



Licence number	L9018/2016/1
Licence holder	Doral Mineral Sands Pty Ltd
ACN	096 342 451
Registered business address	1 Alumina Rd East Rockingham WA 6168
DWER file number	DER2016/002360-1
Duration	08/12/2017 to 25/03/2035
Date of amendment	26/3/2021
Premises details	Yoongarillup Mineral Sands Mine 1231 Sues Road YOONGARILLUP WA 6507 Part of tenements M70/458 and M70/459, within Lots 1870, 1872, 1873 & 1874 on Plan 201690 and Lots 101 & 102 on Diagram 98906, as depicted in Schedule 1.

Prescribed premises category description (Schedule 1, <i>Environmental Protection Regulations 1987</i>)	Assessed production capacity
Category 8: Mineral sands mining or processing: premises on which mineral sands ore is mined, screened, separated or otherwise processed.	1,500,000 tonnes per annual period

This amended licence is granted to the licence holder, subject to the attached conditions, on 26 March 2021, by:

**/MANAGER, RESOURCE INDUSTRIES
REGULATORY SERVICES**

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



Licence and works approval history

Date	Reference number	Summary of changes
05/12/2016	W5990/2016/1	Initial works approval for mine establishment.
27/06/2017	W5990/2016/1	Amendment Notice 1 – remove references to groundwater monitoring bores that were not constructed as per the original application for various reasons.
08/12/2017	L9018/2016/1	Licence granted.
26/3/2021	L9018/2016/1	Removing redundant conditions following the end of active mining.

Premises description

The premises is a heavy mineral sands mine located near Busselton, on the southern Swan Coastal Plain, approximately 250 km south of Perth. It is mostly located on cleared farming land, but also extends into the adjoining State Forest. A number of farm houses are located around the mine site, including eight within 1 km of mine pits and solar evaporation ponds.

Active mining has been completed, and rehabilitation earthworks are ongoing at the premises. DWER considers that mineral sands mining for the purposes of Part V Division 3 of is not complete until the mined voids achieve the landform state defined in the approved Mine Closure Plan.

Definitions and interpretation

Definitions

'Act' means the *Environmental Protection Act 1986*;

'AHD' means the Australian height datum;

'Anniversary Date' means 11 December in each year;

'Annual Period' means a 12 month period commencing from 1 January to 31 December in each year;

'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 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 Australian Standard AS 3580.9.8 *Methods for sampling and*



analysis of ambient air – Determination of suspended particulate matter – PM_{10} continuous direct mass method using a tapered element oscillating microbalance analyser;

'AS 4282' means the Australian Standard AS 4282-1997 *Control of the obtrusive effects of outdoor lighting*;

'AS/NZS 5667.1' means the Australian Standard AS/NZS 5667.1 *Water Quality – Sampling – Guidance of the Design of sampling programs, sampling techniques and the preservation and handling of samples*;

'AS/NZS 5667.6' means the Australian Standard AS/NZS 5667.6 *Water Quality – Sampling – Guidance on sampling of rivers and streams*;

'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;

'Bq/L' means Becquerel per litre;

'CEO' means Chief Executive Officer;

'CEO' for the purpose of notification means;
Director General
Department Administering the *Environmental Protection Act 1986*
Locked Bag 10
Joondalup DC WA 6919
Email: info@dwer.wa.gov.au;

'Compliance Report' means a report in a format approved by the CEO and presented by the Licence Holder or as specified by the CEO (guidelines and templates available of 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 s.35 of the *Public Sector Management Act 1994* and designated as responsible for administration of Part V, Division 3 of the EP Act;

' $L_{AS\ 90,30min}$ ' and ' $L_{AS\ 10,30min}$ ' means the A-weighted level exceeded for more than 90% and 10%, respectively, of the time over 30 minutes with the sound level meter set to 'Slow' time weighting;

' $L_{Aeq(20Hz-500Hz),30min}$ ' means the A-weighted equivalent noise level between 20 Hz and 500 Hz (one-third octave bands inclusive) averaged over 30 minutes;

'Licence' means 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' means the occupier of the premises being the person to whom this



Licence has been granted, as specified at the front of this Licence;

'NATA' means the 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*;

'Non-directional system' means single microphone sound measuring equipment compliant with Schedule 4 of the Noise Regulations and capable of recording overall and one-third octave band statistical noise levels based on the A-weighted sound pressure level with 'Slow' time weighting (L_{AS});

'Picton Tails' means reject mineral tailings from secondary processing at the company's licensed mineral separation plant at Picton;

'PM' means total particulate matter including both solid fragments of material and miniscule droplets of liquid;

'PM₁₀' means particles with an aerodynamic diameter of less or equal to 10 μm ;

'Premises' means the area defined in the Premises Map in Schedule 1 and listed as the Premises address on page 1 of the Licence;

'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;

'Schedule 1' means Schedule 1 of this Licence unless otherwise stated;

'Schedule 2' means Schedule 2 of this Licence unless otherwise stated;

'spot sample' means a discrete sample representative at the time and place at which the sample is taken; and

'TSP' means total suspended particles each having an equivalent aerodynamic diameter of less than 50 micrometres;

' μm ' and ' $\mu\text{g}/\text{m}^3$ ' means micrometres and micrograms per cubic metre, respectively;

' $\mu\text{S}/\text{cm}$ ' means microSiemens per centimetre.



Interpretation

In this licence:

- (a) the words ‘including’, ‘includes’ and ‘include’ in conditions mean “including but not limited to”, and similar, as appropriate;
- (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:
 - (i) if dated, refers to that particular version; and
 - (ii) if not dated, refers to the latest version and therefore may be subject to change over time;
- (e) unless specified otherwise, any reference to a section of an Act refers to that section of the EP Act; and
- (f) unless specified otherwise, all definitions are in accordance with the EP Act.

NOTE: This licence requires specific conditions to be met but does not provide any implied authorisation for other emissions, discharges, or activities not specified in this licence.

Licence conditions

The licence holder must ensure that the following conditions are complied with:

1 General

1.1 Premises operation

- 1.1.1 The Licence Holder shall ensure that materials listed in Column 2 of Table 1.2.2 are only discharged into the corresponding infrastructure detailed in Column 1 of Table 1.2.2.

Table 1.2.2: Containment infrastructure		
Column 1	Column 2	Column 3
Infrastructure	Material	Infrastructure requirements
drop out pond	Surface inflow, direct rainfall, and surface runoff collected from the mine site	- Flow metering device on overflow point.

- 1.1.2 The Licence Holder shall:
- (a) undertake inspections as detailed in Table 1.2.3;



- (b) where any inspection identifies that an appropriate level of environmental protection is not being maintained, take corrective action to mitigate adverse environmental consequences as soon as practicable; and
- (c) maintain a record of all inspections undertaken.

Table 1.2.3: Inspection of infrastructure		
Scope of inspection	Type of inspection	Frequency of inspection
Drop out pond	Visual integrity and leak assessment	Monthly

2 Emissions

2.1 General

2.1.1 The Licence Holder shall record and investigate the exceedance of any descriptive or numerical limit specified in any part of section 2 of this Licence.

2.2 Point source emissions to surface water

2.2.1 The Licence Holder shall ensure that where waste is emitted to surface water from the emission points in Table 2.2.1 and identified on the map of emission points in Schedule 1 it is done so in accordance with the Conditions of this Licence.

Table 2.2.1: Emission points to surface water		
Emission point reference	Description	Source including abatement
W1	Pumped water from the drop out water pond and/or office sump, and piped overflow from the final farm dam to an agricultural drain.	surface runoff collected from the mine site

2.3 Emissions to land

2.3.1 The Licence Holder shall ensure that where waste is emitted to land from the emission points in Table 2.3.1 it is done so in accordance with the Conditions of this Licence.

Table 2.3.1: Emission points to land		
Emission point reference	Description	Source including abatement
L1 – L25 mine voids	Backfilling of tailings to mine voids	Quartzose sand tails, minor clay and unrecovered heavy mineral from the wet concentrator plant (WCP) Dried clay slimes from solar evaporation ponds

2.4 Fugitive emissions

2.4.1 The Licence Holder shall ensure fugitive dust emissions are managed in accordance with the requirements specified in Table 2.4.1.



Table 2.4.1: Management of fugitive dust emissions	
Description	Operation details
Water carts/ sprays	<ul style="list-style-type: none"> - Shall operate when visible dust is generated from ground surfaces on the Premises; - Shall operate proactively subject to weather forecasting over a 24 hour period.
Dust suppressant (other than water)	<ul style="list-style-type: none"> - Shall apply proactively to stockpiles, noise control bunds and pond embankments; - Shall re-apply proactively subject to visual inspection and weather forecasting over a 24 hour period.
Stockpiles	<ul style="list-style-type: none"> - Shall minimise the number and size of stockpiles; - Direct use of overburden as backfill and the direct replacement of top soil where possible; - Shall encourage vegetative cover (using stored seed);
Cessation of activities	<ul style="list-style-type: none"> - Cease an activity causing visible dust lift-off where dust management measures have not prevented dust lift-off and where there is a risk of dust affecting sensitive receptors.
Monitoring and trigger levels	<ul style="list-style-type: none"> - Shall use meteorological data to assist in determining the potential for high dust generating activities, and take appropriate management action(s); - Shall set trigger levels on ambient air quality monitoring equipment to ensure the limits specified in Table 3.4.2 are not exceeded; - Shall reduce the trigger levels if necessary in response to complaints or other evidence of off-site impacts; and - Shall keep a log of dust trigger exceedance events including the identification of the sources of dust and action(s) taken to control dust.

2.4.2 The Licence Holder shall ensure that all outdoor lighting on the Premises complies with the requirements of AS 4282.

2.5 Noise

2.5.1 The Licence Holder shall ensure noise emissions are managed in accordance with the requirements specified in Table 2.5.1.

Table 2.5.1: Management of noise emissions	
Description	Operation details
Heavy earthmoving machinery	<ul style="list-style-type: none"> - The quietest equipment reasonably available shall be used; - No earthmoving may occur outside the hours of 0700 – 1900 hours Monday to Saturday; and 0900-1900 hours on Sunday and public holidays. - Water carts and graders to be restricted to day time operations only; - All heavy machinery on the Premises is to be suitable with respect to the site noise model; - Broadband reversing alarms (squawkers) shall be used on all earthmoving fleet instead of beepers;
Cessation of activities	<ul style="list-style-type: none"> - Equipment shall be relocated if noise monitoring indicates activities on the Premises are significantly contributing to noise levels that are likely to exceed the Noise Regulations at nearby receptor(s); - Operations to be suspended if equipment relocation or adjustment fails to reduce the likelihood of noise non-compliance at nearby receptor(s);
Stakeholder relations	<ul style="list-style-type: none"> - Maintain ongoing and effective communication with nearby residents.



2.6 Acid Sulfate Soils

Monitoring point reference	pH _F ¹	Field EC (µS/cm)	TTA (mg/L) ¹	TAlk (mg/L) ¹	Dissolved Al (mg/L) ¹
GQ3	≥ 4.0	359	≥ 102	≤ 3.7	≥ 1.0
GQ4		660	≥ 233	≤ 1.0	

Note 1: ≥ greater than or equal to, ≤ less than or equal to.

3 Monitoring

3.1 General monitoring

3.1.1 The Licence Holder shall ensure that:

- (a) all water samples are collected and preserved in accordance with AS/NZS 5667.1;
- (b) all surface water sampling is conducted in accordance with AS/NZS 5667.6;
- (c) all groundwater sampling is conducted in accordance with AS/NZS 5667.11;
- (d) all noise measurements are carried out in accordance with Part 3 of the *Environmental Protection (Noise) Regulations 1997* (as applicable); and
- (e) 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.

3.1.2 The Licence Holder shall ensure that:

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

3.1.3 The Licence Holder shall 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.

3.1.4 The Licence Holder shall, 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.

3.2 Monitoring of point source emissions to surface water

3.2.1 The Licence Holder shall undertake the monitoring in Table 3.2.1 according to the specifications in that table.



Table 3.2.1: Monitoring of point source emissions to surface water

Monitoring point reference	Parameter	Units	Frequency ¹
W1 – drop out pond overflow point	Volumetric flow rate ¹	m ³ /d	Daily when discharging
	pH ¹	-	Weekly when discharging
	Total dissolved solids (TDS) ¹	mg/L	
	Total suspended solids (TSS)		
	Aluminium, arsenic, chromium, copper, lead, manganese, nickel, zinc, total recoverable hydrocarbons, ammonium		Monthly when discharging

Note 1: Sampling shall occur on the first day of discharge, then weekly/monthly thereafter.

Note 2: In-field non-NATA accredited analysis permitted.

3.3 Ambient environmental quality monitoring

3.3.1 The Licence Holder shall undertake the monitoring in Tables 3.4.1 – 3.4.3 according to the specifications in those tables.

Table 3.4.1: Monitoring of ambient groundwater quality

Monitoring point reference ²	Parameter	Units	Averaging period	Frequency
GQ2 – GQ8, GQ12	Standing water level ¹	m AHD	Spot sample	Monthly
	pH ¹	-		
	Electrical conductivity @ 25°C ¹	µS/cm		
	Redox potential	mV		
	Major ions: bicarbonate, calcium, chloride, magnesium, potassium, sodium, sulfate, total dissolved solids	mg/L		Quarterly
GQ2, GQ3, GQ4, GQ6,	Total titratable acidity (TTA)	mg/L		6 monthly
	Total alkalinity (TALK)			
	Metals and metalloids: aluminium, arsenic, cadmium, chromium (both as CrVI and total Cr), cobalt, copper, iron, mercury, nickel, selenium, thallium, uranium, zinc			
	Radium-226, radium-228, radon-222	Bq/L		
	Monomeric acrylamide	µg/L		Annual

Note 1: In-field non-NATA accredited analysis permitted.

Note 2: See cross reference of monitoring point reference with Doral bore ID in Schedule 1.

Table 3.4.2: Monitoring of ambient air quality

Monitoring point reference	Parameter	Limit	Units	Frequency ¹	Sampling duration	Method
AQ1 –AQ2	TSP	150	µg/m ³	Monthly	Minimum 24 hours (per site, per month)	AS 3580.9.3
AQ3		260				

Note 1: During the period 1 October and ending 31 May the following year.



Table 3.4.3: Monitoring of ambient noise levels

Monitoring point reference	Parameter	Sound measuring equipment	Units	Frequency and duration
AN2	LAS 90,30min	Non-directional system	dB(A)	Monthly, minimum 30 minute sample ¹
	LAS 10,30min			
	L _{Aeq} (20Hz-500Hz),30min			

Note 1: Continuous monitoring is required to recommence within 7 days, if requested by the CEO in response to a noise complaint from a member from the public. To continue until issue is resolved and approval given by the CEO.

3.4 Management actions

3.4.1 The Licence Holder is exempt from compliance with the limits specified in Table 3.4.2 if in the case of an event in Table 3.5.1:

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

Table 3.5.1: Management actions

Monitoring point reference	Event/ action reference	Event	Management action
AQ1 – AQ3	EA1	Exceedance of a limit specified in Table 3.4.2	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.

3.4.2 Where the monitored ambient noise levels required by Table 3.4.3 indicate an exceedance of an assigned level specified in Table 1, Regulation 8 of the Noise Regulations, the Licence Holder shall 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.

4 Information

4.1 Records

4.1.1 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 works conducted in accordance with Condition 1.1.2 of this Licence;
- (c) the maintenance of infrastructure required to ensure that it is kept in good working order;
- (d) monitoring undertaken in accordance with Conditions of this Licence;
- (e) complaints received under Condition 4.1.3 of this Licence.

In addition, the Books must:

- (f) be legible;
- (g) if amended, be amended in such a way that the original and subsequent amendments remain legible and are capable of retrieval;



- (h) be retained for at least 3 years from the date the Books were made; and
- (i) be available to be produced to an inspector or the CEO.

4.1.2 The Licence Holder must submit to the CEO, no later than 1 March, a Compliance Report indicating the extent to which the Licence Holder has complied with the Conditions in this Licence for the preceding Annual Period.

4.1.3 The Licence Holder shall implement a complaints management system that as a minimum records the number and details of complaints received concerning the environmental impact of the activities undertaken at the Premises and any action taken in response to the complaint.

4.2 Reporting

4.2.1 The Licence Holder must submit to the CEO, no later than 1 March, an Annual Environmental Report. The report shall contain the information listed in Table 4.2.1 in the format or form specified in that table.

Table 4.2.1: Annual Environmental Report		
Condition or table	Parameter	Format
-	Summary of any failure or malfunction of any pollution control equipment and any environmental incidents that have occurred during the annual period and any action taken	None specified
Table 2.4.1	Log of dust trigger exceedance events	
Table 3.2.1	Monitoring of point source emissions to surface water	
Table 3.4.1	Monitoring of ambient groundwater quality	
Table 3.4.2	Monitoring of ambient air quality	
Table 3.4.3	Summary of ambient noise levels, assessed against the Noise Regulations	
Table 3.5.1	Summary of exceedance events and action(s) taken	
4.1.3	Complaints summary	

4.2.2 The Licence Holder shall ensure that the Annual Environmental Report also contains an assessment of the information contained within the report against previous monitoring results and Licence limits.

4.2.3 The Licence Holder shall submit the information in Table 4.2.2 to the CEO according to the specifications in that table.

Table 4.2.2: Non-annual reporting requirements				
Condition or table	Parameter	Reporting period	Reporting date (after end of the reporting period)	Format or form
Table 3.5.1	Exceedance of a limit specified in Table 3.4.2	Quarterly	28 calendar days	None specified
3.5.2	Investigation results into an exceedance of an assigned level specified in Table 1 Regulation 8 of the Noise Regulations ¹	Not Applicable	Within 14 days of the CEOs request	

Note 1: Results should clearly demonstrate whether or not the exceedance is attributed to operations on the Premises.



4.3 Notification

4.3.1 The Licence Holder shall ensure that the parameters listed in Table 4.3.1 are notified to the CEO in accordance with the notification requirements of the table.

Table 4.3.1: Notification requirements			
Condition or table	Parameter	Notification requirement¹	Format or form²
2.1.1	Breach of any limit specified in the Licence	Part A: As soon as practicable but no later than 5pm of the next usual working day	N1
		Part B: As soon as practicable	
Table 2.6.1	Exceedance of a reporting trigger in Table 2.6.1	As soon as practicable	None specified
3.1.4	Calibration report		

Note 1: Notification requirements in the Licence shall not negate the requirement to comply with s72 of the Act.

Note 2: Forms are in Schedule 2.

Schedule 1: Maps

Premises map

The Premises boundary, location of emission points defined in Tables 2.2.1 and 2.3.1, and monitoring points are shown below (Figure 1).

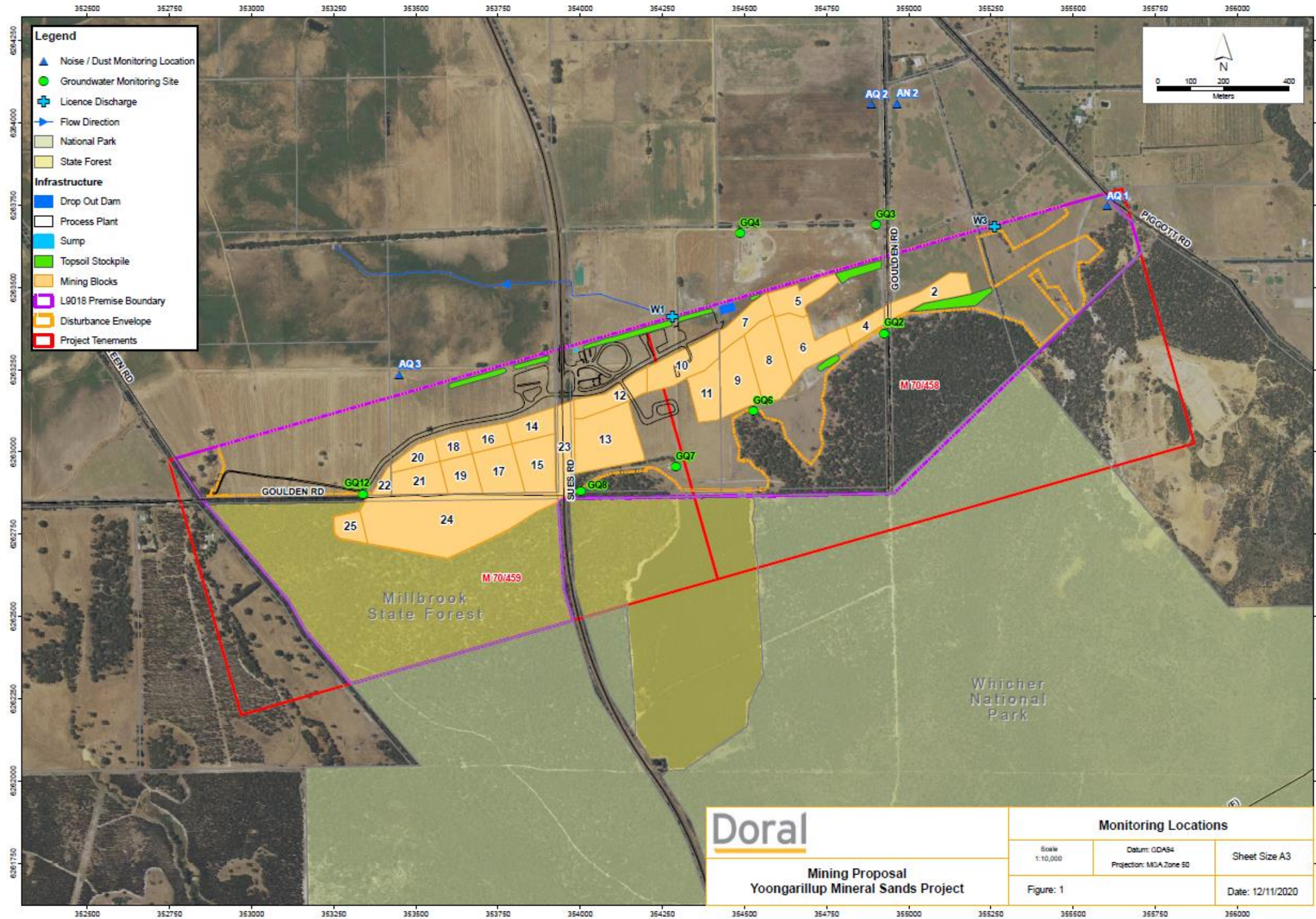


Figure 1: Map of the boundary of the prescribed premises, emission points and monitoring points



Monitoring point references

A cross reference of the monitoring point locations listed in Table 3.4.1 with corresponding Doral ID are shown below.

Groundwater monitoring point references							
Monitoring point reference	Doral ID	Coordinates (GDA94)		SWL, pH, EC, Redox	Major ions, TTA, TAlk	Radiation, metals	ACM
		y	x				
GQ2	YMB14S	6263360	354925			6 monthly	Annual
GQ3	YMB17S	6263690	354900			6 monthly	Annual
GQ4	YMB18S	6263665	354487			6 monthly	Annual
GQ5	YMB18D	6263665	354487				
GQ6	YMB04S	6263125	354527			6 monthly	Annual
GQ7	YMLB13	6262955	354291				
GQ8	YMB13S	6262880	354002				
GQ12	YMB03S	6262872	353339				

Schedule 2: Reporting & notification forms

These forms are provided for the proponent to report monitoring and other data required by the Licence. They can be requested in an electronic format.

Licence: L9018/2016/1 Licence Holder: Doral Mineral Sands Pty Ltd
 Form: N1 Date of breach:

Notification of detection of the breach of a limit.

These pages outline the information that the operator must provide.
 Units of measurement used in information supplied under Part A and B requirements shall be appropriate to the circumstances of the emission. Where appropriate, a comparison should be made of actual emissions and authorised emission limits.

Part A

Licence Number	
Name of operator	
Location of Premises	
Time and date of the detection	

Notification requirements for the breach of a limit	
Emission point reference/ source	
Parameter(s)	
Limit	
Measured value	
Date and time of monitoring	
Measures taken, or intended to be taken, to stop the emission	

Part B

Any more accurate information on the matters for notification under Part A.	
Measures taken, or intended to be taken, to prevent a recurrence of the incident.	
Measures taken, or intended to be taken, to rectify, limit or prevent any pollution of the environment which has been or may be caused by the emission.	
The dates of any previous N1 notifications for the Premises in the preceding 24 months.	

Name	
Position	
Signature on behalf of Doral Mineral Sands Pty Ltd	
Date	