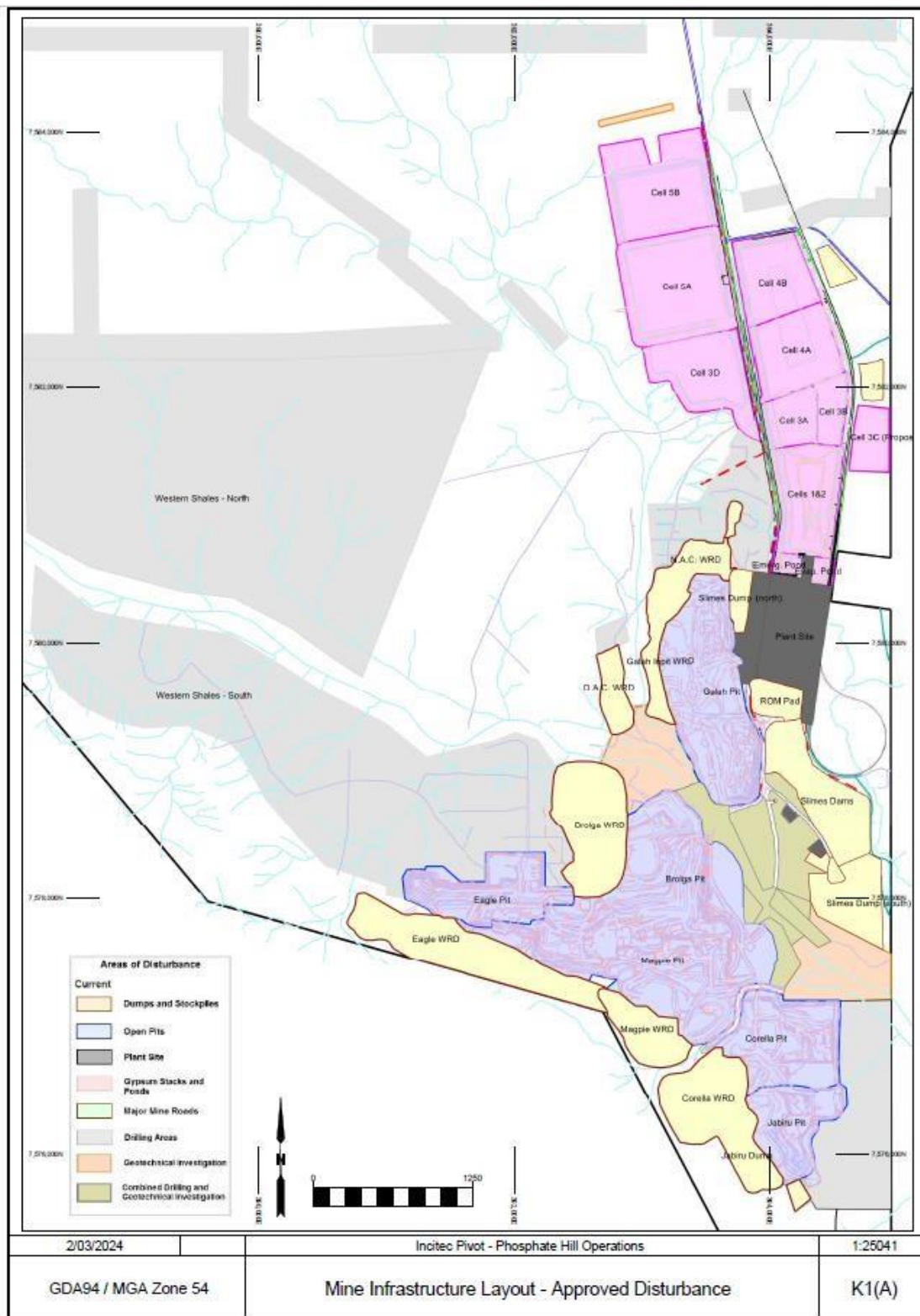
2 The latter criteria applies if the evaporation pond is being used for current storage of gypsum in emergencies as described in Table I3.

3. The requirements of condition I10 must be met prior to operation of Cell 5B.

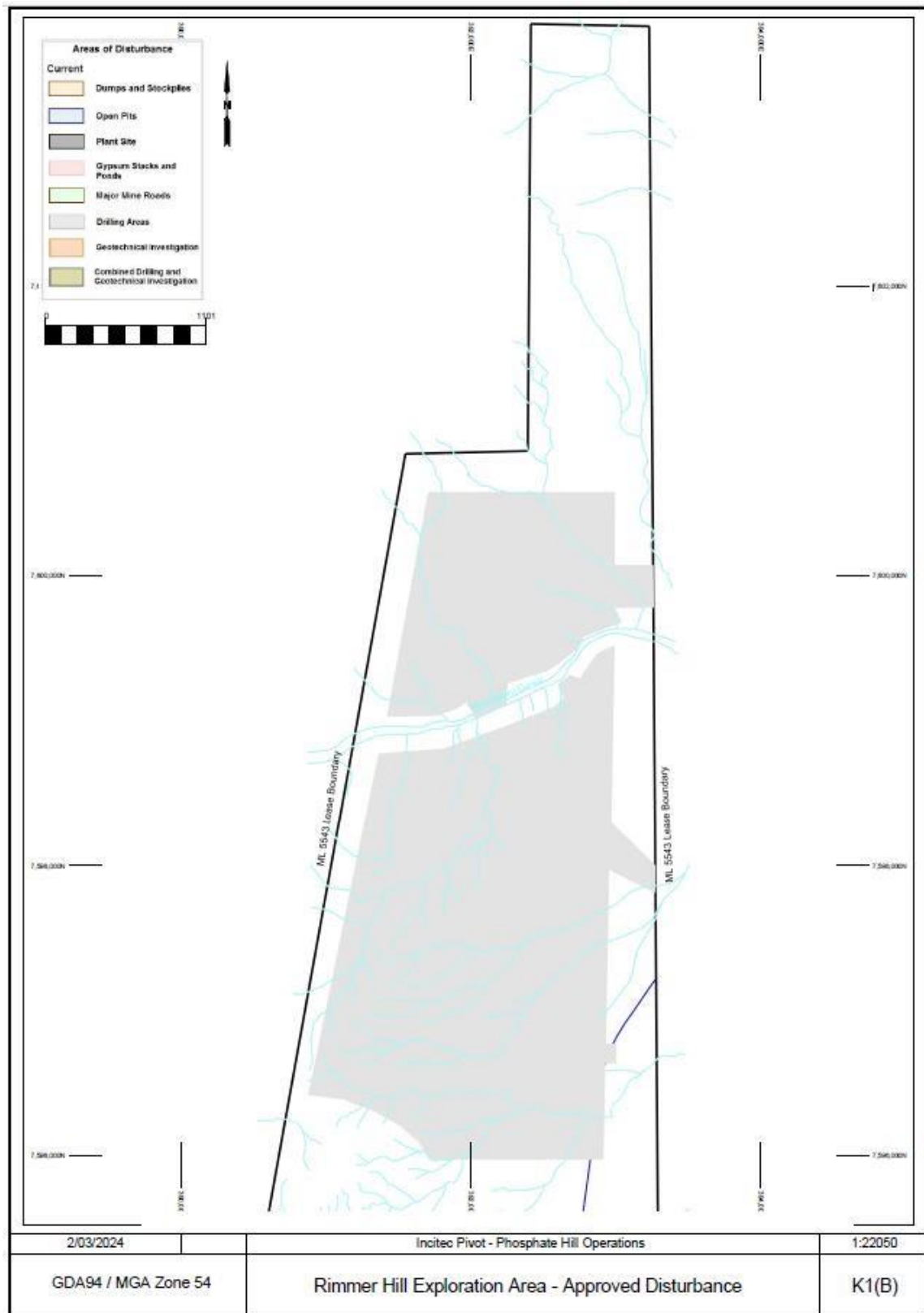
- I41 The holder of this environmental authority must ensure proper management of Decant Pond Cell 3C, including but not limited to the Leak Detection and Recovery System, to prevent any release of contaminants into the receiving environment.

Schedule K - Maps

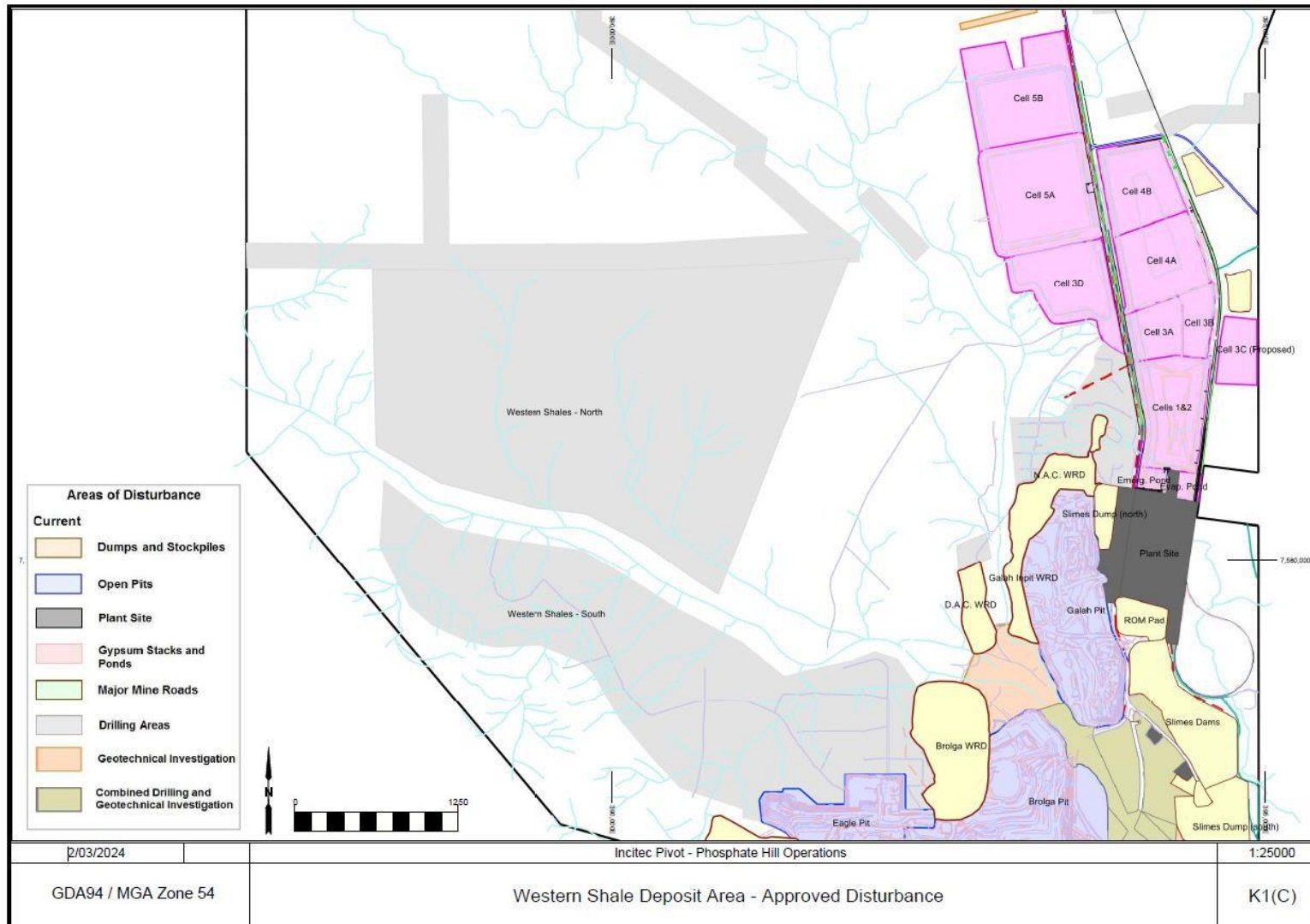
Map K1(A) – Mine Infrastructure Layout



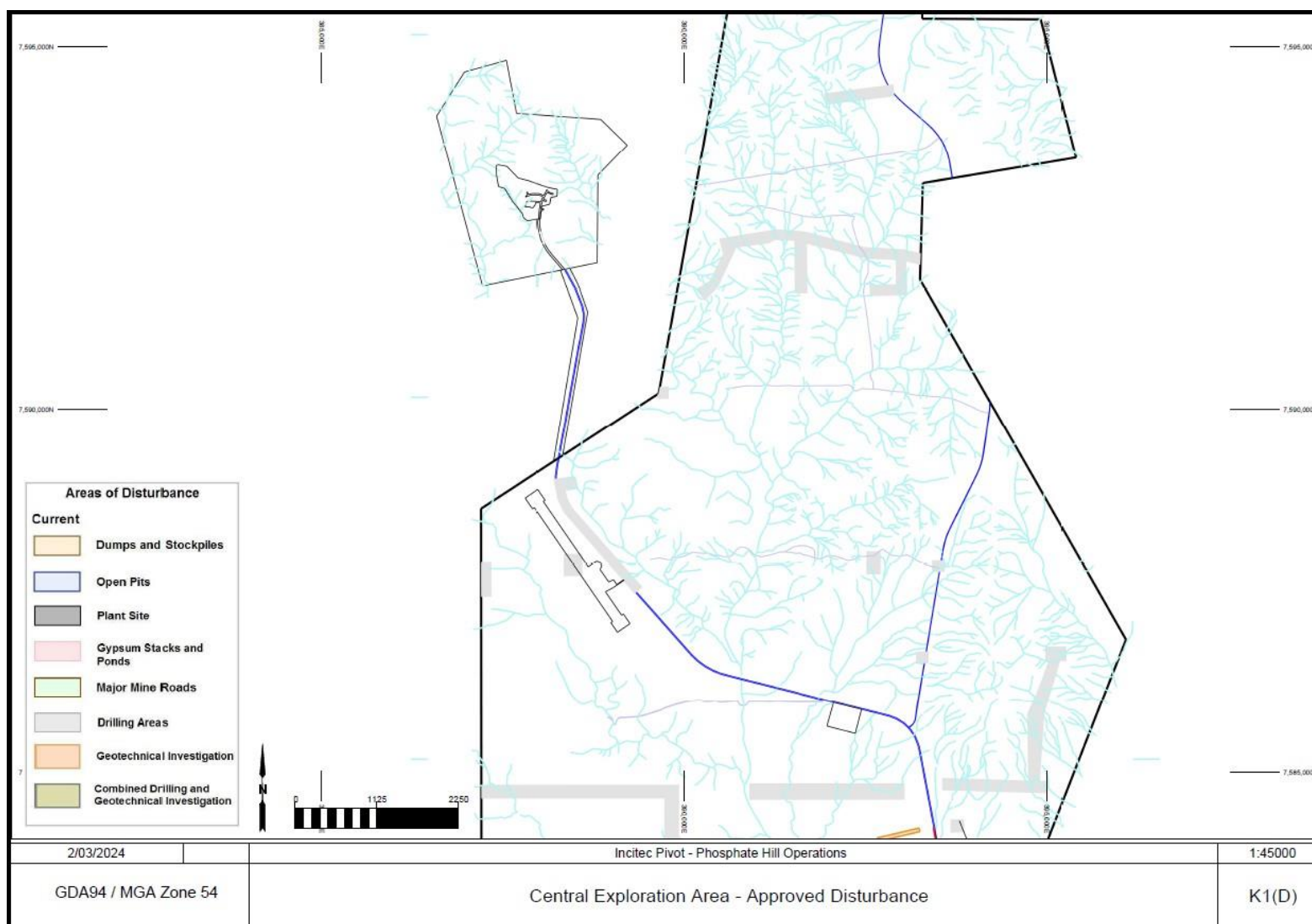
Map K1(B) – Rimmer Hill Exploration Area



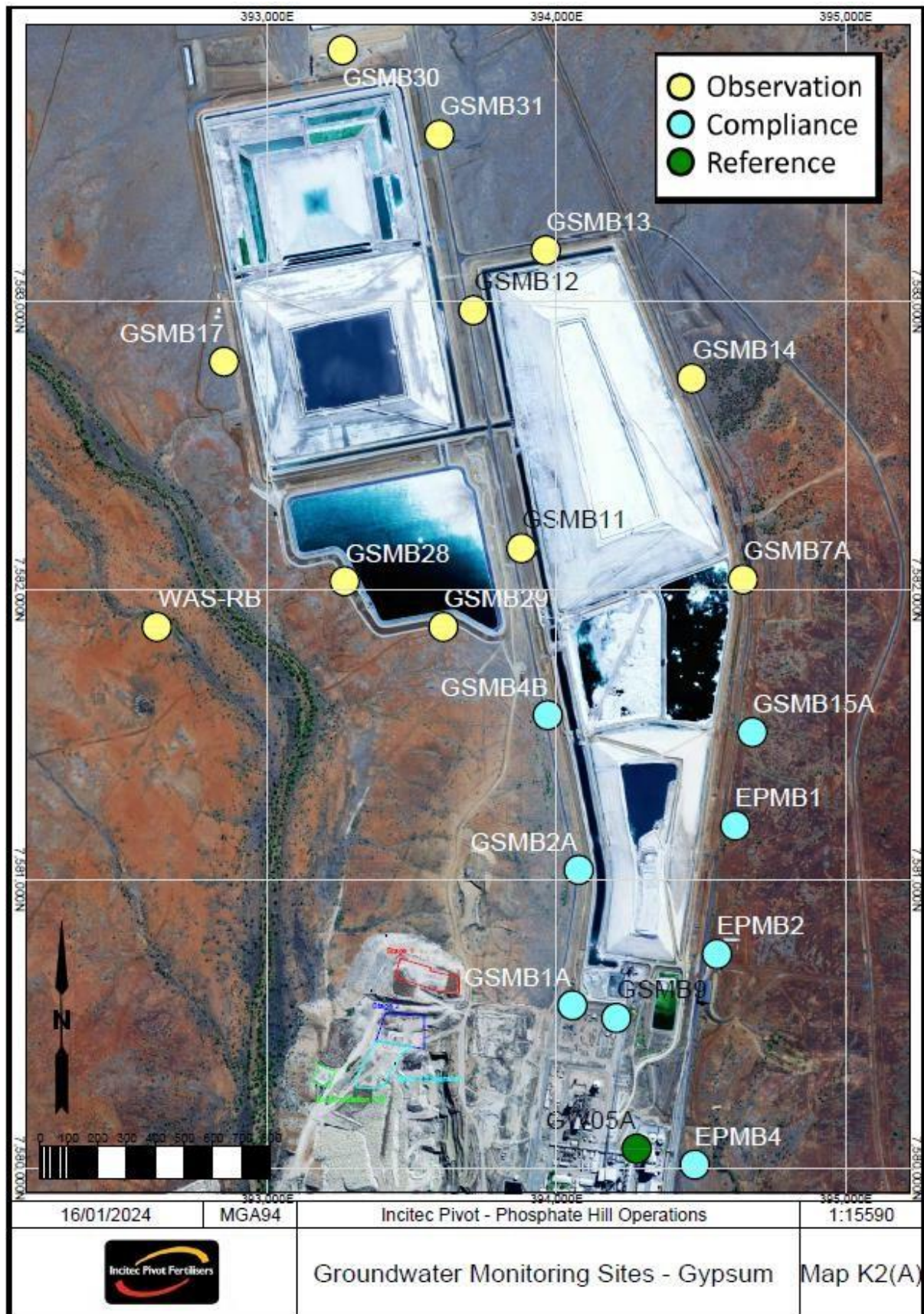
Map K1(C) – Western Shale Deposit Area



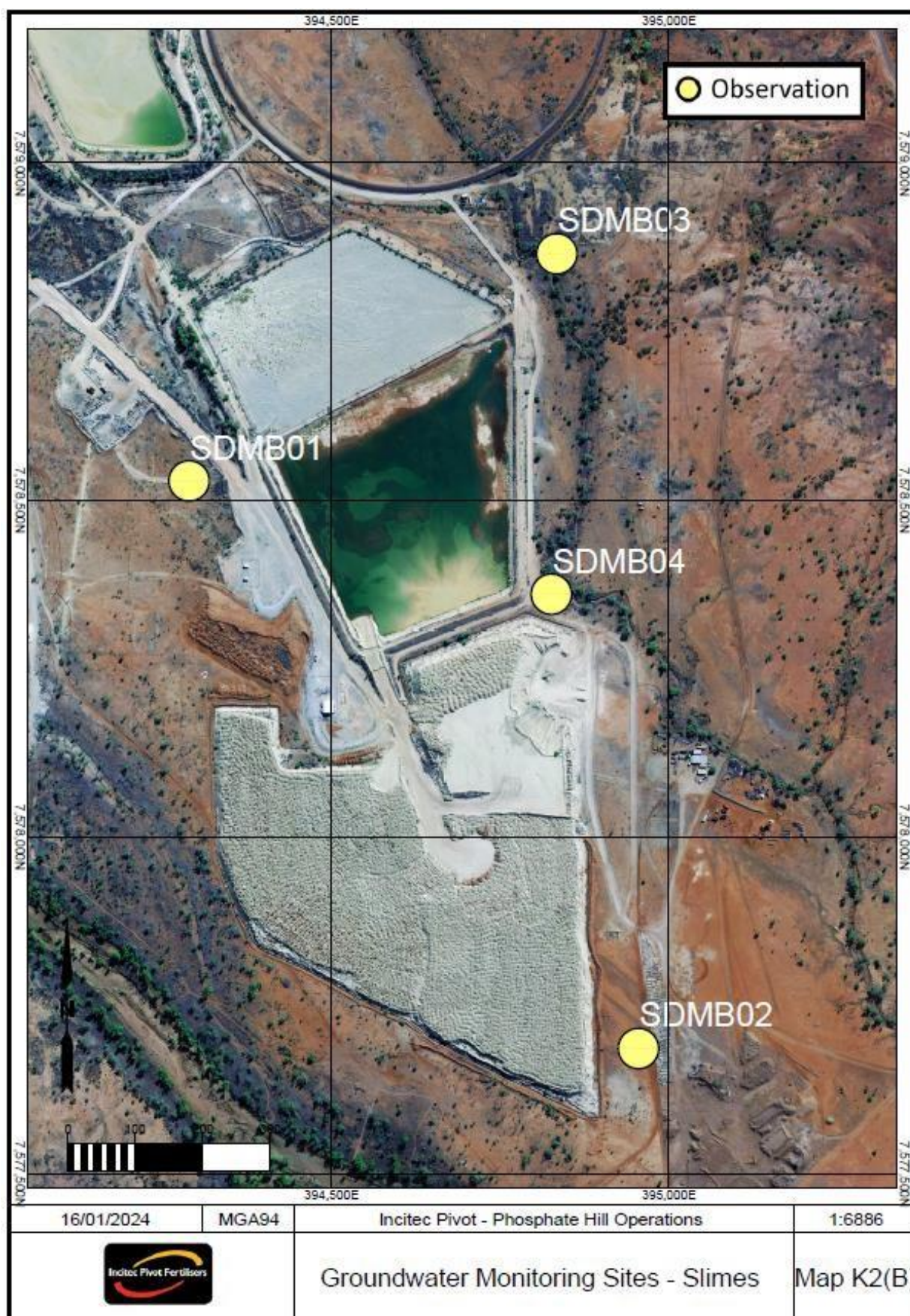
Map K1(D) – Central Exploration Area



Map K2(A) – Groundwater Monitoring Sites – Gypsum Stacks



Map K2(B) – Groundwater Monitoring Sites – Slimes Dams



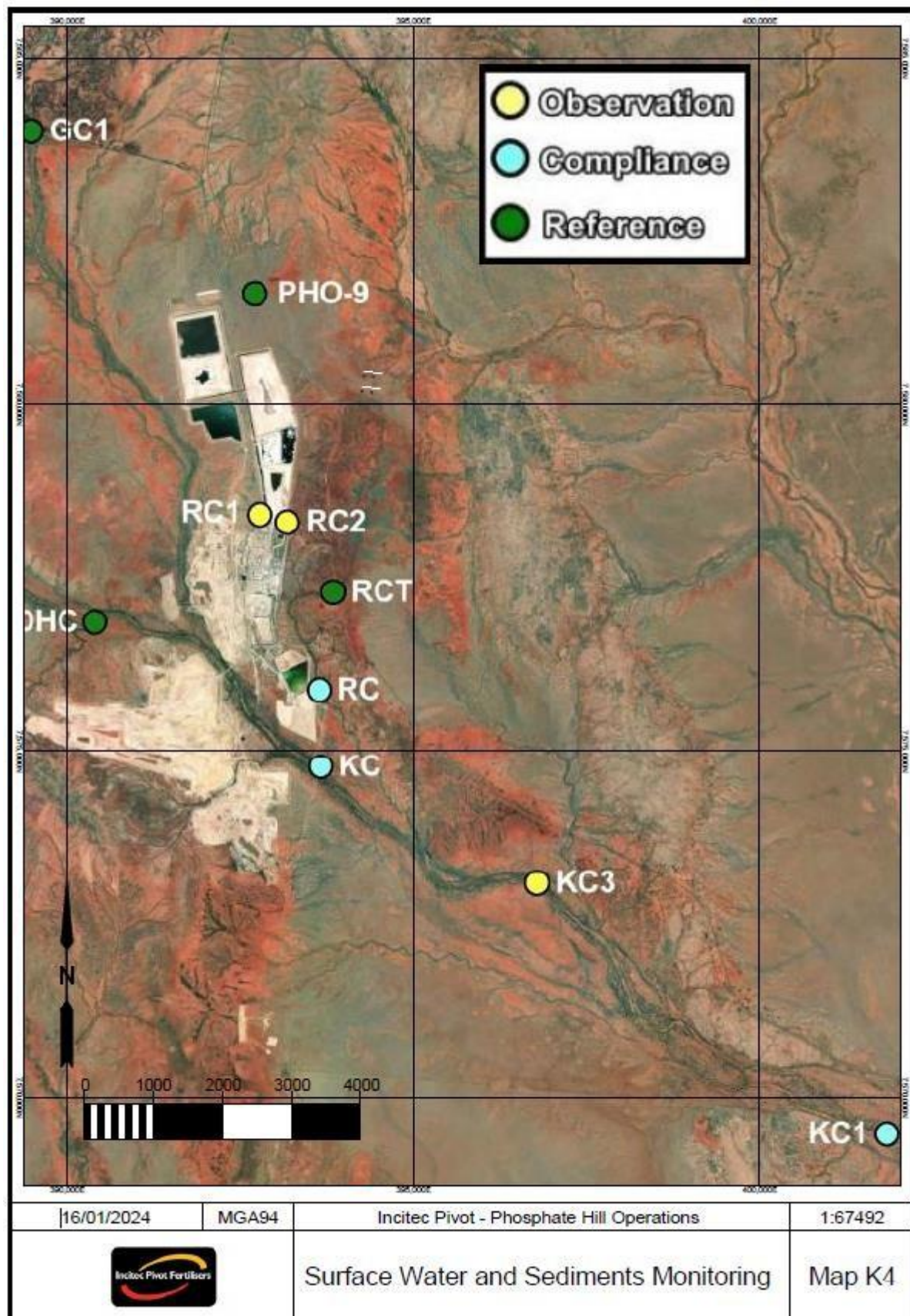
Map K2(C) – Groundwater Monitoring Sites – SAP



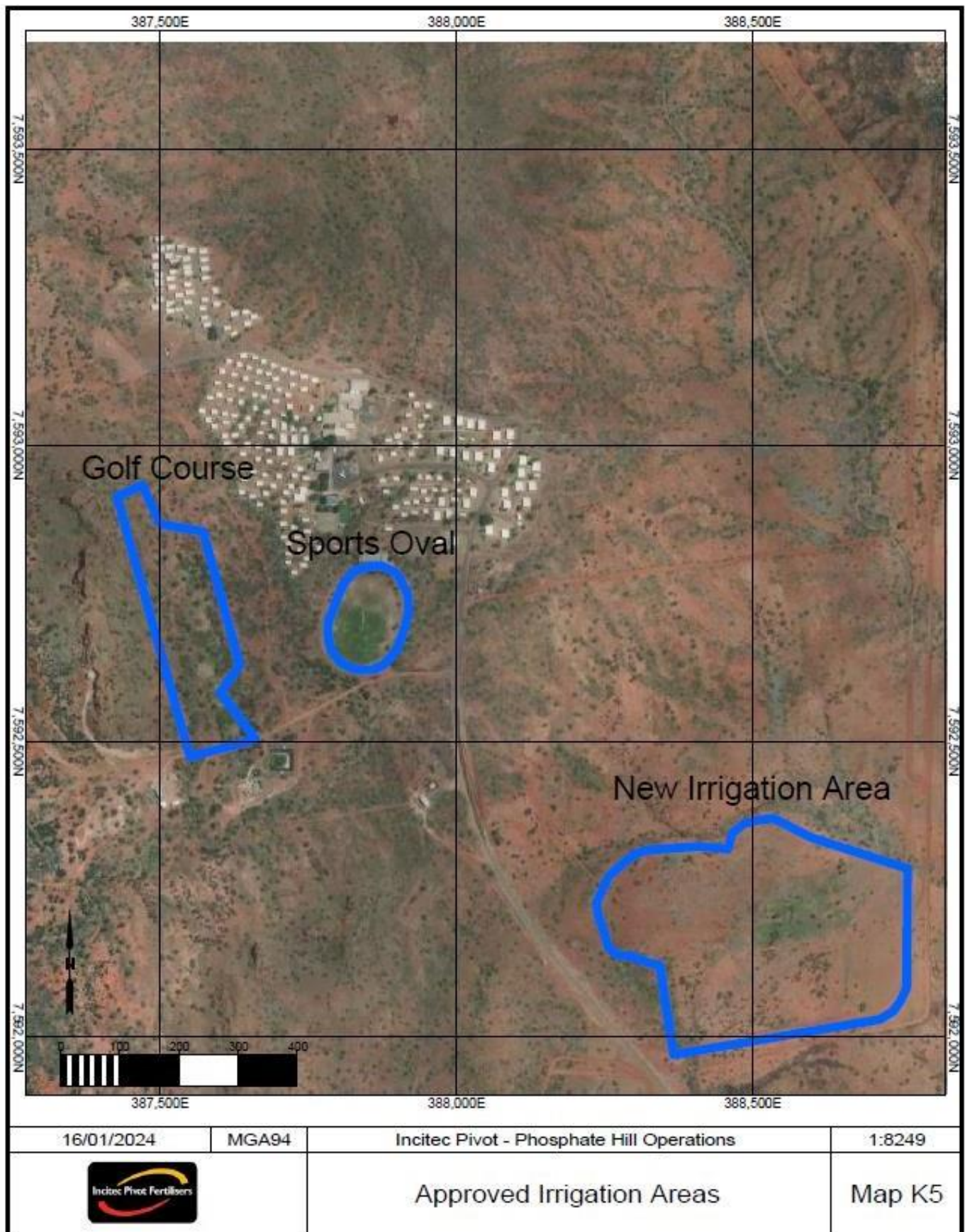
Map K3 – Contaminant Release Points



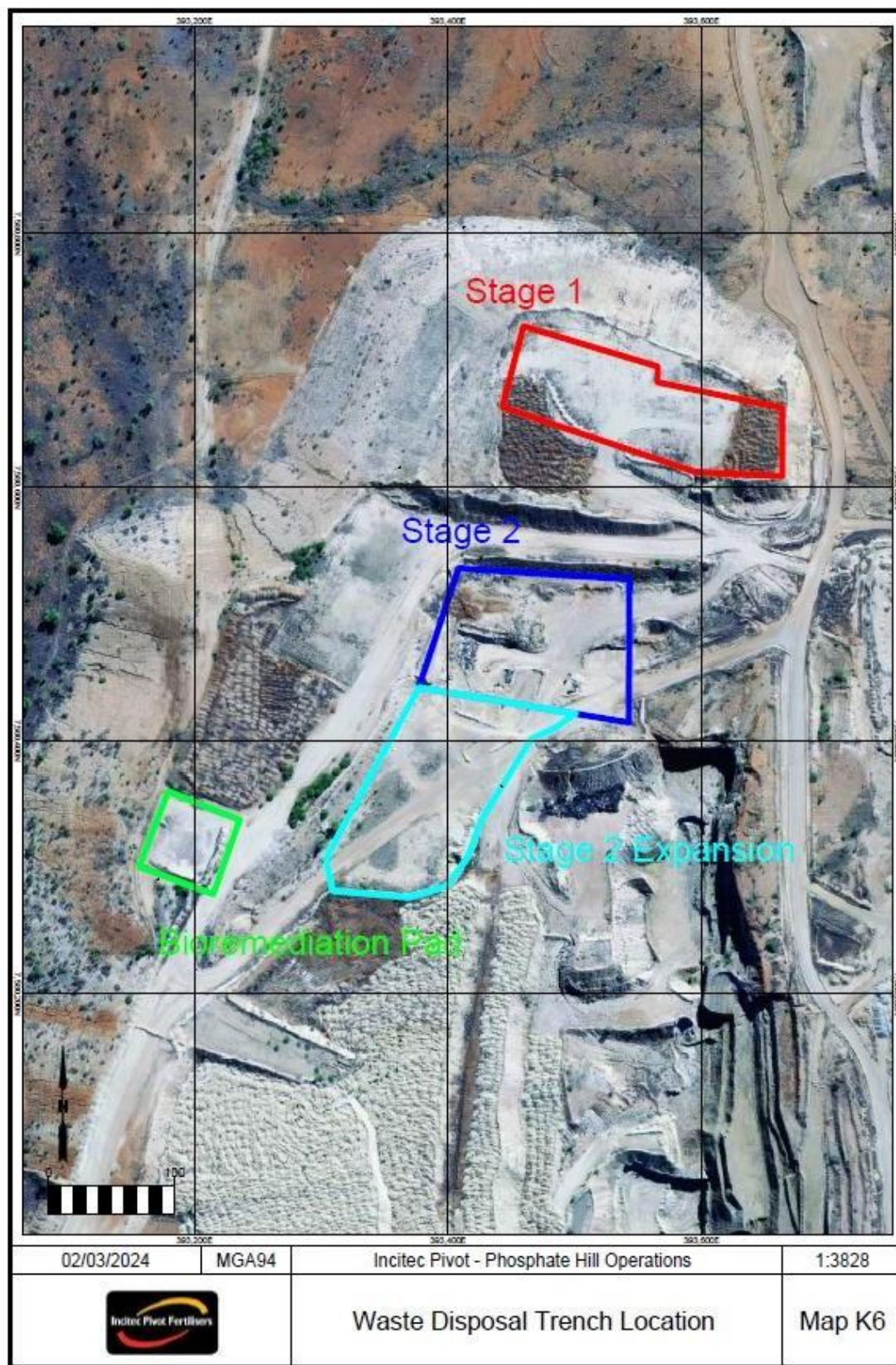
Map K4 –Surface Water and Sediments Monitoring Locations



Map K5 – Approved Irrigation Areas

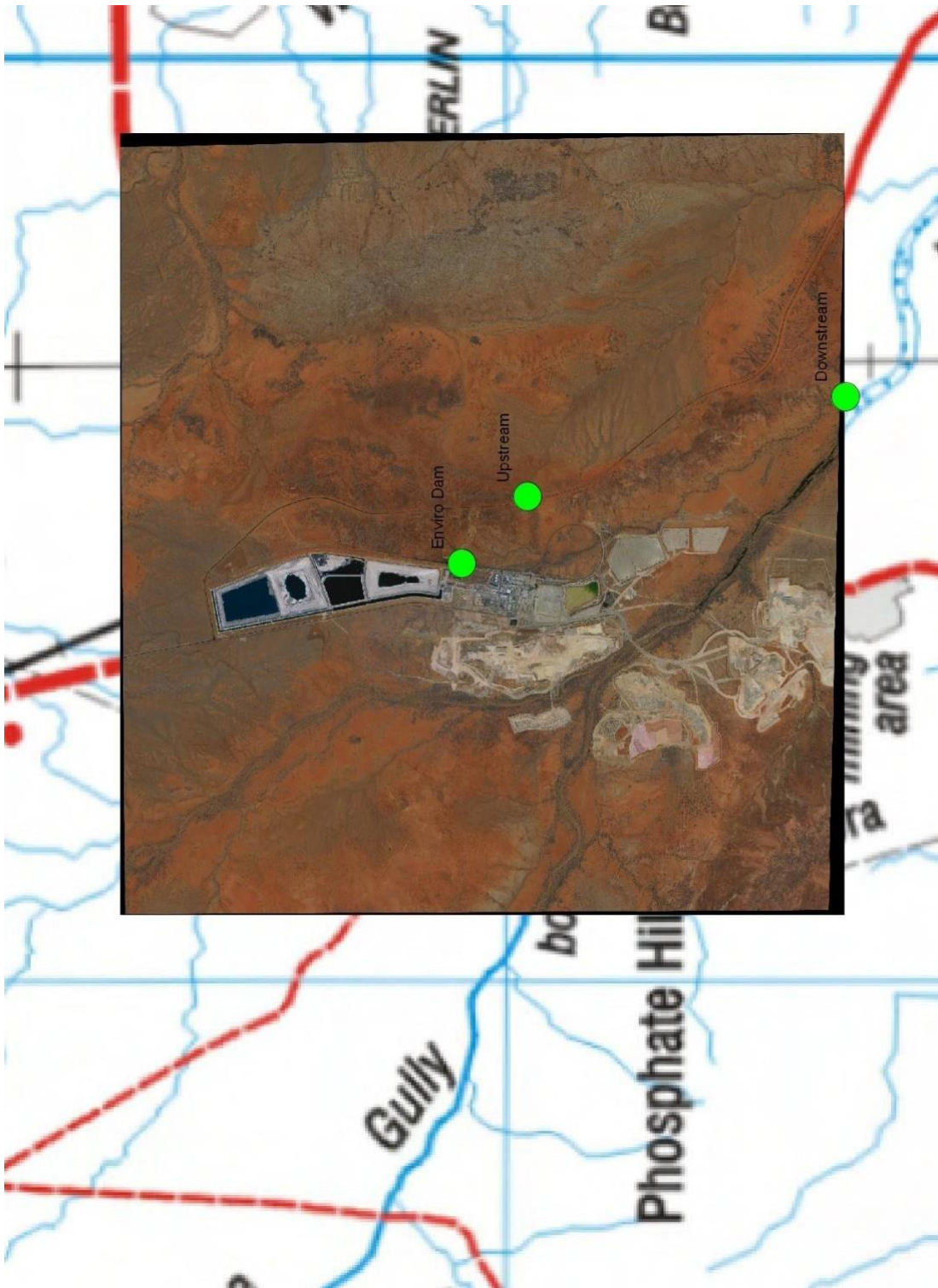


Map K6 – Waste Disposal Trench Location



Appendices Schedule I - Maps/Plans

Schedule I - Figure 1(a) (Surface Water Monitoring Locations; Phosphate Hill Rail Load-out)



(PART B – This section relates to Mining lease (ML) ML90068)

Conditions of environmental authority

Schedule A - General Activity

- A1-1 Words and phrases used throughout this Authority are defined in Schedule I - Definitions. Where a definition for a term used in this Authority is sought and the term is not defined within the Authority, the definitions in the *Environmental Protection Act 1994*, its Regulations and Environmental Protection Policies must be used.
- A1-2 This Authority authorises environmental harm caused by the carrying out of the mining activities in accordance with the conditions of this Authority. Where a condition in this Authority refers to environmental harm the condition is taken to authorise the environmental harm occurring in compliance with the condition. Where there is no condition or this Authority is silent on a matter, the lack of a condition or silence shall not be construed as authorising environmental harm.
- A1-3 In carrying out the mining activity the Authority holder must comply with Schedule A-Table A1 (Authorised Mining Activities).

Schedule A – Table A1 (Authorised Mining Activities)

Mine Domain	Mine Feature Name	Mining Lease/s located upon	Location (MGA94, Z54)		Maximum disturbance area (ha)
			Northing	Easting	
Waste Rock Dump (WRD) and Ore Stockpiles	Phosphate Ore Stockpile and stormwater dam	90068	7580404	394803	1
Dams and Diversions	Phosphate Hill Dam	90068	7580403	394779	0.81
Ancillary Infrastructure	Phosphate Hill Rail Load-out	90068	7580614	394505	0.33
Roads and Tracks	Phosphate Hill Rail Load Out Access Road	90068	7580670	394773	1.3

- A1-4 Access to the mining project via land authorised for that purpose by the *Mineral Resources Act 1989* is subject to the conditions of this Authority.

Maintenance of Measures, Plant and Equipment

- A2-1 The Authority holder must:
- (a) Install all measures, plant and equipment necessary to ensure compliance with the

conditions of this Authority; and,

- (b) Maintain such measures, plant and equipment in a proper and efficient condition; and,
- (c) Operate such measures, plant and equipment in a proper and efficient manner.

A2-2 No change, replacement or alteration of any plant or equipment is permitted if the change, replacement or alteration increases, or is likely to increase, the risk of environmental harm.

Monitoring and Measurements

- A3-1 All instruments and devices used for the measurement or monitoring of any parameter under any condition of this Authority must be calibrated, appropriately operated and maintained.
- A3-2 The Authority holder must record, compile and keep for a minimum of seven (7) years all monitoring results required by this Authority.
- A3-3 Where monitoring is a requirement of this Authority, the Authority holder must ensure that a competent person(s) conducts all monitoring.
- A3-4 Any management or monitoring plans, systems or programs required to be developed and implemented by a condition of this Authority must be reviewed by a suitably qualified person for effectiveness in minimising the likelihood of environmental harm on an annual basis and amended promptly if required. Written certification of this review including identified issues and any subsequent actions undertaken in response must be recorded and provided to the administering authority upon request.

Inspection of Records, Reports, Plans and Investigations

- A4-1 Promptly but within five (5) days of a request from the administering authority, the Authority holder must make available for inspection in the form and by the means requested by the administering authority all or any of the following:
 - (a) Monitoring results required under any condition of this Authority;
 - (b) Records required under any condition of this Authority;
 - (c) Reports required under any condition of this Authority;
 - (d) Plans required under any condition of this Authority;
 - (e) Investigations required under any condition of this Authority.

Risk Management

A5-1 The Authority holder must develop and implement a risk management system for mining activities which conforms to the Standard for Risk Management (ISO31000:2009) or the latest edition of the equivalently recognised Standard for Risk Management. The risk management system must be developed and implemented by 2 May 2012.

Emergency response/contingency

- A6-1 The Authority holder must develop and implement an emergency response/contingency plan to respond to any potential emergency events.
- A6-2 The emergency response/contingency plan required under condition A6-1 must include, but not be limited to the following:
 - (a) Response procedures to be implemented to prevent or minimise the risk of environmental harm arising from emergency events;
 - (b) Response procedures to minimise the extent and duration of environmental harm caused by an emergency event;
 - (c) The practices and procedures to be employed for remediation or mitigation of any

environmental harm caused;

- (d) The available resources for responding to an emergency event;
- (e) Procedures to investigate the cause of any emergency events, including releases, and where necessary, implement remedial actions to reduce the likelihood of recurrence of similar events;
- (f) The provision and availability of documented procedures to staff attending any emergency events to enable them to effectively respond;
- (g) Training of staff that will be called upon to respond to emergency events to enable them to effectively respond;
- (h) Timely and accurate reporting of the circumstance and nature of emergency events to the administering authority in accordance with conditions of this Authority;
- (i) Procedures for accessing monitoring points during emergency events and incidents; and
- (j) Procedures to notify any occupiers or registered owners of affected land and other potentially impacted stakeholder who may be affected by the emergency event.

Notification of Emergencies, Event and Exceedences

- A7-1 The Authority holder must provide written notification to the administering authority promptly but within twenty-four (24) hours after becoming aware of any emergency or event which results in the release of contaminants not in accordance, or reasonably expected to be not in accordance with the conditions of this Authority.
- A7-2 The Authority holder must notify the administering authority by telephone, email or facsimile promptly but within twenty-four (24) hours after becoming aware of any monitoring result that demonstrates an exceedence of any contaminant limit specified for a condition of this Authority, unless that condition specifies a different notification time-frame.
- A7-3 Any notification for conditions (A7-1) and (A7-2) of this Authority must include but not be limited to the following:
 - (a) The Authority number and name of the Authority holder;
 - (b) The name and telephone number of the designated contact person;
 - (c) The location of the emergency, event or exceedence;
 - (d) The date and time of the emergency, event or exceedence;
 - (e) The time the Authority holder became aware of the emergency, event or exceedence;
 - (f) Where known:
 - (i) the estimated quantity, type and concentration of substances involved in the emergency, event or exceedence;
 - (ii) the actual or potential cause of the emergency, event or exceedence;
 - (iii) a description of the nature and effects of the emergency, event or exceedence including environmental risks, and any risks to public health or livestock;
 - (g) Any sampling conducted or proposed, relevant to the emergency, event or exceedence;
 - (h) Immediate actions taken to prevent or mitigate any further environmental harm caused by the emergency, event or exceedence; and,
 - (i) What notification of stakeholders who may be affected by the emergency, event or exceedence has

occurred or is being undertaken.

- A7-4 Promptly but within ten (10) business days following the initial notification of any emergency, event or exceedence required for condition (A7-1) or (A7-2) of this Authority, the Authority holder must provide written advice to the administering authority in a form and by the means acceptable to the administering authority, which includes at a minimum:
- (a) All details pertaining to the initial notification specified in condition (A7-3) of this Authority;
 - (b) Results and interpretation of any samples taken and analysed in relation to the emergency, event or exceedence;
 - (c) Outcomes of actions undertaken to prevent or minimise environmental harm;
 - (d) Any proposed actions to prevent a recurrence of the emergency, event or exceedence; and
 - (e) Any proposed actions and time-frames to further monitor and/or investigate the source, cause and extent of environmental harm resulting from the emergency, event or exceedence.
- A7-5 The Authority holder must promptly, but not more than five (5) business days following the conduct of any further environmental monitoring and/or investigation nominated for condition (A7-4)(e) of this Authority, provide written advice to the administering authority detailing:
- (a) The results of any monitoring and/or investigations performed;
 - (b) Any resultant actions and time-frames proposed to be undertaken.
- A7-6 The Authority holder must promptly notify the occupiers or registered owners of affected land and any other potentially impacted stakeholder by telephone, email, or facsimile after becoming aware of any emergency, event or exceedence that has the potential to impact on environmental values or breaches any condition of this Authority concerning the release of contaminants to the environment.
- A7-7 The notification in condition (A7-6) of this Authority must include the following:
- (a) The location of the emergency, event or exceedence;
 - (b) The date and time of the emergency, event or exceedence;
 - (c) The estimated quantity and type of any substances involved in the emergency, event or exceedence;
 - (d) The potential impacts to environmental values caused by the emergency, event or exceedence; and,
 - (e) Where there is a potential impact on livestock or human health, precautionary measures that should be taken.

Complaints

- A8-1 The Authority holder must record all environmental complaints received about the mining activities, promptly notify the administering authority of the complaint (within forty-eight (48) hours) and provide any details requested by the administering authority relating to the complaint, including at a minimum:
- (a) Name, address and contact number of the complainant;
 - (b) Time and date of the complaint;
 - (c) Reasons for the complaint;
 - (d) Investigations undertaken;
 - (e) Conclusions formed;
 - (f) Actions taken to resolve the complaint;
 - (g) Any abatement measures implemented; and

(h) Person/s responsible for resolving the complaint.

A8-2 The Authority holder must, when requested by the administering authority, undertake relevant specified monitoring within a timeframe nominated by the administering authority to investigate any complaint of environmental harm. The results of the investigation (including any analysis and interpretation of the monitoring results) and abatement measures 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.

Community

A9-1 The Authority holder must establish, promote and maintain easily accessible lines of communication between residents, stakeholders and land owners reasonably expected to potentially be affected by the activities to ensure that any environmental, social, economic and cultural heritage impacts are identified and managed. This must include but not be limited to the following:

- (a) Provide the opportunity for regular meetings to occur with all relevant stakeholders at a frequency of no less than once every six (6) months; and,
- (b) Provide the opportunity for establishment of a consultative committee with representation for all relevant stakeholders that meet at regular intervals as determined by the committee only if required by the relevant stakeholders.

Third Party Auditing

A10-1 The holder of this environmental authority must:

- (a) within 1 year of the commencement of this environmental authority, obtain from an appropriately qualified person a report on compliance with the conditions of this environmental authority;
- (b) obtain further such reports at regular intervals, not exceeding 3 yearly intervals, from the completion of the report referred to above; and
- (c) provide each report to the administering authority within 90 days of its completion.

Transition to New Standards

A11-1 Where a condition of this Authority requires compliance with a standard published externally to this Authority and the standard is amended or changed subsequent to the issue of this Authority, the Authority holder must:

- (a) Comply with the amended or changed standard within 12 months of the amendment or change being made, unless a different period is specified in the amended standard or relevant legislation; and,
- (b) Until compliance with the amended or changed standard is achieved, continue to remain in compliance with the standard that was current immediately prior to the relevant amendment or change.

Suitably Qualified Person

A13-1 Any report, plan, audit or investigation required as a condition of this Authority must be undertaken by a suitably qualified person with appropriate skills and qualifications directly relevant to the field of study.

END OF SCHEDULE A

Schedule B – Air

General

- B1-1 Unless authorised by this Authority, the release of noxious or offensive odour, dust or any other airborne contaminant resulting from the mining activities must not cause environmental harm.
- B1-2 The holder of this Authority must ensure that bulk materials and mineral concentrate are transported in a manner that prevents the spillage and/or loss of particulate matter during transport.
- B1-3 When requested by the administering authority or as a result of a complaint (which is neither frivolous nor vexatious nor based on mistaken belief in the opinion of the authorised officer), odour, dust or any other airborne contaminant monitoring must be undertaken within a reasonable timeframe as specified by the administering authority, and the results thereof notified to the administering authority within ten (10) business days following completion of monitoring. Monitoring must be carried out at a place(s) relevant to the potentially affected sensitive or commercial place and where relevant at upwind control site(s).

Dust Deposition Monitoring

- B2- 1 The release of fugitive emissions from the activities must not cause the concentrations of the air quality characteristics listed in Table B1 (Air Quality Limits), to exceed the air quality limits when measured at or beyond the boundary of any mining lease(s) listed on this environmental authority and at a sensitive place and or a commercial place.
- B2-2 By 1 September 2016, the environmental authority holder must ensure that an air quality monitoring program is developed by an appropriately qualified person and implemented that is capable of determining compliance with condition B2-1 of this environmental authority.

Schedule B - Table B1 (Air Quality Limits)

Contaminant	Limit Type/Measurement Period	Trigger Level	Air Quality Limit	Frequency of Monitoring
Dust Deposition³				
Arsenic and its compounds as arsenic ²	Annual average	4µg/m ² /day ⁴		One sample taken monthly-dust deposition monitoring
Cadmium and its compounds as cadmium ²	Annual average	2µg/m ² /day ⁴		
Lead and its compounds as lead ²	Annual average	100 µg/m ² /day ⁴	250 µg/m ² /day	
Copper and its compounds as copper ²	Annual average	500 µg/m ² /day		
Dust deposition (total insoluble matter)	Monthly average		120 mg/m ² /day	

²Metal analysis must be carried out in accordance with a methodology sufficient to produce representative results capable of comparison against the respective limits and trigger values.

³Monitored in accordance with the most recent version of Australian Standard AS3580.10.1 *Methods for sampling and analysis of ambient air – Determination of particulate matter – Deposited matter – Gravimetric method*.

⁴Limits based on First General Administrative Regulation Pertaining to the Federal Emission Control Act (Technical Instructions on Air Quality Control – TA Luft) (Table 6).

Mineral Concentrate Management

- B3-1 Mineral concentrate storage, handling and loading facilities must be constructed, maintained and operated in a manner that prevents the release of contaminants to the receiving environment.
- B3-2 The exterior of all vehicles, including trailers, must be free of mineral concentrate contamination prior to leaving any mineral concentrate storage facility.

Meteorological monitoring

- B4-1 The Authority holder must establish and maintain a permanent meteorological station to continuously measure and record wind speed, wind direction, temperature, daily rainfall volume and rainfall intensity.
- B4-2 The permanent meteorological station must be installed in accordance with the latest edition of the Bureau of Meteorology guideline Observation specifications No.2013.1 *Guidelines for the positioning and exposure of meteorological instruments and observing facilities*.

END OF SCHEDULE B

Schedule C – Water

- C1-1 Contaminants that will, or have the potential to cause environmental harm must not be released directly or indirectly to any waters except as permitted under the conditions of this Authority.
- C1-2 All determinations of water quality must be:
- (a) Performed by a person(s) possessing appropriate experience and qualifications to perform the required measurements;
 - (b) Made in accordance with methods prescribed in the latest edition of the administering authority's monitoring and sampling manual;
 - (c) Collected from the monitoring locations identified within this Authority within two (2) hours of a release and within forty-eight (48) hours for all other monitoring;
 - (d) Carried out on representative samples;
 - (e) For laboratory determinations, carried out in a laboratory accredited (e.g. NATA) for the method of analysis being used.
- C1-3 The following information must be recorded in relation to all water monitoring required for any condition of this Authority and submitted to the administering authority promptly but within two (2) days of a request:
- (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 all contaminants released from any release point;
 - (e) The receiving waters flow rate at the time of sampling for each release point;
 - (f) The results of all monitoring and details of any exceedence with the conditions of this Authority; and,
 - (g) Water quality monitoring data must be provided to the administering authority in the specified electronic format upon request.
- C1-4 The Authority holder must develop, implement and maintain all reasonable measures/contingency plans to ensure all weather access to any sampling location listed in the Schedule C – Table C1 (Contaminant Release Points) of this Authority.

Contaminant Release to Waters

- C2-1 The release of contaminants to waters must only occur from the release points specified in Schedule C - Table C1 (Contaminant Release Points) and as depicted in the following Figures of this Authority:
- (a) Schedule I - Figure 1 (Surface Water Monitoring Locations; Phosphate Hill Rail Load-out).
- Note: the Authority holder must provide all Schedule I - Figures listed above in condition (C2-1) in a form and by the means acceptable to the administering authority by 1 April 2012.
- C2-2 The release of contaminants to waters must be monitored at the locations specified in Schedule C - Table C1 (Contaminant Release Points) for all parameters listed in Schedule C - Table C2 (Release Water Contaminant Trigger Levels and Limits) and at the following frequencies during release events or flow events:
- One sample must be taken within twelve (12) hours of any release event or flow event commencing. A second sample must be taken between twelve (12) and twenty-four (24) hours following the commencement of a release event or flow event.

- Where a release event or a flow event has a duration of twenty-four (24) hours or greater, samples must be taken daily for one week, and once a week thereafter until the release or flow event ceases.

Note: The requirement to continue sampling release or flow events with a duration of twenty-four (24) hours or greater is only required if there is an exceedance at the release point of a release water contaminant trigger level or limit listed in Schedule C - Table C2 (Release Water Contaminant Trigger Levels and Limits).

Schedule C - Table C1 (Contaminant Release Points)

Release Point	Description of Waste Water Release	Description of Source	Description of Receiving Waters	Co-ordinates (MGA94, Z54)	
				Northing	Easting
Phosphate Hill Environmental Dam	Overflow of dam	Runoff from Rail Load-out	Railway Creek	7580500	394503

Schedule C - Table C2 (Release Water Contaminant Trigger Levels and Limits)

Quality Characteristic	Trigger Levels (mg/L unless otherwise specified)	Contaminant Limit (mg/L unless otherwise specified)
pH (pH units)	6.0 ³ (minimum)	6.0 ⁹ (minimum)
	7.5 ³ (maximum)	9.0 ¹⁵ (maximum)
EC (µS/cm)	435 ¹⁰	1000 ⁹
Sulphate (SO ₄ ²⁻) (mg/L)	80 th percentile ^{1,2,5} of reference ⁴	1000 ⁶
Suspended Solids (mg/L)	For interpretation purposes	
Aluminium	For interpretation purposes. Results to be included in any investigation of an exceedance of the trigger levels for pH in accordance with condition C2-5.	
Arsenic ¹³	80 th percentile ^{1,2,5} of reference ⁴ or 0.013 ³ as dissolved metals.	0.14 ¹⁴ as dissolved metals
Cadmium	80 th percentile ^{1,2,5} of reference ⁴ or 0.0002 ³ as dissolved metals.	0.0008 ¹⁴ as dissolved metals 0.01 ⁶ as total metals
Cobalt	80 th percentile ^{1,2,5} of reference ⁴ as dissolved metals.	0.09 ⁸ as dissolved metals and 1 ⁶ as total metals
Copper	80 th percentile ^{1,2,5} of reference ⁴ or 0.0014 ³ as dissolved metals.	0.03 ¹⁵ as dissolved metals and 1 ⁶ as total metals

Lead ¹¹	80 th percentile ^{1,2,5} of reference ⁴ or 0.0034 ³ as dissolved metals.	95 th percentile ⁵ of reference value ^{7, 12} or 0.1 ⁶ whichever is lower
Molybdenum ¹¹	80 th percentile ^{1,2,5} of reference ⁴ or 1.9 ³ as dissolved metals.	95 th percentile ⁵ of reference value ^{7,12}
Nickel ¹¹	80 th percentile ^{1,2,5} of reference ⁴ or 0.011 ³ as dissolved metals.	0.017 ¹⁴ as dissolved metals and 1 ⁶ as total metals
Rhenium ¹¹	80 th percentile ^{1,2,5} of reference ⁴ as dissolved metals.	95 th percentile ⁵ of reference value ^{7,12}
Selenium (Total)	80 th percentile ^{1,2,5} of reference ⁴ or 0.011 ³ as dissolved metals.	0.02 ⁶ as total metals
Zinc ¹¹	80 th percentile ^{1,2,5} of reference ⁴ or 0.008 ³ as dissolved metals.	95 th percentile ⁵ of reference value ^{7, 12} or 20 ⁶ whichever is lower
Hardness	For the purpose of interpretation	
Fluoride*	80 th percentile ^{1,5} of reference ⁴	95 th percentile ^{5,14} of reference value ^{7, 12} or 26 whichever is lower
Phosphate*	80 th percentile ^{1,2,5} of reference ⁴	95 th percentile ⁵ of reference value ^{7, 12} or 0.05 whichever is lower
Nitrogen *	80 th percentile ^{1,2,5} of reference ⁴	95 th percentile ⁵ of reference value ^{7, 12} or 400 whichever is lower

¹ An interim trigger value can be derived from 'GREATER THAN OR EQUAL TO' 8 but 'LESS THAN OR EQUAL TO' consecutive reference site samples, derived using administering authority (2006) methodology (section 3.4.3.1).

² Trigger values are based on the 80th percentile of at least 10 and no more than 24 consecutive reference site samples, derived using the administering authority (2006) methodology (Table D1, and section 3.4.3.1).

³ Default trigger values – from ANZECC (2000) trigger levels for aquatic ecosystems indicative of slightly disturbed tropical Australian upland river ecosystems.

⁴ Reference sites are to be determined in accordance with Condition (C7-2) (j).

⁵ 80th and 95th percentiles are calculated using ANZECC (2000) methodology (section 7.4.4.1).

⁶ Contaminant limit based on ANZECC (2000) stock water quality guidelines.

⁷ Limit levels based on reference data are to be based on 24 consecutive samples obtained at the time of a release (18 at a minimum).

⁸ Contaminant limit based on ANZECC (2000) freshwater moderate reliability trigger value, section 8.3.7.1.

⁹ Contaminant limit based on administering authority policy.

¹⁰ Contaminant trigger based on Queensland Water Quality Guidelines (Table G.4 – 75th percentile).

¹¹ Monitoring must commence and trigger levels and contaminant limits apply when processing of ore from the Merlin Underground commences.

¹² Where 95th percentile of reference is exceeded and the reference site also exceeds the value during the same event, the value of the reference site during the same event applies.

¹³ Analysis is based on total/combined species of the element, where the trigger level is exceeded, an analysis to determine and quantify speciated forms of the element is required.

¹⁴ Contaminant limit based on ANZECC (2000) 80% species level of protection.

¹⁵ Contaminant limit based on site specific data as at June 2016.

*Only required for the monitoring locations as defined in Schedule C - Table C4 (Receiving Waters Monitoring Locations and Frequency):
Phosphate Hill Downstream, Phosphate Hill Environment Dam and Phosphate Hill Reference.

- C2-3 The volume of all water released to waters from each of the release points specified in Schedule C - Table C1 (Contaminant Release Points) must be determined and recorded.
- C2-4 The release of contaminants to waters must not exceed the contaminant limits specified in Schedule C - Table C2 (Release Water Contaminant Trigger Levels and Limits) for each parameter.
- C2-5 If quality characteristics of the release exceed any of the trigger levels specified in Schedule C - Table C2 (Release Water Contaminant Trigger Levels and Limits) during a release event, the holder of this Authority must compare the downstream results in the receiving waters during that release event to the trigger values specified in Schedule C - Table C2 (Release Water Contaminant Trigger Levels and Limits) and:
- (a) If the level of contaminants at the downstream site is the same or a lower value than the reference value for the quality characteristic during the release event then no action is to be taken; or
 - (b) If the level of contaminants at the downstream site is greater than the reference monitoring site data complete an investigation in accordance with the ANZECC and ARMCANZ 2000 methodology, into the potential for environmental harm and provide a written report to the administering authority within 3 months, outlining:
 - (i) Details of the investigations carried out; and,
 - (ii) Actions taken to prevent environmental harm.
- Note: Where an exceedence of a trigger level has occurred and is being investigated, in accordance with requirement (b) of this condition, no further reporting is required for subsequent trigger events for that quality characteristic.
- C2-6 The release of contaminants to waters must not produce in the receiving waters, any slick or other visible or odorous evidence of oil, grease or petrochemicals nor contain visible floating oil, grease, scum, litter or other objectionable matter nor have any other properties nor contain any organisms or other contaminants in concentrations that are capable of causing environmental harm.
- C2-7 Waters from areas potentially contaminated by oils and grease such as workshops and fuel storage areas must be effectively treated in a coalescing plate separator or equivalent prior to being placed in any location from which they may be released to waters.
- C2-8 The release of waters must not cause erosion of the bed or banks of the receiving waters or result in deposition of sediment.

Stream Flow Monitoring

- C3-1 During all release events, the volume of natural flow in receiving waters must be monitored immediately downstream of each release location specified in Schedule C - Table C1 (Contaminant Release Points) in a manner that ensures at a minimum:
- (a) Stream flow in receiving waters is measured at the commencement of, during and following any release event until such time as flow in the receiving water ceases; and,
 - (b) Flow volume is determined at a level of accuracy that enables calculation of contaminant load in the receiving water for all contaminants listed in Schedule C - Table C4 (Receiving Water Contaminant Trigger Levels and Contaminant Limits).
- C3-2 In the event that the methodology for calculating stream flow in receiving waters adopted to comply with

condition (C3-1) is deemed to be unacceptable to the administering authority, the Authority holder will be required to install, operate and maintain gauging stations for all contaminant release points listed in Schedule C - Table C1 (Contaminant Release Points) before commencing any release to receiving waters from those locations.

- C3-3 Notwithstanding any other condition of this Authority, the release of contaminants to waters must only take place during natural flow events when the background receiving water flow comprises a minimum of 95% of the total volume of the release.

Notification of release to waters

- C4-1 The Authority holder must promptly (but no later than six (6) hours of having commenced releasing water to the receiving environment) notify the administering authority by telephone or e-mail of a release event. Notification must include the submission of written verification to the administering authority of the following information:
- (a) Release commencement date/time;
 - (b) Expected release cessation date/time;
 - (c) Release point/s;
 - (d) Release volume (estimated);
 - (e) Receiving water/s including the natural flow rate; and
 - (f) Any details (including available data) regarding likely impacts on the receiving water(s).
- C4-2 The Authority holder must promptly (but within twenty-four (24) hours after cessation of a release) notify the administering authority of the cessation of a release notified under condition (C4-1) 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 this 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.

Receiving Environment Monitoring

- C5-1 The quality of the receiving waters must be monitored for all parameters listed in Schedule C - Table C5 (Receiving Water Contaminant Trigger Levels and Limits) and at the locations and frequencies defined in Schedule C - Table C4 (Receiving Waters Monitoring Locations and Frequency) and as depicted in the following Figures of this Authority:
- (a) Schedule I - Figure 1 (Surface Water Monitoring Locations - Phosphate Hill Rail Load-out).

Schedule C - Table C4 (Receiving Waters Monitoring Locations and Frequency)

Monitoring Point	Description	Co-ordinates – MGA94, Z54		Monitoring frequency
		Northing	Easting	
Receiving Waters				
Phosphate Hill Rail Load-out Downstream	Railway Ck Downstream of Phosphate Hill Rail Load-out	7579955	395352	Event based sampling: - One sample must be taken within 2 hours of a release or flow event commencing. - Where a release or flow event has a duration of 24 hours or greater, samples must be taken daily for one week, and once a week thereafter until the release or flow event ceases².
Reference Sites ¹				
Phosphate Hill Rail Load-out Reference	Upstream of Phosphate Hill Rail Load-out	7577649	395463	Event based sampling: - One sample must be taken within 2 hours of a release or flow event commencing. - Where a release or flow event has a duration of 24 hours or greater, samples must be taken daily for one week, and once a week thereafter until the release or flow event ceases².

¹ Reference sites must:

- be from the same bio-geographic and climatic region; and
- have similar geology, soil types and topography; and
- contain a range of habitats similar to those at the test sites; and
- have a similar flow regime; and
- not be so close to the test sites that any disturbance at the test site also results in a change at the reference site

² Continued sampling of release events with a duration of twenty-four (24) hours or greater is only required if there is an exceedence of a contaminant trigger level detected at the contaminant release point.

C5-2 If quality characteristics of the receiving water at the receiving water monitoring locations exceed any of the trigger levels specified in Schedule C - Table C5 (Receiving Water Contaminant Trigger Levels and Limits) during a release event, the Authority holder must compare the results of the receiving water monitoring site to the reference site monitoring data and:

- (a) If the level of contaminants at the receiving water monitoring site does not exceed the reference site monitoring data, then no action is to be taken; or,
- (b) if the level of contaminants at the receiving monitoring site is greater than the reference site monitoring data, complete an investigation in accordance with the ANZECC (2000) guidelines methodology, into the potential for environmental harm and provide a written report to the administering authority within three (3) months, outlining:

- (i) Details of the investigations carried out; and,
- (ii) Actions taken to prevent environmental harm.

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

C5-3 Contaminant levels in receiving waters must not exceed any of the contaminant limits defined in Schedule C - Table C5 (Receiving Water Contaminant Trigger Levels and Limits).

Schedule C - Table C5 (Receiving Water Contaminant Trigger Levels and Limits)

Quality Characteristic	Trigger Levels (mg/L unless otherwise specified)	Contaminant Limit (mg/L unless otherwise specified)
pH (pH units)	6.0 ³ (minimum)	6.0 ¹² (minimum)
	7.5 ³ (maximum)	9.0 ¹¹ (maximum)
EC (µS/cm)	435 ¹⁰	1000 ⁹
Sulphate (SO ₄ ²⁻) (mg/L)	80 th percentile ^{1,2,5,14} of reference ⁴	1000 ⁶
Suspended Solids (mg/L)	For the purpose of interpretation	
Aluminium	For interpretation purposes. Results to be included in any investigation of an exceedance of the trigger levels for pH in accordance with condition C5-2.	
Arsenic ¹³	80 th percentile ^{1,2,5,14} of reference ⁴ or 0.013 ³	0.14 ⁸ as dissolved metals
Cadmium	80 th percentile ^{1,2,5,14} of reference ⁴ or 0.0002 ³	0.0008 ⁸ as dissolved metals 0.01 ⁶ as total metals
Cobalt	80 th percentile ^{1,2,5,14} of reference ⁴	0.09 as dissolved metals and 1 ⁶ as total metals
Copper	80 th percentile ^{1,2,5,14} of reference ⁴ or 0.0014 ³	0.03 ¹¹ as dissolved metals and 1 ⁶ as total metals
Lead ¹⁵	80 th percentile ^{1,2,5,14} of reference ⁴ or 0.0034 ³	95 th percentile ^{5,14} of reference value ^{7, 12} or 0.1 ⁶ whichever is lower
Molybdenum ¹⁵	80 th percentile ^{1,2,5,14} of reference ⁴ or 1.9 ³	95 th percentile ^{5,14} of reference value ^{7,12}
Nickel	80 th percentile ^{1,2,5,14} of reference ⁴ or 0.011 ³	0.0178 as dissolved metals and 1 ⁶ as total metals
Rhenium ¹⁵	80 th percentile ^{1,2,5,14} of reference ⁴	95 th percentile ^{5,14} of reference value ^{7,12}

Selenium (Total)	80th percentile ^{1,2,5,14} of reference ⁴ or 0.011 ³	0.02 ⁶ as total metals
Zinc ¹⁵	80th percentile ^{1,2,5,14} of reference ⁴ or 0.008 ³	95th percentile ^{5,14} of reference value ^{7,12} or 20 ⁶ whichever is lower
Hardness	For the purpose of interpretation	
Fluoride*	80th percentile ^{1,5,14} of reference ⁴	95th percentile ^{5,14} of reference value ^{7,12} or 2 ⁶ whichever is lower
Phosphate*	80th percentile ^{1,2,5,14} of reference ⁴	95th percentile ^{5,14} of reference value ^{7,12} or 0.05 whichever is lower
Nitrogen*	80th percentile ^{1,2,5,14} of reference ⁴	95th percentile ^{5,14} of reference value ^{7,12} or 400 whichever is lower

¹ An interim trigger value can be derived from 'GREATER THAN OR EQUAL TO' 8 but 'LESS THAN OR EQUAL TO' 17 consecutive reference site samples, derived using administering authority (2006) methodology (section 3.4.3.1).

² Trigger values are based on the 80th percentile of at least 10 and no more than 24 consecutive reference site samples, derived using the administering authority (2006) methodology (Table D1, and section 3.4.3.1).

³ Default trigger values – from ANZECC (2000) trigger levels for aquatic ecosystems indicative of slightly disturbed tropical Australian upland river ecosystems.

⁴ Reference sites are to be determined in accordance with condition (C7-2) (j).

⁵ 80th and 95th percentiles are calculated using ANZECC (2000) methodology (section 7.4.4.1).

⁶ Contaminant limit based on ANZECC (2000) stock water quality guidelines.

⁷ Limit levels based on reference data are to be based on 24 consecutive samples obtained at the time of a release (18 at a minimum).

⁸ Contaminant limit based on ANZECC (2000) 80% species level of protection.

⁹ Contaminant limit based on administering authority policy.

¹⁰ Contaminant trigger based on Queensland Water Quality Guidelines (Table G.4 – 75th percentile).

¹¹ Contaminant limit based on site specific data.

¹² If the reference site also exceeds the value during the same event, the value of the reference site during the same event applies

¹³ Analysis is based on total/combined species of the element, where the trigger level is exceeded, an analysis to determine and quantify speciated forms of the element is required.

¹⁴ 80th and 95th percentiles to be determined based on Receiving Environment Monitoring Program.

¹⁵ Monitoring must commence and trigger levels and contaminant limits apply when processing of ore from the Merlin Underground commences.

*Only required for the following monitoring locations as defined in Schedule C - Table C4 (Receiving Waters Monitoring Locations and Frequency): Phosphate Hill Downstream, Phosphate Hill Environment Dam and Phosphate Hill Reference.

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

Stream Sediment Contaminant Levels

C6-1 Sediment quality of receiving waters and reference waters must be monitored twice a year (once at the end of the wet season and once at the end of the dry season)* for the parameters defined in Schedule C - Table C6 (Stream Sediment Trigger Levels and Contaminant Limits) and at the monitoring locations defined in Schedule C - Table C4 (Receiving Waters Monitoring Locations and Frequency) and as depicted in the following Figures of this Authority:

(a) Schedule I - Figure 1 (Surface Water Monitoring Locations – Phosphate Hill Rail Load-out).

*Note: If no contaminant release has occurred in the previous 12 months, sediment sampling frequency can be reduced to once per year, to be undertaken at the end of the dry season.

C6-2 If the quality characteristics of sediments exceed any of the trigger levels specified in Schedule C - Table C6 (Stream Sediment Trigger Levels and Contaminant Limits), the Authority holder must compare the results of the downstream site to the data from reference monitoring sites and:

- (a) If the level of contaminants at the downstream site does not exceed the reference monitoring site data, then no action is to be taken; or,
- (b) If the level of contaminants at the downstream site is greater than the reference monitoring site data, complete an investigation in accordance with the ANZECC (2000) guidelines methodology, into the potential for environmental harm and provide a written report to the administering authority within three (3) months, outlining:
 - (i) Details of the investigations carried out; and,
 - (ii) Actions taken to prevent environmental harm.

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

C6-3 Sediment contaminant levels must not exceed the sediment contaminant limits stated in Schedule C – Table C6 (Stream Sediment Trigger Levels and Contaminant Limits).

C6-4 If an exceedence in accordance with condition (C6-3) is identified, the Authority holder must notify the administering authority within seven (7) days of receiving the result.

Schedule C - Table C6 (Stream Sediment Trigger Levels and Contaminant Limits)

Parameter	Unit	Trigger Level	Contaminant Limit
Arsenic	mg/kg	Reference value ² or 20 ³ , whichever is higher	70 ¹ or twice the reference value ² , whichever is higher
Cadmium	mg/kg	Reference value ² or 1.5 ³ , whichever is higher	10 ¹ or three times the reference value ² , whichever is higher
Cobalt	mg/kg	Reference value ²	Three times the reference value ²
Copper	mg/kg	Reference value ² or 65 ³ , whichever is higher	270 ¹ or three times the reference value ² , whichever is higher
Lead ⁴	mg/kg	Reference value ² or 50 ³ , whichever is higher	220 ¹ or three times the reference value ² , whichever is higher
Molybdenum ⁴	mg/kg	Reference value ²	Three times the reference value ²
Nickel	mg/kg	Reference value ² or 21 ³ , whichever is higher	52 ¹ or three times the reference value ² , whichever is higher
Rhenium ⁴	mg/kg	Reference value ²	Three times the reference value ²

Selenium	mg/kg	Reference value ²	Three times the reference value ²
Zinc ⁴	mg/kg	Reference value ² or 200 ³ , whichever is higher	410 ¹ or three times the reference value ² , whichever is higher
Fluoride*	mg/kg	Reference value ²	Three times the reference value ²
Nitrogen*	mg/kg	Reference value ²	Three times the reference value ²
Phosphate*	mg/kg	Reference value ²	Three times the reference value ²

¹ ANZECC (2000) Interim Sediment Quality Guidelines – high values based on total sediments

² Reference sites are defined in Schedule C - Table C4 (Receiving Waters Monitoring Locations and Frequency).

³ ANZECC (2000) Interim Sediment Quality Guidelines – low values based on total sediments.

⁴ Monitoring must commence when processing of ore from the Merlin Underground commences.

* Only required for the following monitoring locations as defined in Schedule C - Table C4 (Receiving Waters Monitoring Locations and Frequency): Phosphate Hill Downstream, Phosphate Hill Environment Dam and Phosphate Hill Reference.

C6-5 All stream sediment sampling must be undertaken in accordance with AS 5667.12 *Guidance on Sampling of Bottom Sediments of 1998*.

Receiving Environment Monitoring Program (REMP)

C7-1 A REMP must be developed and implemented by a suitably qualified person no later than three (3) months following issue of this Authority to monitor and record the effects of the release of contaminants on the receiving environment periodically and whilst contaminants are being discharged from the site, with the aims of identifying and describing the extent of any adverse impacts to local environmental values, and monitoring any changes in the receiving water. A copy of the REMP must be provided to the administering authority prior to its implementation and due consideration given to any comments made on the REMP by the administering authority.

For the purposes of the REMP, the receiving environment is all underlying groundwater, the waters of Carbo Creek, Little Sandy Creek, Noname Creek, Dermer Creek, Lucky Luke Creek and any connected waterways that are downstream of a release point/s listed in Schedule C - Table C1 (Contaminant Release Points) of this Authority.

C7-2 The REMP must address (but not necessarily be limited to) the following:

- (a) Description of potentially affected receiving waters including key communities and background water quality characteristics based on accurate and reliable monitoring data that takes into consideration any temporal variation (e.g. seasonality);
- (b) Description of applicable environmental values and water quality objectives to be achieved (i.e. as scheduled pursuant to the Environmental Protection (Water) Policy 2009);
- (c) Any relevant reports prepared by other governmental or professional research organisations that relate to the receiving environment within which the REMP is proposed;
- (d) Water quality targets within the receiving environment to be achieved, and clarification of contaminant concentrations or level indicating adverse environmental impacts during the REMP;
- (e) Monitoring for any potential adverse environmental impacts caused by the release;
- (f) Monitoring of stream flow and hydrology;

- (g) Monitoring of toxicants should consider the indicators specified in Schedule C - Table C2 (Release Water Trigger Levels and Contaminant Limits) to assess the extent of the compliance of concentrations with water quality objectives and/or the ANZECC (2000) guidelines for slightly to moderately disturbed freshwater ecosystems;
- (h) Monitoring as a minimum the parameters specified in Schedule C - Table C2 (Release Water Contaminant Trigger Levels and Limits) (in addition to dissolved oxygen saturation and temperature);
- (i) Monitoring biological indicators (for macroinvertebrates in accordance with the AusRivas sampling methodology/the latest edition of the administering authority's monitoring and sampling manual) and metals/metalloids in sediments (in accordance with ANZECC (2000) guidelines, BATLEY and/or the most recent version of AS5667.1 Guidance on Sampling of Bottom Sediments) for permanent, semi-permanent water holes and water storages;
- (j) The locations of monitoring points, including reference/upstream and downstream sites, for all areas potentially impacted by activities authorised by this Authority. Reference sites must comply with the following criteria:
 - (i) Be from the same bio-geographic and climatic region;
 - (ii) Have similar geology, soil types and topography;
 - (iii) Contain a range of habitats similar to those at the potentially impacted sites;
 - (iv) Have a similar flow regime; and
 - (v) Not be so close to the potentially impacted sites that any disturbance at the potentially impacted sites also results in a change at the reference site;
- (k) The frequency or scheduling or sampling and analysis sufficient to determine water quality objectives and to derive site specific reference values within three (3) years (depending on wet season flows) in accordance with the latest edition of the administering authority's Queensland Water Quality Guidelines. For ephemeral streams, this should include periods of flow irrespective of mine or other discharges;
- (l) Specify sampling and analysis methods and quality assurance and control;
- (m) Any historical datasets to be relied upon;
- (n) Description of the statistical basis on which conclusions are drawn; and
- (o) Any spatial and temporal controls to exclude potential confounding factors.

C7-3 A report outlining the findings of the REMP, including all monitoring results and interpretations in accordance with condition (C7-2) must be prepared and submitted in writing to the administering authority by 1 August 2013 and thereafter every twelve (12) months. This report must include an assessment of:

- (a) Any assimilative capacity for those contaminants monitored;
- (b) The suitability of current release limits to protect downstream environment values;
- (c) If current release limits are identified as unsuitable to protect downstream environmental values, provide recommendations for more appropriate contaminant limits.

Onsite Water Storages

C10-1 On site water storages must be monitored at the locations and frequencies defined in Schedule C - Table C11 (Onsite Water Storage Monitoring Locations) for parameters listed in Schedule C - Table C12 (Onsite Water Quality Limits).

Schedule C - Table C11 (Onsite Water Storage Monitoring Locations)

Monitoring Point	Co-ordinates (MGA94, Z54)		Monitoring frequency
	Northing	Easting	
Phosphate Hill Environmental Dam	7580500	394503	Quarterly (if water is present)
Phosphate Ore Stormwater Dam	7580404	394803	

C10-2 In the event that waters defined in Schedule C - Table C11 (Onsite Water Storage Monitoring Locations) exceed the quality levels defined in Schedule C - Table C12 (Dam Water Quality Levels), the Authority holder must implement measures to prevent access to waters by all livestock and minimise access by native fauna.

Schedule C - Table C12 (Dam Water Quality Levels)

Parameter	Unit	Test Value	Quality Level ²
pH	pH unit	Range	Greater than 5.0, less than 9.0 ³
EC	µS/cm	Maximum	1500 ⁴
Turbidity	NTU	Maximum	Twice the reference value
Sulphate	mg/L	Maximum	1000 ¹
Aluminium	mg/L	Maximum	5 ¹
Arsenic	mg/L	Maximum	0.5 ¹
Cadmium	mg/L	Maximum	0.01 ¹
Cobalt	mg/L	Maximum	1 ¹
Copper	mg/L	Maximum	1 ¹
Lead ⁵	mg/L	Maximum	0.1 ¹
Molybdenum ⁵	mg/L	Maximum	0.15 ¹
Nickel	mg/L	Maximum	1 ¹
Rhenium ⁵	mg/L	Maximum	Twice the reference value
Selenium	mg/L	Maximum	0.02 ¹
Zinc ⁵	mg/L	Maximum	20 ¹

¹ Levels based on ANZECC (2000) stock water quality guidelines.

² Levels based on reference data are to be based on 24 consecutive samples (18 at a minimum)

³ Page 4.2-15 of ANZECC (2000) "Soil and animal health will not generally be affected by water with pH in the range of 4–9".

⁴ Trigger levels based on administering authority policy

⁵ Monitoring must commence when processing of ore from the Merlin Underground commences.

Note: Analysis for total metal concentrations.

Water Management Plan

C11-1 A Water Management Plan must be developed and implemented by 1 October 2012 that provides for the proper and effective management of the actual and potential environmental impacts resulting from the mining activity and to ensure compliance with the conditions of this Authority.

C11-2 The Water Management Plan must be developed in accordance with the administering authority's

Guideline for Preparing a Water Management Plan 2009 and any updates that become available from time to time and must include at least the following components:

- a) Contaminant source study;
- b) Site water balance and model;
- c) Water management system;
- d) Saline and metalliferous drainage prevention and management measures;
- e) Acid rock and neutral mine drainage prevention and management measures;
- f) Emergency and contingency planning; and,
- g) Monitoring and review.

C11-3 Each year the Authority holder must undertake and document a review of the Water Management Plan prior to the wet season (but no later than 1 November of each year) and a further review following the wet season (but no later than 1 May of the following year) to ensure that proper and effective measures, practices or procedures are in place so that operations are in accordance with the conditions of this Authority and that environmental harm is prevented or minimised.

C11-4 A copy of the Water Management Plan and/or documentation of any reviews of the Water Management Plan must be provided to the administering authority on request.

Stormwater and Water Sediment Controls

C12- 1 An Erosion and Sediment Control Plan must be developed by a suitably qualified person before 1 July 2012 and immediately implemented and maintained for all stages of mining activities on the mining lease(s) to prevent or minimise erosion and the release of sediment to receiving waters and the contamination of stormwater.

C12-2 The Erosion and Sediment Control Plan must at minimum provide for the following stormwater management functions:

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

C12-3 Any spillage of wastes, contaminants or other materials must be cleaned up promptly to minimise the release of wastes, contaminants or materials to any stormwater drainage system or receiving waters.

END OF SCHEDULE

Schedule D – Noise

- D1-1 Noise from mining activities must not cause environmental harm or nuisance unless authorised by a condition of this Authority.
- D1-2 In the event of a complaint made to the administering authority (which is neither frivolous or vexatious) about noise generated in carrying out the licensed activity and the noise is considered by the administering authority to be an unreasonable noise, the holder of this Authority must take action to ensure that it is no longer an unreasonable noise.

Noise Monitoring

- D2-1 Ensure that noise generated by the mining activities does not cause the criteria in Schedule D - Table D1 (Noise Limits).

Schedule D – Table D1 (Noise Limits)

Noise level dB (A) measured as	Monday to Saturday			Sundays and Public Holidays		
	7am – 6pm	6pm – 10pm	10pm – 7am	9am - 6pm	6pm – 10pm	10pm - 9am
	Noise measured at a ‘noise sensitive place’					
L _{A10} , adj, 10 mins	BG+5	BG+5	BG+3	BG+5	BG+5	BG+0
L _{A1} , adj, 10 mins	BG+10	BG+10	BG+5	BG+10	BG+10	BG+5
	Noise measured at a ‘commercial place’					
L _{A10} , adj, 10 mins	BG+10	BG+10	BG+5	BG+10	BG+10	BG+5
L _{A1} , adj, 10 mins	BG+15	BG+15	BG+10	BG+15	BG+15	BG+10

Note: The method of measurement and reporting of noise levels must comply with the latest edition of the Environmental Protection Agency’s Noise Measurement Manual.

- D2-2 When requested by the administering authority, the Authority holder must undertake and record noise monitoring within a reasonable and practicable timeframe nominated by the administering authority to investigate any complaint of environmental nuisance at any sensitive place or commercial place, and the results must be notified within fourteen (14) days to the administering authority following completion of monitoring.
- D2-3 Noise monitoring and recording must include the following descriptor characteristics and matters:
- L_{AN,T} (where N equals the statistical levels of 1, 10 and 90 and T = 10 mins);
 - Background noise L_{A90};
 - The level and frequency of occurrence of impulsive or tonal noise and any adjustment and penalties to statistical levels;
 - Atmospheric conditions including temperature, relative humidity and wind speed and directions;
 - Effects due to any extraneous factors such as traffic noise;
 - Location, date and time of monitoring;
 - If the complaint concerns low frequency noise, Max L_{pLIN,T};
 - If the complaint concerns low frequency noise, one third octave band measurements in dB(LIN) for centre frequencies in the 10 – 200 Hz range.

- D2-4 The method of measurement and reporting of noise levels must comply with the most recent edition of the administering authority's Noise Measurement Manual or the most recent version of AS1055 *Acoustics – Description and measurement of environmental noise*.

END OF SCHEDULE D

Schedule E - Waste

- E1-1 A waste management program in accordance with Part 5 of the Environmental Management (Waste Management) Policy 2000 must be developed for the site by 30 November 2012 and immediately implemented and maintained. The waste management program must include:
- (a) A description of the mining activities that may generate waste;
 - (b) The types and amounts of wastes generated by the mining activities;
 - (c) A program for reusing, recycling or disposing of all wastes;
 - (d) How the waste will be dealt with in accordance with the waste management hierarchy, including a description of the types and amounts of waste that will be dealt with under each of the waste management practices in the waste management hierarchy (i.e. avoidance, reuse, recycling, energy recovery, disposal);
 - (e) Procedures for identifying and implementing opportunities to minimise the amount of waste generated, promote efficiency in the use of resources and improve the waste management practices employed;
 - (f) Procedures for dealing with accidents, spills and other incidents;
 - (g) Details of any accredited management system employed, or planned to be employed, to deal with waste;
 - (h) How often the performance of the waste management program will be assessed;
 - (i) The indicators or other criteria on which the performance of the waste management program will be assessed; and
 - (j) Staff training and induction to the waste management program.
- E1-2 Procedures for the management and maintenance of sewage treatment facilities and general waste disposal sites must be updated to reflect onsite operations and be made available to the administering authority within 10 Business Days of any request.
- E1-3 All general and regulated waste must be removed from the site to a facility that is lawfully able to accept the waste under the Environmental Protection Act 1994.

END OF SCHEDULE

Schedule F – Land

General

- F1-1 Contaminants must not be released to land in a manner which causes or potentially causes environmental harm.
- F1-2 Any spillage of wastes, contaminants or other materials must be cleaned up promptly. Such spillages must be cleaned up using dry methods that minimise the release of wastes, contaminants or materials to any stormwater drainage system or waters.

Topsoil

- F2-1 Topsoil and subsoil must be stripped and stockpiled ahead of mining to a depth determined from soil surveys to ensure that useable soil resources are preserved for rehabilitation.
- F2-2 Topsoil and subsoil stockpiles must be managed to ensure stability and minimise the release contaminants. Measures must include:
- Vegetating stockpiles; and,
 - Minimising the height of stockpiles; and,
 - Re-using stockpiles as soon as possible.

Rehabilitation Objectives

- F3-1 Land disturbed by mining must be rehabilitated in accordance with Schedule F - Table F1 (Rehabilitation Requirements).

Schedule F - Table F1 (Rehabilitation Requirements)

Mine Domain	Mine Feature Name	Rehabilitation Goals	Rehabilitation Objectives	Indicators	Completion Criteria
Ore Stockpiles	Phosphate Ore Stockpile and stormwater dam	All land subject to mining activities must be rehabilitated to meet the requirements of the administering authorities Guideline - Rehabilitation Requirements for Mining Projects and will be defined in the Post Mine Land Use Plan.	TBD ¹	TBD ¹	TBD ¹
Dams and Diversions	Phosphate Hill Dam				
Ancillary Infrastructure	Phosphate Hill Rail Load-out				

¹ Post mine land use, rehabilitation indicators and completion criteria are to be nominated in accordance with Condition (F5-1).

Rehabilitation Landform Criteria

- F4-1 Progressive rehabilitation must commence within twelve (12) months of any area becoming available within the operational land, and must be in accordance with Post Mine Land Use required under condition F5-1. Progressive rehabilitation must occur where possible before the onset of the wet season.

- F4-2 Rehabilitated areas must be managed to minimise the proliferation of species not consistent with rehabilitation objectives.
- F4-3 All land subject to mining activities must be rehabilitated to:
- a) Stable landforms with a self-sustaining vegetation cover and species that are similar to adjoining undisturbed areas;
 - b) Safe landforms, which are non-polluting, geo-chemically and geo-technically stable.
 - c) Ensure that any final landforms do not require ongoing maintenance; and
 - d) Ensure that the maintenance requirements for rehabilitated land are no greater than that required for the land prior to its disturbance by mining activities.
- F4-4 Maintenance of rehabilitated areas must take place to ensure and demonstrate that:
- (a) Landforms are stable;
 - (b) Erosion control measures remain effective;
 - (c) Stormwater runoff and seepage from rehabilitated areas does not negatively affect the environmental values of any waters;
 - (d) Plants show healthy growth and recruitment is occurring; and
 - (e) Rehabilitated areas are free of any declared pest species.
- F4-5 Rehabilitation can be considered successful when:
- a) The site can be managed for its designated land-use (e.g. similar to that of surrounding undisturbed areas);
 - b) No greater management input is required than for other land in the area being used for a similar purpose and there is evidence that the rehabilitation has been successful for at least three (3) years;
 - c) The rehabilitation is carried out in accordance with the requirements, objectives indicators and completion criteria as specified in Schedule F - Table F1 (Rehabilitation Requirements) and in the Post Mine Land Use Plan; and
 - d) Written agreement is obtained from the landowner/holder and the administering authority.

Post Mine Land Use Plan

- F5-1 The Authority holder must develop and submit to the administering authority a Post Mine Land Use Plan (PMLUP) by 1 January 2013. The PMLUP must describe how the rehabilitation objectives in Schedule F - Table F1 (Rehabilitation Requirements) will be achieved. The Post Mine Land Use Plan must include:
- (a) Schematic representation of final land form inclusive of drainage features;
 - (b) Slope design;
 - (c) Cover design;
 - (d) Drainage design;
 - (e) Erosion controls proposed on reformed land;
 - (f) Description of experimental design for monitoring of analogue and rehabilitated areas inclusive of statistical design;
 - (g) Proposed revegetation methods inclusive of plant species selection, re-profiling, resspreading soil, soil ameliorants/amendments, surface preparation and method of propagation;

- (h) Materials balance including available top soil and low permeability capping material ;
- (i) Geotechnical, geochemical and hydrological studies;
- (j) Chemical, physical and biological properties of soil and water;
- (k) Nominate performance criteria for the cover system; and
- (l) A rehabilitation monitoring program.

Rehabilitation Monitoring Program

- F6-1 A rehabilitation monitoring program must be developed and be implemented on commencement of rehabilitation identified in Schedule F - Table F1 (Rehabilitation Requirements) by a suitably qualified person nominated by the Authority holder who possesses appropriate qualifications and experience in the field of mine site rehabilitation.
- F6-2 The Authority holder must conduct rehabilitation monitoring in accordance with the program developed in condition (F6-1) on at least a yearly basis which must include sufficient spatial and temporal replication to enable scientifically justifiable conclusions as established under the rehabilitation program or other methodology to the satisfaction of the administering authority.
- F6-3 Verification of rehabilitation success is to be carried out for each mine domain. Monitoring must be carried out for each mine domain identified in Schedule F – Table F1 (Rehabilitation Requirements) at a minimum sampling intensity that includes sufficient replication to enable statistical analysis of results at an acceptable power.
- F6-5 From 1 June 2022, a summary of the annual reviews conducted in accordance with condition F6-4 must be summarised on a three yearly basis and submitted to the administering authority upon request.

Post Closure Management Plan

- F7-1 A Post Closure Management Plan for the site must be prepared at least thirty-six (36) months prior to final production onsite and implemented for a nominal period of:
- (a) At least thirty (30) years following final production at the licensed place; or
 - (b) A shorter period if:
 - (i) The site is proven to be geo-technically and geo-chemically stable; and,
 - (ii) It can be demonstrated to the satisfaction of the administering authority that no release of contaminants from the site will result in environmental harm; and,
 - (iii) Be prepared at least six (6) months prior to final production onsite.
- F7-2 The Post Closure Management Plan must include the following elements:
- (a) Operation and maintenance of:
 - (i) Wastewater collection and reticulation systems;
 - (ii) Wastewater treatment systems;
 - (iii) The groundwater monitoring network;
 - (iv) Final cover systems; and
 - (v) Vegetative cover.
 - (b) Monitoring of:
 - (i) Surface water quality;
 - (ii) Groundwater quality;
 - (iii) Seepage rates;

- (iv) Erosion rates;
- (v) The integrity and effectiveness of final cover systems;
- (vi) The health and resilience of vegetative cover.

Infrastructure

- F8-1 All buildings, structures, mining equipment and plant erected and/or used for the mining activities must be removed from the site prior to surrender, except where agreed to in writing by the administering authority and the landowner.

Chemicals and Flammable or Combustible Liquids

- F9-1 All explosives, hazardous chemicals, corrosive substances, toxic substances, gases, flammable or combustible liquids and dangerous goods must be stored and handled in accordance with the current, relevant Australian Standard where such is applicable.
- F9-2 Notwithstanding the requirements of any Australian Standard, any liquids stored at the licensed place that have the potential to cause environmental harm must be stored in or serviced by an effective containment system that is impervious to the materials stored and managed to prevent the release of liquids to waters or land.
- F9-3 Where no relevant Australian Standard is available, the following must be applied:
- (a) Storage tanks must be bunded so that the capacity and construction of the bund is sufficient to contain at least 110% of a single storage tank or 100% of the largest storage tank plus 25% of the second largest storage tank in multiple storage areas; and
 - (b) Drum storages must be bunded so that the capacity and construction of the bund is sufficient to contain at least 25% of the maximum design storage volume within the bund.
- F9-4 All containment systems must be designed to minimise rainfall collection within the system.

Biodiversity

- F11-1 In the event of identification of rare or threatened species at the licensed place, a diagrammatic representation of the species occurrence relative to operations together with a management and monitoring strategy for species conservation must be prepared to the satisfaction of the administering authority.
- F11-2 The holder of this environmental authority must provide an offset for impacts on state significant biodiversity values, in accordance with the *Queensland Biodiversity Offset Policy*. The biodiversity offset must be consistent with the offset identified in the Biodiversity Offset Strategy (as per condition F11-3) and must be either:
- (a) legally secured prior to impacting on state significant biodiversity values; or
 - (b) where a land based offset is to be provided, legally secured 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 F11-3(e); or
 - (c) where an offset payment is to be provided, paid to Balance of the Earth Trust 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 condition F11-3(e).

- F11-3 A Biodiversity Offset Strategy must be developed and submitted to the administering authority thirty (30) days, or a lesser time period agreed to by administering authority, prior to impacting on state significant biodiversity values. The Biodiversity Offset Strategy must be at a standard accepted by the administering authority before impact on state significant biodiversity values can occur. The Biodiversity Offset Strategy must include, at a minimum:
- (a) demonstration that the activity has avoided or minimised impacts to state significant biodiversity values;
 - (b) where there will be impacts to State significant biodiversity values, a detailed description of the values that will be impacted, and the extent of that impact;
 - (c) mapping that details the surveyed locations of any state significant biodiversity values at the licensed place;
 - (d) results of a flora and fauna assessment of the affected area to determine if the operations will directly impact on any state significant biodiversity values detailed in the Queensland Biodiversity Offset Policy;
 - (e) project stages for the provision of offsets
 - (f) the proposed offset delivery mechanism for each stage
 - (g) where an offset transfer is proposed, or where a land based offset is to be secured within twelve (12) months of commencement of the relevant stage, evidence that an offset can be located within the landscape; and
 - (h) an ecological equivalence assessment where required by the Queensland Biodiversity Offset Policy.
- F11-4 Significant residual impacts to prescribed environmental matters are not authorised under this environmental authority or the *Environmental Offsets Act 2014*.
- F11-5 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.

Rail Load out Facility

- F12-1 The capacity of the Authority holder's Phosphate Hill Rail Load-out Facility must not be exceeded.
- F12-2 After each truck movement, the road shall be inspected and any spilled products shall be swept up immediately and returned to a location able to accept such waste.
- F12-3 All fertiliser, additives (zinc sulphate and copper sulphate), and phosphate ore must be transported, stored, handled and loaded in a manner that prevents the release of contaminants to the receiving environment.
- F12-4 All additives (zinc sulphate and copper sulphate) shall be maintained within bulk bags and no removal or blending is to be carried out at the Phosphate Hill Rail Load-out Facility.

Contaminated Land

- F13-1 Prior to making an application for Surrender or approval for Progressive Rehabilitation, the Authority holder must undertake a contaminated land assessment/investigation of the relevant areas of the licensed place in accordance with the *administering authority's Guideline for the Assessment and Management of Contaminated Land in Queensland*.

- F13-2 A Soil Monitoring Program must be developed by a suitably qualified person and implemented within one (1) year of re-commencing ore processing at the Osborne Processing Plant. The Soil Monitoring Program must assess the impacts on soil from wind or water borne contaminants resulting from mining activities and must be conducted using appropriate quality assurance and quality control procedures for assessing contaminated soil.
- F13-3 As a minimum, the Soil Monitoring Program specified under condition (F13-2) of this Authority must:
- (a) Assess the levels of copper in the top fifty (50) millimetres of soil;
 - (b) Use transect grids of appropriate dimensions, nominally fifty (50) metre square transects, unless an alternative dimension is approved by the administering authority in writing;
 - (c) Cover targeted areas located down-wind of potential sources of contaminants (including the Osborne Processing Plant); and,
 - (d) Involve comparison of target areas (potentially impacted) against un-impacted reference site/s.
- F13-4 Soil monitoring of copper must be referenced to the levels for public open space land use that are site specifically determined in accordance with the Ecological Investigation Levels (EILs) in the *National Environment Protection (Assessment of Site Contamination) Measure* or any approved variation thereof.
- F13-5 In the event that levels of copper are increasing and approach the site specific EILs, dust emission and water transport controls must be reviewed and improved to further minimise the spread of contamination into undisturbed areas.
- F13-6 Highly contaminated areas identified in the report Detailed Site Investigation, Land Contamination associated with the Osborne ore processing and concentrate handling areas, February 2010, Barrick Osborne must be cleared of gross metal contamination by 1 December 2013, unless the Authority holder provides a report by a suitably qualified person to the administering authority which is accepted, proposing an alternative time-frame.
- F13-7 Aboriginal cultural heritage surveys must be undertaken prior to conducting the works set out in condition (F13-6). Remedial works must be conducted in a manner that does not impact upon identified cultural heritage areas.

END OF SCHEDULE F

Schedule G – Regulated Structures

Assessment of Hazard Category

- G1-1 The hazard category of any structure must be assessed by a suitably qualified and experienced person:
- (a) in accordance with the Manual for Assessing Consequence Categories and Hydraulic Performance of Structures; and
 - (b) in any of the following situations:
 - i. prior to the design and construction of the structure; or
 - ii. prior to any change in its purpose or the nature of its stored contents.
- G1-2 A hazard assessment report and certification must be prepared for any structure assessed and the report may include a hazard assessment for more than one structure.
- G1-3 The holder of this environmental authority must, on receipt of a hazard assessment report and certification, provide to the administering authority one electronic copy of the hazard assessment report and certification.
- G1-4 Certification must be provided by the suitably qualified and experienced person who undertook the assessment, in the form set out in the Manual for Assessing Consequence Categories and Hydraulic Performance of Structures.
- G1-5 The holder of this environmental authority must take reasonable and practical measures so that each dam associated with the mining activity is designed, constructed, operated and maintained in accordance with accepted engineering standards and is fit for the purpose for which it is intended.

Design and Construction of a Regulated Structure

- G2-1 All regulated structures must be designed by, and constructed under the supervision of, a suitably qualified and experienced person in accordance with the requirements of the Manual for Assessing Consequence Categories and Hydraulic Performance of Structures.
- G2-2 Construction or modification of any dam determined to be in the significant or high hazard category (i.e. a regulated structure) must not be commenced unless the location, basic details, hydraulic performance and disturbance area of that dam are specifically referenced in this environmental authority.
- G2-3 Prior to commencing construction of a regulated dam, the holder of the environmental authority must submit to the administering authority a design plan that has been certified by a suitably qualified and experienced person, as compliant in all respects with this environmental authority, and in accordance with accepted engineering standards.
- G2-4 Construction of a regulated structure is prohibited unless the holder has:
- (a) submitted a hazard category assessment report and certification to the administering authority;
 - (b) commissioned a suitably qualified and experienced person to prepare a design plan for the structure; and
 - (c) received the certification from a suitably qualified and experienced person for the design and design plan and the associated operating procedures in compliance with the relevant condition of this environmental authority.
- G2-5 Certification must be provided by the suitably qualified and experienced person who oversees the preparation of the design plan, in the form set out in the *Manual for Assessing Consequence Categories and Hydraulic Performance of Structures*.

G2-6 Regulated structures must:

- (a) be designed and constructed in accordance with and conform to the requirements of the *Manual for Assessing Consequence Categories and Hydraulic Performance of Structures*;
- (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.

G2-7 The design plan for a regulated structure must include, but is not limited to:

(a) certification that the design plan

- i. is in accordance with the "*Manual for Assessing Consequence Categories and Hydraulic Performance of Structures*", including subsidiary certifications if necessary; and
- ii. addresses the requirements in G2-7(b) to (h).

(b) A design report which provides:

- i. a description of all the documents which constitute the design plan;
- ii. a statement of:
 - (a) the applicable standards including engineering criteria, industry guidelines, relevant legislation and regulatory documents, relied upon in preparing the design plan; and
 - (b) all relevant facts and data used in preparing the design plan, including any efforts made to obtain necessary facts and data, and any limitations or assumptions to facts and data used in preparing the design plan;
 - (c) the hazard category of the regulated structure; and
 - (d) setting out the reasoning of the suitably qualified and experienced person who has certified the design plan, as to how the design plan provides the necessary required performance
- iii. documentation of hydrological analyses and estimates required to determine all elements of the design including volumes and flow capacities;
- iv. detailed criteria for the design, operation, maintenance and decommissioning of the regulated structure, including any assumptions;
- v. design, specification and operational rules for any related structures and systems used to prevent failure scenarios;

(c) Drawings showing the lines and dimensions, and locations of built structures and land forms associated with the regulated structure;

(d) Consideration of the interaction of the pit design with the levee or regulated dam design;

(e) An operational plan that includes;

- i. normal operating procedures and rules (including clear documentation and definition of process inputs in the DSA allowance);
- ii. 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;

(f) A plan for the decommissioning and rehabilitation of the regulated structure at the end of its operational life;

(g) Details of reports on investigations and studies done in support of the design plan;

(h) Any other matter required by the suitably qualified and experienced person.

G2-8 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;
- (b) construction of the regulated structure is in accordance with the design plan.

G2-9 Where a regulated dam is to be managed as part of an integrated containment system and the DSA volume is to be shared across the integrated containment system, the design and operating rules for the system as a whole must be documented in a system design plan that is certified by a suitably qualified and experienced person.

G2-10 The system design plan must contain:

- (a) the design plans, and
- (b) the 'as constructed' plans, and
- (c) the operational rules for each individual regulated dam that forms part of the integrated system, and
- (d) the standards of serviceability and accessibility of water transfer equipment or structures, and
- (e) the operational rules for the system as a whole.

Operation of a regulated structure

G3-1 Operation of a regulated structure is prohibited unless:

- (a) the holder has submitted to the administering authority:
 - i. one electronic copy of the design plan and certification of the 'design plan' in accordance with condition (G2-5);
 - ii. a set of 'as constructed' drawings and specifications;
 - iii. certification of those 'as constructed drawings and specifications' in accordance with condition (G2-6); and
 - iv. where the regulated structure is to be managed as part of an integrated containment system for the purpose of sharing the DSA volume across the system, a copy of the certified system design plan.
- (b) the requirements of this authority relating to the construction of the regulated structure have been met.

G3-2 Each regulated structure must be maintained and operated in a manner that is consistent with the current design plan, the current operational plan, and the associated certified 'as constructed' drawings for the duration of its operational life until decommissioned and rehabilitated.

G3-3 The holder of this environmental authority must take reasonable and practicable control measures to prevent the causing of harm to persons, livestock or wildlife through the construction and operation of a regulated structure. Reasonable and practicable control measures may include, but are not limited to:

- (a) the secure use of fencing, bunding or screening; and
- (b) escape arrangements for trapped livestock and fauna.

Mandatory Reporting Level

G4-1 The Mandatory Reporting Level (the MRL) must be marked on a regulated dam in such a way that during routine inspections of that dam, it is clearly observable.

- G4-2 The holder of this environmental authority must, as soon as practical and within forty-eight (48) hours of becoming aware, notify the administering authority when the level of the contents of a regulated dam reaches the MRL.
- G4-3 The holder of this environmental authority must, immediately on becoming aware that the MRL has been reached, act to prevent the occurrence of any unauthorised discharge from the regulated dam.

Annual Inspection Report

- G5-1 Each regulated structure must be inspected each calendar year by a suitably qualified and experienced person.
- G5-2 At each annual inspection, the condition and adequacy of all components of the regulated structure must be assessed:
- (a) against the most recent hazard assessment report and design plan (or system design plan);
 - (b) against recommendations contained in previous annual inspections reports;
 - (c) against recognised dam safety deficiency indicators;
 - (d) for changes in circumstances potentially leading to a change in hazard category;
 - (e) for conformance with the conditions of this authority;
 - (f) for conformance with the 'as constructed' drawings;
 - (g) 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); and
 - (h) for evidence of conformance with the current operational plan.
- G5-3 A suitably qualified and experienced person must prepare an annual inspection report containing details of the assessment and including recommended actions to ensure the integrity of the regulated structure.
- G5-4 The suitably qualified and experienced person who prepared the annual inspection report must certify the report in accordance with the "*Manual for Assessing Consequence Categories and Hydraulic Performance of Structures*".
- G5-5 The holder must:
- (a) upon receipt of the annual inspection report, consider the report and its recommendations and take action to ensure that the regulated structure will safely perform its intended function; and
 - (b) within twenty (20) business days of receipt of the annual inspection report, notify the administering authority in writing, of the recommendations of the inspection report and the actions being taken to ensure the integrity of each regulated structure.
- G5-6 A copy of the annual inspection report must be provided to the administering authority and within twenty (20) business days of receipt of the annual inspection report.

Design Storage Allowance

- G6-1 On 1 November of each year, storage capacity must be available in each regulated dam (or network of linked containment systems with a shared DSA volume), to meet the Design Storage Allowance (DSA) volume for the dam (or network of linked containment systems).
- G6-2 The holder of this environmental authority must, as soon as possible and within forty-eight (48) hours of becoming aware that the regulated dam (or network of linked containment systems) will not have the available storage to meet the DSA volume on 1 November of any year, notify the administering authority.
- G6-3 The holder of this environmental authority 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.

Performance review

- G7-1 The holder of this environmental authority 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.
- G7-2 The holder of this environmental authority must take action to modify its water management or linked containment system so as to ensure that the regulated dam or linked containment system will perform in accordance with the requirements of this authority, for the subsequent November to May period.

Note: Action may include seeking the necessary approvals for physical modification of a regulated dam.

Transfer arrangements

- G8-1 The holder of this environmental authority must provide a copy of any reports, documentation and certifications prepared under this authority, including but not limited to any Register of Regulated Structures, hazard assessment, design plan and other supporting documentation, to a new holder and the administering authority on transfer of this authority.

Decommissioning and Rehabilitation

- G9-1 Prior to the cessation of mining activities, each regulated structure must be decommissioned such that:
- (a) ongoing environmental harm is minimised by the regulated structure:
 - i. becoming a safe site for humans and animals at the completion of rehabilitation; and ii becoming a stable landform, that no longer contains flowable substances and minimises erosion impacts; and
 - iii not allowing for acid mine drainage; and
 - v. being approved or authorised under relevant legislation for a beneficial use; or being a void authorised by the administering authority to remain after decommissioning; and
 - (b) the regulated structure is compliant with all other relevant rehabilitation requirements of this authority.

Schedule J– Definitions

Specific definitions to ML5556, ML5543 and ML5551

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

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

- vegetation establishment, survival and succession;
- vegetation productivity, sustained growth and structure development;
- fauna colonisation and habitat development;
- ecosystem processes such as soil development and nutrient cycling, and the recolonisation of specific fauna groups such as collembola, mites and termites which are involved in these processes;
- microbiological studies including recolonisation by mycorrhizal fungi, microbial biomass and respiration;
- effects of various establishment treatments such as deep ripping, topsoil handling, seeding and fertiliser application on vegetation growth and development;
- resilience of vegetation to disease, insect attack, drought and fire;
- vegetation water use and effects on ground water levels and catchment yields.

“acid rock drainage” means any low pH waters, contaminated as a result of the mining activities.

“AEP” means Annual Exceedance Probability

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

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

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

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

- (a) against recommendations contained in previous annual inspections reports;
- (b) against recognised dam safety deficiency indicators;
- (c) for changes in circumstances potentially leading to a change in consequence category;
- (d) for conformance with the conditions of this authority;
- (e) for conformance with the ‘as constructed’ drawings;
- (f) for the adequacy of the available storage in each regulated dam, based on an actual observation or observations taken after 31 May each year but prior to 1 November of that year, of accumulated sediment, state of the containment barrier and the level of liquids in the dam (or network of linked containment systems);
- (g) for evidence of conformance with the current operational plan.

“ANZECC” means Australian and New Zealand Environment and Conservation Council.

“appropriate qualified person” means any person who conforms to the DERM operational policy for an “appropriately qualified person (analyst)” in accordance with Section 490 (7) of the *Environmental Protection Act 1994*.

“ARI” means Average Recurrence Interval.

“ARMCANZ” means Agriculture and Resource Management Council of Australia and New Zealand

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

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

“associated works” in relation to a dam, means:

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

“authority” means environmental authority (mining activities) under the *Environmental Protection Act 1994*.

“background” means the average of samples taken prior to the commencement of mining from the same waterway that the current sample has been taken. Background is also used in relation to noise – could this be confusing.

“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’.

“cfu” means colony forming unit.

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

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

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

“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).

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

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

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

“DSA” means Design Storage Allowance.

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

“EC” means Electrical Conductivity.

“emergency event” in the context of this environmental authority, is an unexpected situation which will disrupt production and where environmental harm has the potential to occur if alternate actions are not taken (e.g., mechanical failure of a component of the monohydrate gypsum conveyance system).

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

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

“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.

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

“flowable substance” means matter or mixture of materials which can be forced to or otherwise flow under any conditions possible in a situation. It includes water, other liquids or a mixture that includes water or any other liquid or suspended solids.

“hazardous waste” means any substance, whether liquid, solid or gaseous, derived by or resulting from, the processing of minerals that tends to destroy life or impair or endanger health.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

but does not include—

- (l) living matter;
- (m) petroleum within the meaning of the *Petroleum Act 1923*;
- (n) soil, sand, gravel or rock (other than rock mined in block or slab form for building or monumental purposes) to be used or to be supplied for use as such, whether intact or in broken form;
- (o) water.

“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.

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

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

“oxide ore” means fully oxidised rock which has no acid forming potential.

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

“operational plan” includes:

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

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

“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*.

“protected area” means

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

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

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

photographs, computer generated images and vegetation models etc.

“Register of Regulated Structures” includes:

- (a) Date of entry in the register;
- (b) Name of the structure, its purpose and intended/actual contents;
- (c) The consequence category of the dam as assessed using the *Manual for assessing consequence categories and hydraulic performance of structures* (ESR/2016/1933);
- (d) Dates, names, and reference for the design plan plus dates, names, and reference numbers of all document(s) lodged as part of a design plan for the dam;
- (e) Name and qualifications of the suitably qualified and experienced person who certified the design plan and 'as constructed' drawings;
- (f) For the regulated dam, other than in relation to any levees –
 - i. The dimensions (metres) and surface area (hectares) of the dam measured at the footprint of the dam;
 - ii. Coordinates (latitude and longitude in GDA94) within five metres at any point from the outside of the dam including its storage area
 - iii. Dam crest volume (megalitres);
 - iv. Spillway crest level (metres AHD).
 - v. Maximum operating level (metres AHD);
 - vi. Storage rating table of stored volume versus level (metres AHD);
 - vii. Design storage allowance (megalitres) and associated level of the dam (metres AHD);
 - viii. Mandatory reporting level (metres AHD);
- (g) The design plan title and reference relevant to the dam;
- (h) The date construction was certified as compliant with the design plan;
- (i) The name and details of the suitably qualified and experienced person who certified that the constructed dam was compliant with the design plan;
- (j) Details of the composition and construction of any liner;
- (k) The system for the detection of any leakage through the floor and sides of the dam;
- (l) Dates when the regulated dam underwent an annual inspection for structural and operational adequacy, and to ascertain the available storage volume for 1 November of any year;
- (m) Dates when recommendations and actions arising from the annual inspection were provided to the administering authority;
- (n) Dam water quality as obtained from any monitoring required under this authority as at 1 November of each year.

“regulated 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 and in accordance with the acceptance criteria set out in this environmental authority and, where relevant, includes remediation of contaminated land.

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

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

“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.

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

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

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

“sensitive place” means;

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

“significant disturbance” includes land;

- (a) if it is contaminated land; or
- (b) it has been disturbed and human intervention is needed to rehabilitate it;
 - i. to a state required under the relevant environmental authority; or
 - ii. if the environmental authority does not require the land to be rehabilitated to a particular state - to its state immediately before the disturbance.

Some examples of disturbed land include:

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

However, the following areas are not included:

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

“significant residual impacts” 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.

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

seepage and contaminant generation.

“structure” means dam or levee.

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

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

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

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

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

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

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

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

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

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

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

Specific definitions to ML90068

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

Interpretation

“EIS” means the environmental impact statement titled ‘Initial Environmental Advice Statement, Osborne Project NWQLD’ and dated April 1993. Although legally the Authority is the enforceable document, not the EIS, if there was any need for interpretation of the conditions, then the interpretation should be in the context of the EIS if applicable.

Definitions

“acceptance criteria” means the measures by which the actions implemented to rehabilitate the land are

deemed to be complete (same as completion criteria).

“administering authority” means:

- (a) for a matter, the administration and enforcement of which has been devolved to a local government under section 514 - the local government; or
- (b) for another matter - the chief executive.

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

“ANZECC (2000) guidelines” means the Australian and New Zealand Guidelines for Fresh and Marine Water Quality (2000) published by the Australian and New Zealand Environment and Conservation Council and the Agriculture and Resource Management Council of Australia and New Zealand.

“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.

“ARD” means acid rock drainage and refers to the low pH, high heavy metal pollutant typical of sulphidic mine wastes, and most commonly associated with the production of ferrous iron and sulphuric acid through the oxidation of sulphide minerals.

“ARI” or Average Recurrence Interval means the average, or expected value of the periods between exceedences of a given rainfall total accumulated over a given duration.

“assess” by a suitably qualified and experienced person in relation to a hazard 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 at any time:

- exactly what has been assessed and the precise nature of that assessment;
- the relevant legislative, regulatory and technical criteria on which the assessment has been based;
- 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
- the reasoning on which the assessment has been based using the relevant data and facts, and the relevant criteria.

“Authority” means an Environmental Authority (mining activities) issued pursuant to the Environmental Protection Act 1994.

“Authority holder” or “holder” means the holder of this Environmental Authority.

“chief executive” means the chief executive of the Department of Environment and Resource Management or its successor.

“commercial place” means a place used as an office or for business or commercial purposes, other than a place within the boundaries of the operational land “dB (linear) peak” is the maximum reading in decibels (dB) obtained using the :P” time – weighting characteristic as specified in AS 1259.1 – 1990 with all frequency-weighted networks inoperative.

“commissioning” means when all systems and equipment required for commercial operation of the plant have been implemented and are fully operational, and the plant is generating electricity at design steady-state conditions for at least two weeks, then the Plant will be deemed to have been commissioned for the purpose of this authority. Commissioning is the end of the preparation phase in order to start operating and producing electricity commercially. This includes the completion of all performance tests and the combustion tuning of the gas turbines.

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

“dam” means a land-based structure or a void that is designed to contain, divert or control flowable substances, and includes any substances that are thereby contained, diverted or controlled by that land-based structure or void and associated works. A dam does not mean 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.

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

“environment” includes:

- (a) Ecosystems and their constituent parts, including people and communities; and
- (b) All natural and physical resources; and
- (c) The qualities and characteristics of locations, places and areas, however large or small, that contribute to their biological diversity and integrity, intrinsic or attributed scientific value or interest, amenity, harmony and sense of community; and,
- (d) The social, economic, aesthetic and cultural conditions that affect or are affected by, things mentioned in paragraphs (a) to (c).

“Environmental Authority” means a license or approval issued pursuant to the Environmental Protection Act 1994.

“flow event” means a surface water flow that occurs as a result of rainfall.

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

“hazard category” means a category, either low, significant or high, into which a dam is assessed as a result of the application of tables and other criteria in the Site Water Management Technical Guideline for Environmental Management of Exploration and Mining in Queensland (DME 1995)

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

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

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

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

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

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

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

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

“mandatory reporting level” or “MRL” means a warning and reporting level determined in accordance with the Site Water Management Technical Guideline for Environmental Management of Exploration and Mining in Queensland (DME 1995). An MRL is the lowest level required in a regulated dam to allow either of the following to be retained:

- the runoff from a 72 hour duration storm at the ARI specified in Schedule G – Table G3 (Hydraulic Performance of Regulated Dams); or

- a wave allowance at that ARI as estimated using a recognised engineering method

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

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

“protected area” means

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

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

“rare or threatened species” means species listed as ‘rare’, ‘vulnerable’ or ‘endangered’ as protected under the Nature Conservation Act 1992.

“regulated dam” means any dam in the significant or high hazard category as assessed using the Site Water Management Technical Guideline for Environmental Management of Exploration and Mining in Queensland (DME1995).

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

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

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

“sediment dam” means sedimentation dams as defined in the Site Water Management Technical Guideline for Environmental Management of Exploration and Mining in Queensland (DME 1995).

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

“sensitive place” means;

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

- a motel, hotel or hostel; or

an educational institution; or

- a medical centre or hospital; or

- a protected area under the Nature Conservation Act 1992, the Marine Parks Act 1992 or a World Heritage Area; or

- a public park or gardens; or

- a place used as a workplace, 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.

“significant disturbance” - includes:

- areas where soil has been compacted, removed, covered, exposed or stockpiled;

- areas where vegetation has been removed or destroyed to an extent where the land has been made susceptible to erosion; (vegetation and topsoil)

- areas where land use suitability or capability has been diminished;
- areas within a watercourse, waterway, wetland or lake where mining activities occur;
- areas submerged by tailings or hazardous contaminant storage and dam walls in all cases;
- areas under temporary infrastructure. Temporary infrastructure includes any infrastructure (roads, tracks, bridges, culverts, dams, bores, buildings, fixed machinery, hardstand areas, airstrips, helipads etc) which is to be removed after mining activities have ceased; or
- areas where land has been contaminated.

“Significantly disturbed land” - Land is significantly disturbed if -

- (a) it is contaminated land; or
- (b) it has been disturbed and human intervention is needed to rehabilitate it and includes:
 - areas where soil has been compacted, removed, covered, exposed or stockpiled;
 - areas where vegetation has been removed or destroyed to an extent where the land has been made susceptible to erosion; (vegetation and topsoil)
 - areas where land use suitability or capability has been diminished;
 - areas within a watercourse, waterway, wetland or lake where mining activities occur;
 - areas submerged by tailings or hazardous contaminant storage and dam walls in all cases;
 - areas under temporary infrastructure. Temporary infrastructure includes any infrastructure (roads, tracks, bridges, culverts, dams, bores, buildings, fixed machinery, hardstand areas, airstrips, helipads etc) which is to be removed after mining activities have ceased; or
 - areas where land has been contaminated.

However, the following areas are not included:

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

Significant residual impact is defined in section 8 of the *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.

“stable” means geotechnical stability of the rehabilitated landform where instability related to the excessive settlement and subsidence caused by consolidation / settlement of the wastes deposited, and sliding / slumping instability has ceased.

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

“suitably qualified engineer” in relation to dams means a person who is a Registered Professional Engineer of Queensland (RPEQ) under the provisions of the Professional Engineers Act 1988, OR registered as a National Professional Engineer (NPER) with the Institution of Engineers Australia, OR holds equivalent professional qualifications to the satisfaction of the administering authority for the Act; AND the administering authority for the

Act is satisfied that person has knowledge, suitable experience and demonstrated expertise in relevant fields, as set out below:

- a) knowledge of engineering principles related to the structures, geomechanics, hydrology, hydraulics, chemistry and environmental impact of dams; and
- b) a total of five years of suitable experience and demonstrated expertise in the geomechanics of dams with particular emphasis on stability, geology and geochemistry, and
- c) a total of five years of suitable experience and demonstrated expertise each, in three of the following categories:
 - investigation and design of dams
 - construction, operation and maintenance of dams
 - hydrology with particular reference to flooding, estimation of extreme storms, water management or meteorology
 - hydraulics with particular reference to sediment transport and deposition, erosion control, beach processes
 - hydrogeology with particular reference to seepage, groundwater
 - solute transport processes and monitoring thereof
 - dam safety

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

END OF SCHEDULE J

END OF ENVIRONMENTAL AUTHORITY