Government of Western Australia
Department of Water and Environmental Regulation

Licence

Licence Number	L9176/2018/1
Licence Holder	Iluka Resources Limited
ACN	008 675 018
Registered business address	Level 14, 120 St Georges Terrace PERTH WA 6000
File Number	DER2018/001555
Duration	29/01/2019 to 09/04/2027
Date of issue	Wednesday, 30 January 2019
Prescribed Premises	Category 8: Mineral sands mining or processing Category 6: Mine dewatering
Premises	Cataby Mineral Sands Mine 10437 Brand Highway CATABY WA 6507 Legal description - Mining tenements M70/194, M70/195, M70/196, M70/517, M70/518, M70/696, M70/760, M70/867, M70/868, M70/869, M70/1018 and M70/1086

This Licence is granted to the Licence Holder, subject to the following conditions, on 30 January 2019, by:

Tim Gentle
Digitally signed by Tim Gentle
Date: 2019.01.30 15:45:54 +08'00'

Tim Gentle
MANAGER RESOURCE INDUSTRIES

an officer delegated under section 20 of the *Environmental Protection Act 1986* (WA)

Explanatory notes

These explanatory notes do not form part of this Licence.

Defined terms

Definition of terms used in this Licence can be found at the start of this Licence. Terms which are defined have the first letter of each word capitalised throughout this Licence.

Department of Water and Environmental Regulation

The Department of Water and Environmental Regulation (DWER) is established under section 35 of the *Public Sector Management Act 1994* and designated as responsible for the administration of Part V, Division 3 of the *Environmental Protection Act 1986* (WA) (EP Act). The Department also monitors and audits compliance with licences, takes enforcement action and develops and implements licensing and industry regulation policy.

Licence

Section 56 of the EP Act provides that an occupier of Prescribed Premises commits an offence if Emissions are caused or increased, or permitted to be caused or increased, or Waste, noise, odour or electromagnetic radiation is altered, or permitted to be altered, from Prescribed Premises, except in accordance with a works approval or licence.

Categories of Prescribed Premises are defined in Schedule 1 of the *Environment Protection Regulations 1987* (WA) (EP Regulations).

This Licence does not authorise any activity which may be a breach of the requirements of another statutory authority including, but not limited to the following:

- conditions imposed by the Minister for Environment under Part IV of the EP Act;
- conditions imposed by DWER for the clearing of native vegetation under Part V, Division 2 of the EP Act;
- any requirements under the *Waste Avoidance and Resource Recovery Act 2007;*
- any requirements under the *Environmental Protection (Controlled Waste) Regulations 2004*; and
- any other requirements specified through State legislation.

It is the responsibility of the Licence Holder to ensure that any action or activity referred to in this Licence is permitted by, and is carried out in compliance with, other statutory requirements.

The Licence Holder must comply with the Licence. Contravening a Licence Condition is an offence under s.58 of the EP Act.

Responsibilities of a Licence Holder

Separate to the requirements of this Licence, general obligations of Licence Holders are set out in the EP Act and the regulations made under the EP Act. For example, the Licence Holder must comply with the following provisions of the EP Act:

- the duties of an occupier under section 61; and
- restrictions on making certain changes to Prescribed Premises unless the changes are in accordance with a works approval, Licence, closure notice or environmental protection notice (s.53).

Strict penalties apply for offences under the EP Act.

Reporting of incidents

The Licence Holder has a duty to report to DWER all discharges of waste that have caused or are likely to cause Pollution, Material Environmental Harm or Serious Environmental Harm, in accordance with s.72 of the EP Act.

Offences and defences

The EP Act and its regulations set out a number of offences, including:

- Offence of emitting an Unreasonable Emission from any Premises under s.49.
- Offence of causing Pollution under s.49.
- Offence of dumping Waste under s.49A.
- Offence of discharging Waste in circumstances likely to cause Pollution under s.50.
- Offence of causing Serious Environmental Harm (s.50A) or Material Environmental Harm (s.50B).
- Offence of causing Emissions which do not comply with prescribed standards (s.51).
- Offences relating to Emissions or Discharges under regulations prescribed under the EP Act, including materials discharged under the *Environmental Protection (Unauthorised Discharges) Regulations 2004 (WA).*
- Offences relating to noise under the *Environmental Protection (Noise) Regulations 1997 (WA).*

Section 53 of the EP Act provides that a Licence Holder commits an offence if Emissions are caused, or altered from a Prescribed Premises unless done in accordance with a Works Approval, Licence or the requirements of a Closure Notice or an Environmental Protection Notice.

Defences to certain offences may be available to a Licence Holder and these are set out in the EP Act. Section 74A(b)(iv) provides that it is a defence to an offence for causing Pollution, in respect of an Emission, or for causing Serious Environmental Harm or Material Environmental Harm, or for discharging or abandoning Waste in water to which the public has access, if the Licence Holder can prove that an Emission or Discharge occurred in accordance with a Licence.

This Licence specifies the Emissions and Discharges, and the limits and Conditions which must be satisfied in respect of Specified Emissions and Discharges, in order for the defence to offence provision to be available.

Authorised Emissions and Discharges

The Specified and General Emissions and Discharges from Primary Activities conducted on the Prescribed Premises are authorised to be conducted in accordance with the Conditions of this Licence.

Emissions and Discharges caused from other activities not related to the Primary Activities at the Premises have not been conditioned in this Licence. Emissions and Discharges from other activities at the Premises are subject to the general provisions of the EP Act.

Amendment of licence

The Licence Holder can apply to amend the Conditions of this Licence under s.59 of the EP Act. An application form for this purpose is available from DWER.

The CEO may also amend the Conditions of this Licence at any time on the initiative of the CEO without an application being made.

Amendment Notices constitute written notice of the amendment in accordance with s.59B(9) of the EP Act.

Duration of Licence

The Licence will remain in force for the duration set out on the first page of this Licence or until it is surrendered, suspended or revoked in accordance with s.59A of the EP Act.

Suspension or revocation

The CEO may suspend or revoke this Licence in accordance with s.59A of the EP Act.

Fees

The Licence Holder must pay an annual licence fee. Late payment of annual licence fees may result in the licence ceasing to have effect.

Definitions and interpretation

Definitions

In this Licence, the terms in Table 1 have the meanings defined.

Table 1: Definitions

Term	Definition
ACN	Australian Company Number
AEP	Annual Exceedance Probability – refers to the probability that a given rainfall total accumulated over a given duration will be exceeded in any one year
AHD	Australian Height Datum
Annual Period	means a 12 month period commencing from 1 January until 31 December
AS 3580.1.1	means the Australian Standard AS 3580.1.1 *Methods for sampling and analysis of ambient air – Guide to siting air monitoring equipment*
AS 3580.9.3	means the most recent version and the relevant parts of the Australian Standard AS 3580.9.3 *Methods for sampling and analysis of ambient air – Determination of total suspended particulates (TSP) – high volume sampler gravimetric method*
AS 3580.9.8	means the most recent version and the relevant parts of the Australian Standard AS 3580.9.8 *Methods for sampling and analysis of ambient air – Determination of suspended particulate matter – PM10 continuous direct mass method using a tapered element oscillating microbalance analyser*
AS 3580.9.11	means the most recent version and the relevant parts of the Australian Standard AS 3580.9.8 *Methods for sampling and analysis of ambient air – Determination of suspended particulate matter – PM10 beta attenuation monitors*
AS/NZS 5667.1	means the Australian Standard AS/NZS 5667.1 *Water Quality – Sampling – Guidance on the design of sampling programs, sampling techniques and the preservation and handling of samples*
AS/NZS 5667.11	means the Australian Standard AS/NZS 5667.11 *Water Quality – Sampling – Guidance on sampling of groundwaters*
Averaging Period	means the time over which a limit is measured or a monitoring result is obtained
Books	has the same meaning given to that term under the EP Act
CEO	means Chief Executive Officer. CEO for the purposes of notification means: Director General Department Administering the *Environmental Protection Act 1986* Locked Bag 33 Cloisters Square PERTH WA 6850 info@dwer.wa.gov.au
Compliance Report	means a report in a format approved by the CEO as presented by the Licence Holder or as specified by the CEO (guidelines and templates are available on the Department's website)
Condition	means a condition to which this Licence is subject under s.62 of the EP Act
Department	means the department established under section 35 of the *Public Sector Management Act 1994* and designated as responsible for the

	administration of Part V, Division 3 of the EP Act
Department Request	means a request for Books or other sources of information to be produced, made by an Inspector or the CEO to the Licence Holder in writing and sent to the Licence Holder's address for notifications, as described at the front of this Licence, in relation to: (a) compliance with the EP Act or this Licence; (b) the Books or other sources of information maintained in accordance with this Licence; or (c) the Books or other sources of information relating to Emissions from the Premises
Discharge	has the same meaning given to that term under the EP Act
DWER	Department of Water and Environmental Regulation
Emission	has the same meaning given to that term under the EP Act
Environmental Harm	has the same meaning given to that term under the EP Act
EP Act	means the *Environmental Protection Act 1986* (WA)
EP Regulations	means the *Environmental Protection Regulations 1987* (WA)
High Wind	means wind conditions rating 7 or greater on the Beaufort Windforce Scale (i.e. wind speeds 50 km/h or greater)
HMC	Heavy Mineral Concentrate
Implementation Agreement or Decision	has the same meaning given to that term under the EP Act
Inspector	means an inspector appointed by the CEO in accordance with s.88 of the EP Act
Licence	refers to this document, which evidences the grant of a Licence by the CEO under s.57 of the EP Act, subject to the Conditions
Licence Holder	refers to the occupier of the premises being the person to whom this Licence has been granted, as specified at the front of this Licence
Material Environmental Harm	has the same meaning given to that term under the EP Act
ModCod	Modified Co-disposal – refers to a proprietary modification to the co-disposal practice of sand/clay tailings, involving the addition of flocculant at the point of deposition to provide for more efficient water recovery and faster consolidation
MS 1017	Ministerial Statement 1017
MUP	Mining Unit Plant
NATA	National Association of Testing Authorities, Australia
NATA accredited	means in relation to the analysis of a sample that the laboratory is NATA accredited for the specified analysis at the time of the analysis
Noise Regulations	means the *Environmental Protection (Noise) Regulations 1997* (WA)
PASS	Potential Acid Sulfate Soils
pH_F	field pH
pH_{FOX}	field peroxide pH
PM	means total particulate matter including both solid fragments of material and miniscule droplets of liquid
PM_{10}	means particles with an aerodynamic diameter of less or equal to 10 µm
Pollution	has the same meaning given to that term under the EP Act

Premises	refers to the premises to which this Licence applies, as specified at the front of this Licence and as shown on the map in Schedule 1 to this Licence
Prescribed Premises	has the same meaning given to that term under the EP Act
Primary Activities	refers to the Prescribed Premises activities listed on the front of this Licence as described in Schedule 2, at the locations shown in Schedule 1
ROM	Run Of Mine
Quarterly	means the 4 inclusive periods from 1 January to 31 March, 1 April to 30 June, 1 July to 30 September and 1 October to 31 December in the same year
Serious Environmental Harm	has the same meaning given to that term under the EP Act
Six monthly	means the two inclusive periods from 1 January to 30 June and 1 July to 31 December in the same year
Spot sample	means a discrete sample representative of the time and place at which the sample is taken
SSP	Surface Screening Plant
SWL	Sound Power Level
TAlk	Total Alkalinity
TSP	means total suspended particles each having an aerodynamic diameter of less than 50 µm
TA	Titratable Acidity, a measure of Total Acidity
Unreasonable Emission	has the same meaning given to that term under the EP Act
UTL	Upper Threshold Limit
Waste	has the same meaning given to that term under the EP Act
WCP	Wet Concentrator Plant

Interpretation

In this Licence:

(a) the words ‘including’, ‘includes’ and ‘include’ will be read as if followed by the words ‘without limitation’;
(b) where any word or phrase is given a defined meaning, any other part of speech or other grammatical form of that word or phrase has a corresponding meaning;
(c) where tables are used in a Condition, each row in a table constitutes a separate Condition;
(d) any reference to an Australian or other standard, guideline or code of practice in this Licence means the version of the standard, guideline or code of practice in force at the time of granting of this Licence and includes any amendments to the standard, guideline or code of practice which may occur from time to time during the course of the Licence; and
(e) unless specified otherwise, any reference to a section of an Act refers to that section of the EP Act.

Conditions

Emissions

1. The Licence Holder must not cause any Emissions from the Primary Activities on the Premises except for specified Emissions and general Emissions described in Column 1 of Table 2 subject to the exclusions, limitations or requirements specified in Column 2 of Table 2.

Table 2: Authorised Emissions table

Column 1	**Column 2**
Emission type	**Exclusions/Limitations/Requirements**
Specified Emissions	
Disposal of mine tailings (waste sand and clay)	Subject to compliance with Condition 6
Indirect emissions to groundwater	Seepage of water entrained within tailings, deposited in accordance with Condition 6
Disposal of excess mine water (infiltration basins and aquifer reinjection)	Subject to compliance with Conditions 7, 8 and Ministerial Statement 1017
Fugitive dust emissions	Subject to compliance with Condition 9
Noise emissions	Subject to compliance with Ministerial Statement 1017
General Emissions (excluding Specified Emissions)	
Emissions which arise from the Primary Activities set out in Schedule 2	Emissions excluded from General Emissions are: • Unreasonable Emissions; or • Emissions that result in, or are likely to result in, Pollution, Material Environmental Harm or Serious Environmental Harm; or • Discharges of Waste in circumstances likely to cause Pollution; or • Emissions that result, or are likely to result in, the Discharge or abandonment of Waste in water to which the public has access; or • Emissions or Discharges which do not comply with an Approved Policy, a prescribed standard or the conditions in an Implementation Agreement or Decision; or • Emissions or Discharges the subject of offences under regulations prescribed under the EP Act, including materials discharged under the Environmental *Protection (Unauthorised Discharges) Regulations 2004*.

Construction works

2. The Licence Holder must ensure that where infrastructure listed in Column 1 of Table 3 is required to be constructed, it is done so in a manner that meets or exceeds the requirements specified in Column 2 of Table 3.

3. The Licence Holder must not depart from the requirements specified in Column 2 of Table 3 except:

(a) where such departure does not increase risks to public health, public amenity or the environment; and
(b) all other Conditions in this Licence are still satisfied.

Table 3: Works infrastructure requirements table

Column 1	Column 2
Infrastructure	**Requirements (design and construction)**
'ModCod' storage ponds	• Must be constructed within active or completed mine voids; • Pond floors must be sloped to allow the collection of supernatant water;
Pipelines carrying clay slimes, sand tailings and return water	Must be constructed with: • Automatic cut-outs in the event of a pipe failure; OR • Secondary containment sufficient to contain any spill for a period equal to the time between routine inspections; OR • Telemetry systems and pressure sensors along pipelines to allow detection of leaks and failures;
ROM pads	• Constructed with compacted overburden material or similar; • Drainage designed to divert stormwater runoff to a constructed drainage depression or sedimentation basin.

Infrastructure and equipment

4. The Licence Holder must ensure that the infrastructure and equipment specified in Column 1 of Table 4 is maintained in good working order and operated in accordance with the requirements specified in Column 2 of Table 4.

Table 4: Infrastructure and equipment controls table

	Column 1	Column 2
	Infrastructure/ Equipment	**Description and operational requirements**
	Mining infrastructure and equipment	
1	Process plant – WCP / WHIMS	• Design capacity of WCP 1,100 tph;
2	MUPs & SSPs	• Must be located on a compacted base with drainage designed to divert stormwater runoff to a constructed drainage depression or sedimentation basin;
3	Pipelines carrying HMC	Must have: • Automatic cut-outs in the event of a pipe failure; OR • Secondary containment sufficient to contain any spill for a period equal to the time between routine inspections; OR • Equipped with telemetry systems and pressure sensors along pipelines to allow the detection of leaks and failures;
4	HMC stockpile pads	• Constructed with compacted overburden or similar; • Constructed with an underdrainage system, where seepage is collected and diverted to the drop-out dam; • Located within the WCP stormwater catchment control area, where surface water runoff is diverted to the drop-out dam;
5	Clean water dam	• HDPE-lined dam; • Receives clean water from production bores;
6	Process water dam	• Clay-lined dam; • Receives clean water from the clean water dam and process water from the drop-out dam;
7	Drop-out dam	• Clay-lined dam; • Receives dirty water from the WCP, interceptor pit, return water from in-pit dewatering sumps and the sedimentation pond, and

		reclaimed water from the 'ModCod' and sand tailings; • Designed to overflow to the process water dam;
	Tailings infrastructure	
1	'ModCod' storage pits	• Top of embankment (total) freeboard of at least 500 mm must be maintained at all times; • Must comprise a decant system to include supernatant water return to the drop-out dam;
2	Pipelines carrying clay fines and return water	Must have: • Automatic cut-outs in the event of a pipe failure; OR • Secondary containment sufficient to contain any spill for a period equal to the time between routine inspections; OR • Equipped with telemetry systems and pressure sensors along pipelines to allow the detection of leaks and failures;
	Stormwater infrastructure	
1	Diversion channels and drains	• Must maintain a network of diversion channels and drains to divert all stormwater runoff from disturbed areas within the Premises through the sedimentation pond(s) and stormwater dam(s); • System must be sufficient to contain a 1% AEP;
2	Sedimentation pond(s)	• Temporary ponds to be constructed next to mine haul roads, to intercept stormwater runoff from stockpiles and infrastructure next to mine pits;
	Rehabilitation	
1	Overburden/topsoil stockpiles	• Must be stabilised to prevent dust lift-off where there is a risk of dust affecting sensitive receptors.

5. The Licence Holder must undertake inspections:

(a) of the scope specified in Column 1 of Table 5;
(b) of the type specified in Column 2 of Table 5; and
(c) at the frequency specified in Column 3 of Table 5;

In addition, where any inspection identifies that an appropriate level of environmental protection is not being maintained, the Licence Holder must:

(d) take corrective action to mitigate adverse environmental consequences as soon as practicable; and
(e) maintain a written log of all inspections undertaken, with each inspection signed off by the person who conducted the inspection.

Table 5: Inspection of infrastructure requirements table

Column 1	Column 2	Column 3
Scope of inspection	**Type of inspection**	**Frequency of inspection**
Pipelines carrying HMC and tailings	Visual integrity, leak assessment and freeboard capacity	Daily whilst operating; Monthly if not operating
Return water pipelines		
Process water dam, drop out dam, sedimentation pond		

Emissions to land

6. The Licence Holder must ensure that tailings produced from the processing of mined ore on the Premises, as specified in Column 1 of Table 6, are deposited in accordance with the requirements specified in Column 2 of Table 6.

Table 6: Tailings disposal requirements table

Column 1	Column 2	Column 3
Emission	**Disposal requirements**	**Site plan reference**
Sand tailings from the WCP	Must be: • pumped as a slurry directly to completed mine voids; OR • stacked (stockpiled) separately at the WCP overburden stockpile for later placement into mine voids	Selected voids in Pits 1 – 18, as shown in Schedule 1 map
Clay slimes from the WCP	Must be: • thickened and blended with sand tailings and pumped as a wet slurry to 'ModCod' storage pits; OR • used as dust suppressant within the Premises	'ModCod storage pits', as shown in Schedule 1 map

Emissions to groundwater

7. The Licence Holder must ensure that where excess mine water is required to be discharged into the environment, it is done so in accordance with the requirements of Table 7.

Table 7: Authorised emission points to groundwater

Column 1	Column 2	Column 3
Source	**Emission point reference**	**Description**
Clean water dam	P16_2; P16_6; P16_68; IW02P03	Groundwater reinjection bores Already constructed, as shown in Schedule 1 map
	P16_13; P16_17; P16_21; P16_25; P16_29; P16_33; P16_36; P16_40; P16_44; P16_49; P16_53; P16_57; P16_68	Groundwater reinjection bores Proposed for construction, as shown in Schedule 1 map
	Infiltration basins – Pit 1 (primary) and Pit 2 (contingency)	Open mine voids, as shown in Schedule 1 map

8. The Licence Holder must not cause or allow excess mine water to be emitted to groundwater that does not meet the limits specified in Table 8.

Table 8: Point source emission limits to groundwater

Column 1	Column 2	Column 3	Column 4
Emission point reference	**Parameter**	**Limit (including units)**	**Averaging period**
P16_2; P16_6; P16_13; P16_17; P16_21; P16_25; P16_29; P16_33; P16_36; P16_40; P16_44; P16_49; P16_53; P16_57; P16_68; IW02P03 Infiltration basins (Pits 1 & 2)	pH	5.5 (lower) 8.5 (upper)	Spot sample
	Electrical conductivity @ 25°C	3,000 µS/cm (upper)	
	Total dissolved solids	2,000 mg/L (upper)	
	Total suspended solids	80 mg/L (upper)	
	Titratable Acidity (TA)	40 mg/L (upper)	
	Total Alkalinity (TAlk)	10 mg/L (lower)	
	Volumetric flow rate	700 kL/h (upper)	N/A

Fugitive dust controls

9. The Licence Holder must implement the controls specified in Column 1 of Table 9 in accordance with the actions/requirements specified in Column 2 of Table 9.

Table 9: Fugitive dust controls table

Column 1	Column 2
Control	**Actions/requirements**
Topsoil stripping	• Must schedule to avoid periods of High Winds from unfavourable directions relative to sensitive receptors (including the Brand Hwy); • Where there is a risk of dust affecting sensitive receptors, must conduct when soil conditions are moist but not saturated; • Must cease/suspend topsoil stripping operations during High Wind conditions where there is a risk of dust affecting sensitive receptors;
Water carts/sprays	• Must operate when discernable levels of dust are generated from ground surfaces on the Premises and there is a risk of dust affecting sensitive receptors; • Must operate proactively subject to weather forecasting over a 24 hour period;
Dust suppressant (other than water)	• Must apply proactively to overburden/topsoil stockpiles; • Must reapply proactively subject to visual inspection and weather forecasting;
Cessation of activities	• Must cease an activity causing discernable levels of dust where dust management measures have not prevented dust liftoff and there is a risk of dust affecting sensitive receptors;
Monitoring and trigger levels	• Must use meteorological data to assist in determining the potential for high dust generating activities, and take appropriate management action(s); • Must set trigger levels on ambient air quality monitoring equipment to prevent exceedances of the limits specified in Table 13; • Must reduce the trigger levels if necessary in response to complaint or evidence of offsite impacts; and • Must keep a log of dust trigger exceedance events including the identification of the sources and action(s) taken to control dust.

Acid Sulfate Soils controls

10. The Licence Holder must implement the actions/requirements specified in Column 2 of Table 10 for each aspect specified in Column 1 of Table 10.

Table 10: Acid sulfate soils controls table

Column 1	Column 2
Aspect	**Actions/Requirements**
Dewatering	• Must avoid unnecessary groundwater drawdown; • Dewatering water to be managed to ensure pH ≥5.5 and TAlk > TA; • Exceedances of the dewatering trigger values specified in Table 11 must be managed in accordance with the relevant action(s) specified in that table;
Overburden and ore	• Daily field surveys (pH_F and pH_{FOX}) must be conducted during removal of overburden containing PASS or in areas where there are indicators of PASS; • PASS-containing overburden must be treated with lime at a minimum rate of 5 kg/t $CaCO_3$ OR re-buried within 24 hours below the groundwater level; • PASS-containing ore may be processed with additional lime input to the WCP de-sliming circuit, with the rate of addition to be determined through pH_F

Column 1	Column 2
Aspect	**Actions/Requirements**
	monitoring within the WCP water circuit; • Reactive overburden/ore requiring stockpiling prior to treatment and burial must be stockpiled on a treatment pad comprising minimum 300 mm thick compacted crushed limestone (or other appropriate neutralisation material) and bunded with a minimum 150 mm high perimeter of compacted, crushed limestone to contain leachate runoff within the treatment pad area/prevent surface water runoff from entering the pad area;
Groundwater triggers	• Must set groundwater triggers for pH and titratable acidity (TA) based upon the upper threshold limit (UTL) of background water quality in the area; • Upon exceeding the UTL trigger criteria at the CWD, must establish the context of the exceedance and determine whether the result requires re-sampling and analysis, immediate further action, or no response; • Increase the sampling frequency for field parameters if it is confirmed the pH and TA exceed trigger criteria in successive sampling events; and • Prepare a contingency action plan suited to the level of risk to groundwater users and environmental receptors if it is confirmed that any groundwater quality parameter has deteriorated to levels outside of the background-based trigger levels at dewatering monitoring bores.

Table 11: Dewatering trigger values table

Column 1		Column 2
Trigger criteria[1,2]		**Action**
pH	**TA**	
≥ 6.0	≤ 40 mg/L	• Continue 3 days per week dewatering water monitoring;
≤ 6.0	≤ 40 mg/L	• Undertake neutralisation treatment; • Increase monitoring of field parameters to daily and laboratory analysis to weekly; • Assess mining and dewatering activities to determine possible causal factors or opportunities to mitigate impacts;
≥ 6.0	≥ 40 mg/L	
≤ 6.0	40 – 100 mg/L	
≤ 4.0	≥ 100 mg/L	• Increase neutralisation treatment; • Increase monitoring of field parameters to twice daily and laboratory analysis to twice weekly; • Undertake investigations to determine the size of acidic footprint and develop contingency plans to manage the level of risk to groundwater users and environmental receptors.

Note 1: As measured at the CWD inflow point.
Note 2: ≥ greater than or equal to; ≤ less than or equal to.

Monitoring general

11. The Licence Holder must ensure that:

(a) all water samples are collected and preserved in accordance with AS/NZS 5667.1;
(b) all groundwater sampling is conducted in accordance with AS/NZS 5667.11;
(c) all ambient air monitoring is sited in accordance with AS 3580.1.1;
(d) all TSP samples are collected and analysed in accordance with AS 3580.9.3;
(e) all PM_{10} samples are collected and analysed in accordance with AS 3580.9.8 or AS 3580.9.11; and
(f) all laboratory samples are submitted to and tested by a laboratory with current NATA accreditation for the parameters being measured, unless indicated otherwise in the relevant table.

12. The Licence Holder must ensure that:

(a) weekly monitoring is undertaken at least 5 days apart;
(b) monthly monitoring is undertaken at least 15 days apart;
(c) quarterly monitoring is undertaken at least 45 days apart;
(d) 6-monthly monitoring is undertaken at least 4 months apart; and
(e) annual monitoring is undertaken at least 9 months apart.

13. The Licence Holder must ensure that all monitoring equipment used on the Premises to comply with the Conditions of this Licence is calibrated in accordance with the manufacturer's specifications.

14. The Licence Holder must ensure, where the requirements for calibration cannot be practicably met, or a discrepancy exists in the interpretation of the requirements, bring these issues to the attention of the CEO accompanied with a report comprising details of any modifications to the methods.

Process monitoring

15. The Licence Holder must undertake process monitoring:

(a) of the process specified in Column 1 of Table 12;
(b) for the parameter specified in Column 2 of Table 12;
(c) in the units specified in Column 3 of Table 12; and
(d) at the frequency specified in Column 5 of Table 12.

Table 12: Process monitoring requirements table

Column 1	Column 2	Column 3	Column 4
Process description	**Parameter**	**Units**	**Frequency**
Overburden removal	Amount of overburden removed	Wet tonnes	Annual
Processing of ore	Amount of ore processed through the WCP		
	Amount of HMC produced		
Disposal of tailings	Amount and location of sand tailings and clay slimes disposed on the Premises		Quarterly
Dewatering water (as measured at the CWD inflow point)	pH	No unit	Weekly
	Electrical conductivity @ 25°C	µS/cm	
	Titratable acidity (TA)	mg/L	
	Total alkalinity (TAlk)		

Ambient environmental monitoring and reporting

Ambient air quality

16. The Licence Holder must, during the period 1 October and ending 31 May the following year, undertake monitoring of ambient air quality:

(a) at the locations specified in Column 1 of Table 13;
(b) for the parameters specified in Column 2 of Table 13;
(c) in the units specified in Column 3 of Table 13;
(d) at the frequency specified in Column 4 of Table 13; and
(e) for the duration specified in Column 5 of Table 13.

Table 13: Ambient air monitoring requirements table

Column 1	Column 2	Column 3	Column 4	Column 5	Column 6
Monitoring point reference	**Parameter**	**Units**	**Frequency**	**Sampling duration**	**Limit**
AQ1 – AQ2	TSP	$\mu g/m^3$	At least once every 6 days	Minimum 24 hours	260 (upper)
	PM_{10}		Minimum of 2 samples, at least 4 weeks apart	Minimum 14 days continuous logging with 15 minute sample averages[1]	50 (upper)

Note 1: Availability ≥90% of the measurement interval on a monthly basis.

17. The Licence Holder is exempt from compliance with the limits specified in Column 6 of Table 13 if in the case of an event in Table 14:

(a) the corresponding management action is taken; and
(b) there is sufficient evidence to demonstrate the exceedance is not attributed to operations on the Premises.

Table 14: Ambient air limit exceedance response table

Column 1	Column 2	Column 3	Column 4
Monitoring point reference	**Event/action reference**	**Event**	**Management action**
AQ1	EA1	Exceedance of a limit specified in Table 13	Undertake an investigation of the exceedance, including but not limited to: (a) the root cause analysis for the exceedance; and (b) any common or contributory factors for the exceedance.

Ambient groundwater quality

18. The Licence Holder must undertake monitoring of ambient groundwater quality:

(a) at the locations specified in Column 1 of Table 15;
(b) for the parameter specified in Column 2 of Table 15;
(c) in the units specified in Column 3 of Table 15;
(d) over the averaging period specified in Column 4 of Table 15; and
(e) at the frequency specified in Column 5 of Table 15.

Table 15: Ambient groundwater quality monitoring requirements table

Column 1	Column 2	Column 3	Column 4	Column 5
Monitoring point and reference location	**Parameter**	**Units**	**Averaging period**	**Monitoring frequency**
CM08S CM10S CM11 S/M CM16S CM17S CM23 S/M CM24 S/M	Standing water level	m AHD	Spot sample (in-field)	Monthly
	pH	-		
	Electrical conductivity @ 25°C	µS/cm	Spot sample (laboratory determined)	
	Redox potential	mV		
	Titratable acidity (TA)	mg/L		
	Total alkalinity (TAlk)			

Column 1	Column 2	Column 3	Column 4	Column 5
Monitoring point and reference location	**Parameter**	**Units**	**Averaging period**	**Monitoring frequency**
CM25S CM26 S/M CM32S CM34S	Major ions: bicarbonate, calcium, chloride, magnesium, potassium, sodium, sulfate, total dissolved solids			Quarterly
GDE_MW_05S MB03P12 S/M MB05P03S MW_14S MW_15S MW_16S MW_17S MW_18S MW_20S MW_21S MW_22S MW_23S MW_24S	Metals and metalloids: aluminum, arsenic, cadmium, chromium (as CrVI and total Cr), cobalt, copper, iron, mercury, nickel, selenium, thallium, uranium, zinc			6-monthly

Record-keeping and reporting

Records

19. The Licence Holder must maintain accurate and auditable Books including the following records, information, reports and data required by this Licence:

(a) the calculation of fees payable in respect of this Licence;
(b) the maintenance of infrastructure required to ensure that it is kept in good working order in accordance with Condition 4 of this Licence;
(c) monitoring undertaken in accordance with Conditions 15, 16 and 18 of this Licence;
(d) management actions taken in response to exceedances of the trigger levels specified in Table 11;
(e) the results of investigations into limit exceedances for ambient air quality required by Condition 17 of this Licence; and
(f) complaints received under Condition 21 of this Licence.

In addition, the Books must:

(g) be legible;
(h) if amended, be amended in such a way that the original and subsequent amendments remain legible and are capable of retrieval;
(i) be retained for at least 3 years from the date the Books were made; and
(j) be available to be produced to an Inspector or the CEO.

20. The Licence Holder must submit to the CEO, no later than 31 March in each year, a Compliance Report indicating the extent to which the Licence Holder has complied with the Conditions in this Licence for the preceding Annual Period.

21. The Licence Holder must record the number and details of any complaints received by the Licence Holder relating to its obligations under this Licence and its compliance with Part V of the EP Act at the Premises, and any action taken by the Licence Holder in response to the complaint.

22. The Licence Holder must comply with a Department Request, within 14 days from the date of the Department Request or such other period as agreed to by the Inspector or the CEO.

Reporting

23. The Licence Holder must submit to the CEO, no later than 31 March in each year, an annual environmental report which includes, but is not limited to:

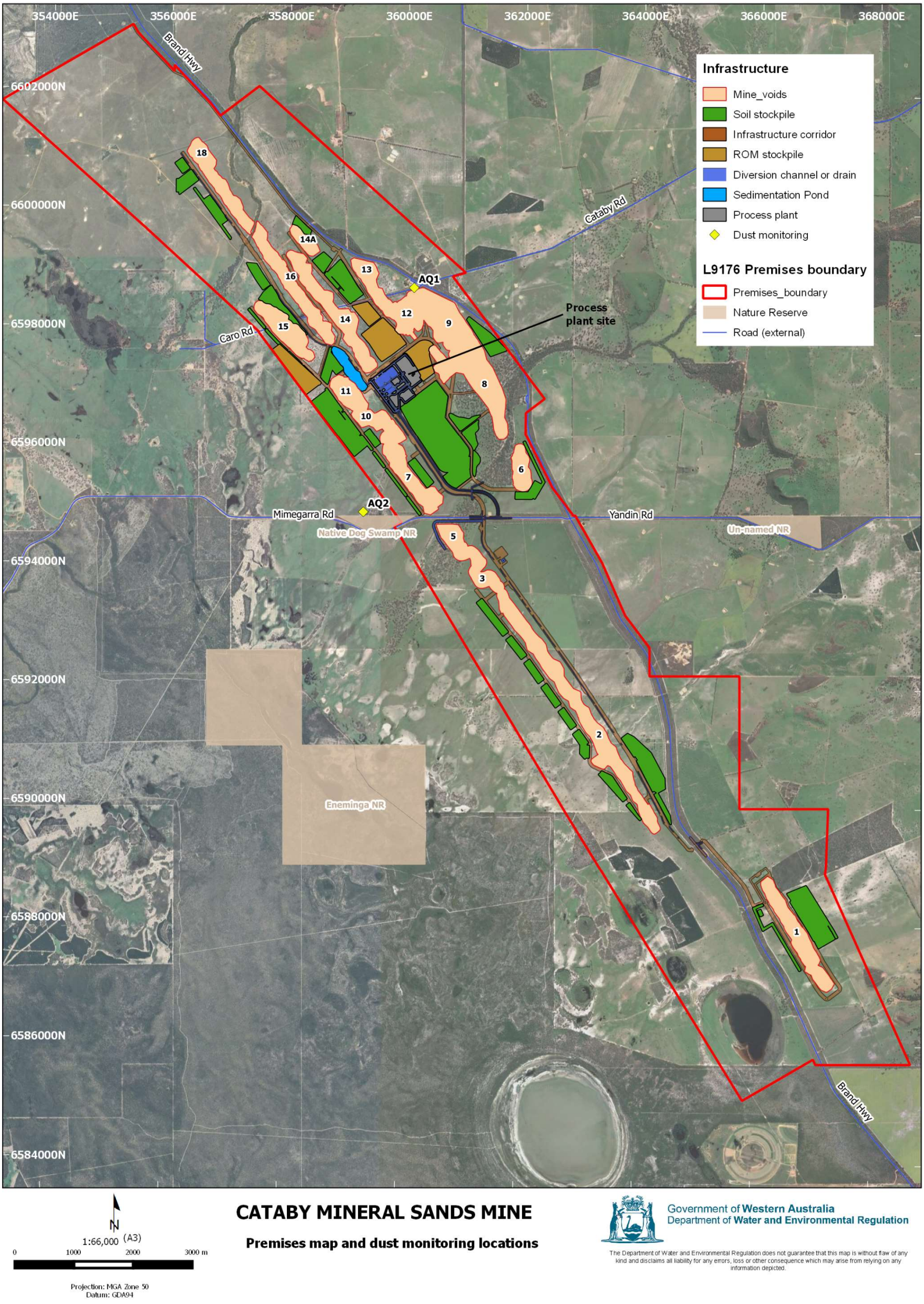
(a) results of the monitoring required by Conditions 15, 16 and 18 for the preceding Annual Period;
(b) a summary of trigger exceedance events specified in Table 11 and subsequent management actions taken for each event;
(c) a summary of any complaints received and management actions taken for each complaint; and
(d) a summary of any environmental incidents and any action(s) taken.

24. The Licence Holder must ensure the report required by Condition 23 includes an appraisal and trend analysis of the results against pre-mining baseline data and previous monitoring results.

Schedule 1: Maps

Premises map and map of dust monitoring locations

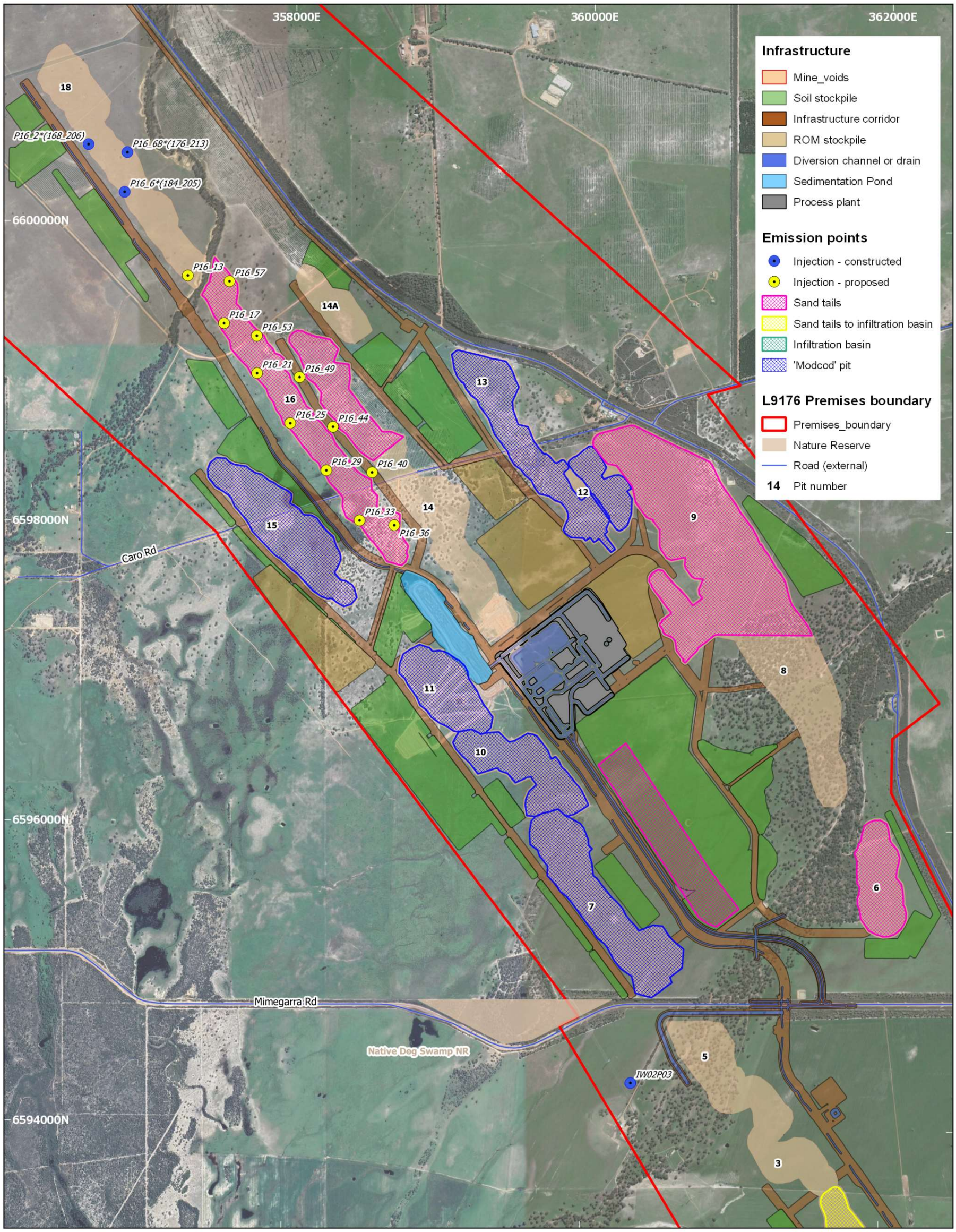
The Premises is shown in the map below. The red line depicts the Premises boundary; yellow diamonds depict dust monitoring locations.



Schedule 1: Maps

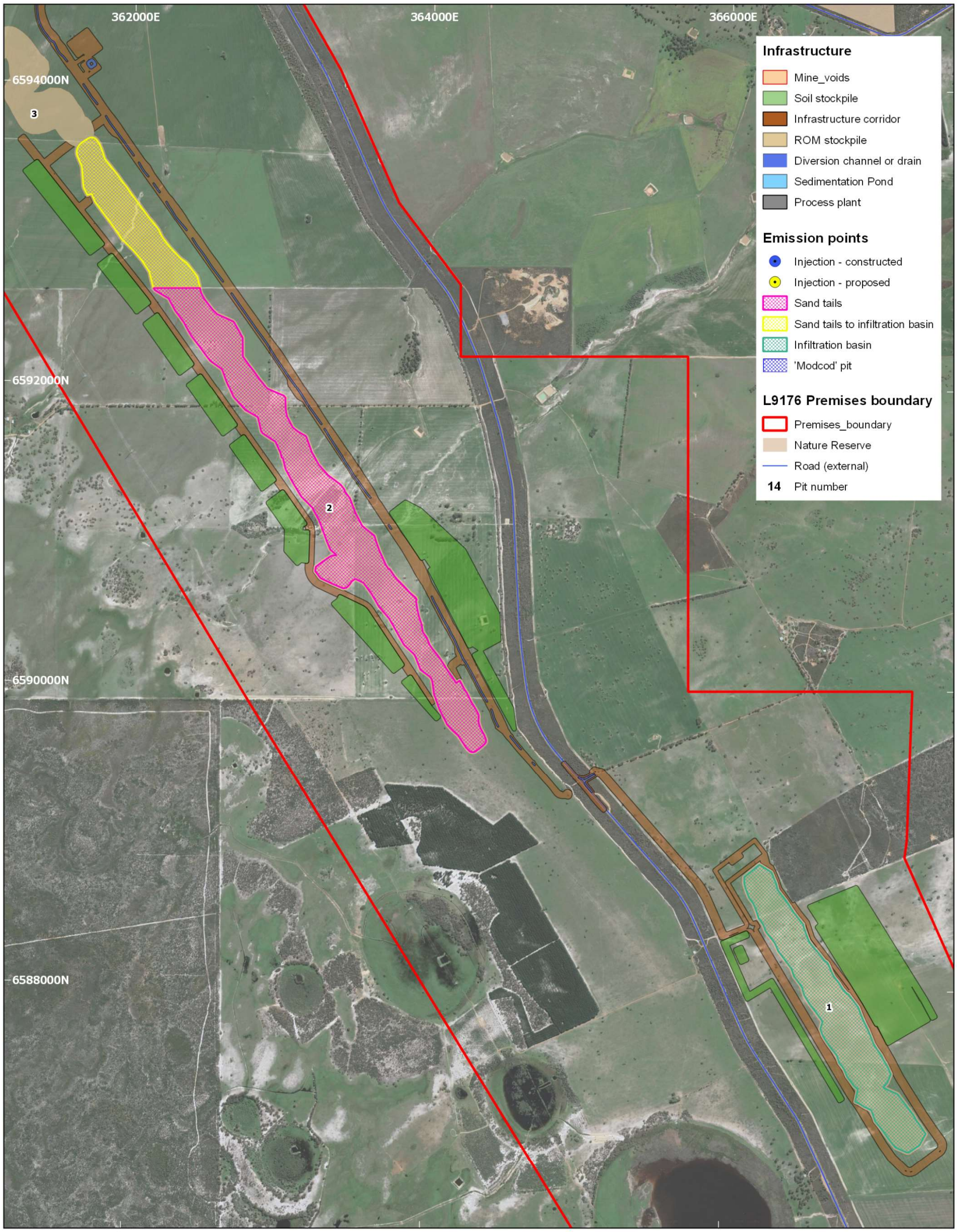
Map of emission points to land and groundwater (North)

The indicative locations of authorised tailings disposal areas and dewatering discharge points are shown in the maps below.



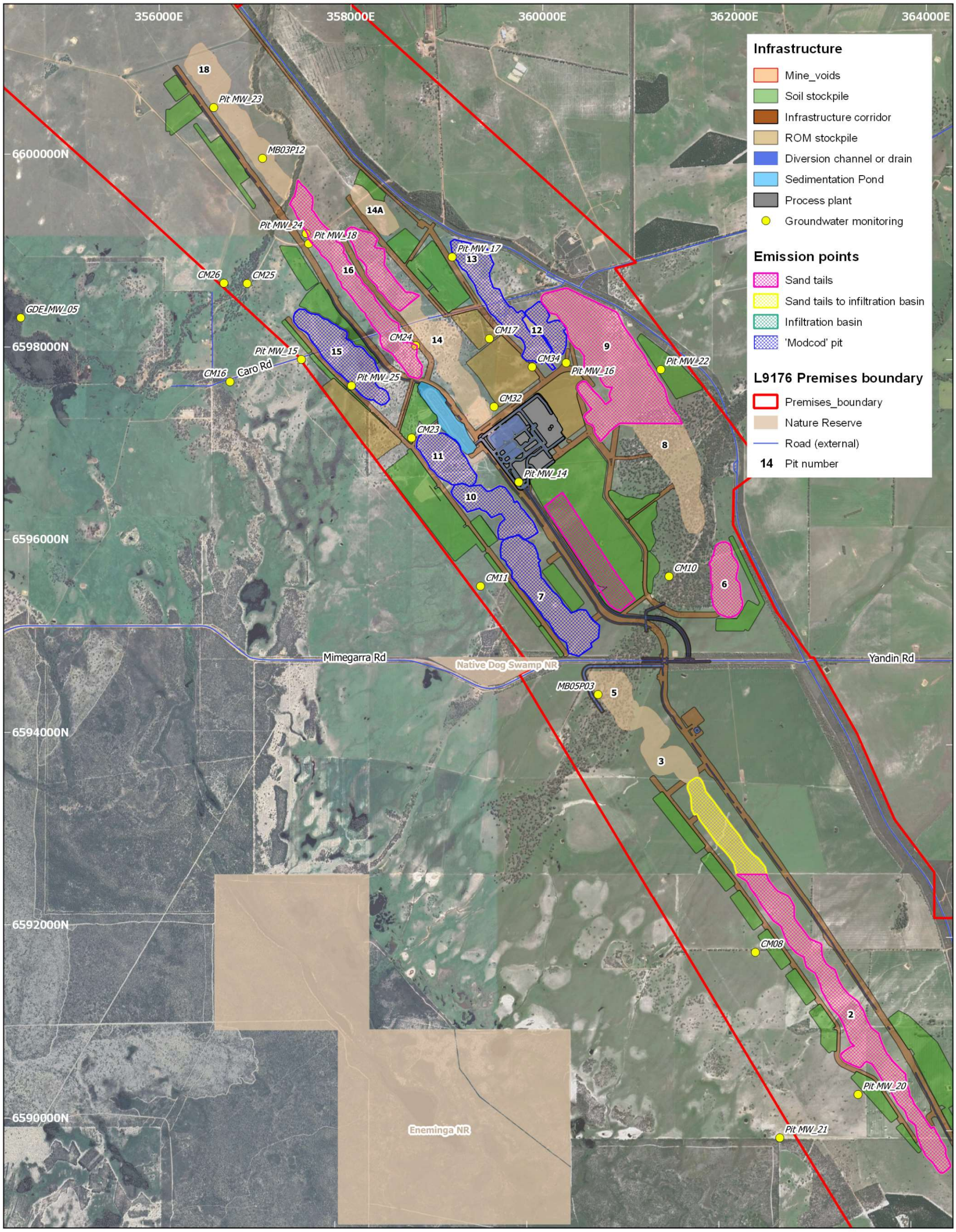
Schedule 1: Maps

Map of emission points to land and groundwater (South)



Map of groundwater monitoring locations

The location of groundwater monitoring bores is shown in the map below.



Schedule 2: Primary Activities

At the time of assessment, Emissions and Discharges from the following Primary Activities and directly related activities were considered in the determination of the risk and related Conditions for the Premises. The activities are listed in Table 16:

Table 16: Primary Activities

Primary Activity	Premises production or design capacity
Category 8: Mineral sands mining or processing: premises on which mineral sands ore is mined, screened, separated or otherwise processed.	12,000,000 tonnes per annual period
Category 6: Mine dewatering: premises on which water is extracted and discharged into the environment to allow the mining of ore.	2,200,000,000 tonnes per annual period

Infrastructure and equipment

The Primary Activity infrastructure and equipment for the Premises, at the time of assessment, is listed in Table 17.

Table 17: Infrastructure and equipment

Infrastructure and equipment
Fixed infrastructure and equipment
WCP, WHIMS plant and UCC, including thickener(s) and associated pumps
Skid-mounted, in-pit MUPs (MU20 & MU21)
SSPs (MU02 & MU23 SSP), including slurry pipelines, pumps and stackers
HMC product stockpile pads (Mags & Non-Mags)
ROM stockpile pads (ROM North & ROM South)
Sand tailings and clay fines system, including pipelines, pumps and stackers
Clean Water Dam (CWD), Process Water Dam (PWD), Drop Out Dam (DOD)
Sedimentation / Stormwater storage dam
Return water pipeline network
Soil stockpiles – Overburden, topsoil, subsoil
Reinjection bores
Mobile plant[1]
8 x Bulldozers – Sound Power Level (SWL) not exceeding 115.3 dB(A)
3 x Excavators – SWL not exceeding 113.9 dB(A)
5 x Scrapers – SWL not exceeding 110.2 dB(A)
8 x Haul Trucks – SWL not exceeding 112.2 dB(A)
3 x Water carts – SWL not exceeding 110.1 dB(A)
5 x Carry Graders – SWL not exceeding 111.7 dB(A)

Note 1: The type and combination of mobile plant in use at any one time on the Premises must be managed to ensure compliance with the Noise Regulations and the limits specified in Column 6 of Condition 16 of this Licence.