Government of Western Australia
Department of Water and Environmental Regulation

Licence

Licence number	L9010/2016/1
Licence holder	Mount Morgans WA Mining Pty Ltd
ACN	612 053 291
Registered business address	Alluvion L19, 58 Mounts Bay Road Perth WA 6000
DWER file number	DER2016/002022-1
Duration	10/02/2017 to 9/02/2026
Date of issue	09/02/2017
Date of amendment	10/07/2024
Premises details	Mt Morgans Gold Project Legal Description - Mining tenements: M39/236, M39/395, M39/390, M39/272, M39/18, M39/228, M39/264, M39/304, M39/240, M39/248, L39/246, M39/441, M39/250, M39/504, M39/745, M39/403, M39/282, M39/36 and M39/1107 LAVERTON WA As defined by the premises map in Schedule 1

Prescribed premises category description (Schedule 1, *Environmental Protection Regulations 1987*)	**Assessed production / design capacity**
Category 5: Processing or beneficiation of metallic or non metallic ore	3.5 million tonnes per annual period
Category 6: Mine dewatering	1.2 million tonnes per annual period
Category 54: Sewage facility	100 kL per day
Category 57: Used tyre storage(general)	450 tyres
Category 64: Class II or III putrescible landfill site	4,500 tonnes per annual period

This amended licence is granted to the licence holder, subject to the attached conditions, on 10 July 2024 by:

Fiona Westcott

Digitally signed by Fiona Westcott
Date: 2024.07.10 12:50:30 +08'00'

A/Manager, Resources Industries
Industry Regulation (Statewide Delivery)
an officer delegated under section 20 of the *Environmental Protection Act 1986* (WA)

Contents

Introduction

This Introduction is not part of the Licence conditions.

DWER's industry licensing role

The Department of Water and Environmental Regulation (DWER) is a government department for the State of Western Australia in the portfolio of the Minister for Environment. DWER's purpose is to advise on and implement strategies for a healthy environment for the benefit of all current and future Western Australians.

DWER has responsibilities under Part V of the *Environmental Protection Act 1986* (the Act) for the licensing of prescribed premises. Through this process DWER regulates to prevent, control and abate pollution and environmental harm to conserve and protect the environment. DWER also monitors and audits compliance with works approvals and licence conditions, takes enforcement action as appropriate and develops and implements licensing and industry regulation policy.

Licence requirements

This Licence is issued under Part V of the Act. Conditions contained within the Licence relate to the prevention, reduction or control of emissions and discharges to the environment and to the monitoring and reporting of them.

Where other statutory instruments impose obligations on the Premises/Licence Holder the intention is not to replicate them in the licence conditions. You should therefore ensure that you are aware of all your statutory obligations under the Act and any other statutory instrument. Legislation can be accessed through the State Law Publisher website using the following link: http://www.slp.wa.gov.au/legislation/statutes.nsf/default.html

For your Premises relevant statutory instruments include but are not limited to obligations under the:

- *Environmental Protection (Unauthorised Discharges) Regulations 2004* – these Regulations make it an offence to discharge certain materials such as contaminated stormwater into the environment other than in the circumstances set out in the Regulations.
- *Environmental Protection (Controlled Waste) Regulations 2004* - these Regulations place obligations on you if you produce, accept, transport or dispose of controlled waste.
- *Environmental Protection (Noise) Regulations 1997* – these Regulations require noise emissions from the Premises to comply with the assigned noise levels set out in the Regulations.

You must comply with your licence. Non-compliance with your licence is an offence and strict penalties exist for those who do not comply.

Licence Holders are also reminded of the requirements of section 53 of the Act which places 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.

Licence fees
If you have a licence that is issued for more than one year, you are required to pay an annual licence fee prior to the anniversary date of issue of your licence. Non-payment of annual licence fees will result in your licence ceasing to have effect meaning that it will no longer be valid and you will need to apply for a new licence for your Premises.

Ministerial conditions
If your Premises has been assessed under Part IV of the Act you may have had conditions imposed by the Minister for Environment. You are required to comply with any conditions imposed by the Minister.

Premises description and Licence summary
The Mount Morgans Gold Project is located approximately 30 km south-west of Laverton. It is owned by Mt Morgans WA Mining Pty Ltd (MMWM), which is wholly owned subsidiary of Dacian Gold Limited (Dacian). The site has historically been operated since the 1980s by a number of companies prior to Dacian acquiring it in 2012. The site was in care and maintenance from 2011. MMWM applied for a concurrent works approval and licence for the following prescribed categories:

5 – Processing and beneficiation of metallic or non-metallic ore;
6 – Mine dewatering;
54 – Sewage facility;
65 – Class II or III landfill; and
73 – Bulk storage of chemicals.

Two mining areas within the prescribed premises were proposed. They are: Jupiter (comprising of Heffernans, Doublejay and Ganymede open pits) and Westralia (comprising of Beresford underground, Allanson underground, Morgans North open pit cutback and Transvaal underground).
The following infrastructure was constructed in stages as described by the works approval:

- Run of Mines Pads
- Processing plant
- Tailings Storage Facility (TSF)
- Water storage dams
- Workshops
- Administration offices
- Accommodation village
- Waste water treatment plants
- Putrescible landfills
- Pipelines

Category 5 – Processing or beneficiation of metallic or non-metallic ore
The processing plant consists of a carbon-in-leach processing plant with an annual production capacity of 2.5 million tonnes. The processing of the carbon-in-leach plant include crushing, grinding, a gravity circuit, carbon-in-leach circuit and a carbon stripping and goldroom circuit.

There is a hill side paddock style TSF with two cells, for the storage of tailings. The TSF is being constructed in stages using an upstream technique. Stage 1 of Cell 1 will be constructed to a maximum height of 9 m (RL 408 mAHD). Cell 2 is on the north-east side of Cell 1. Both of the cells are proposed to be raised using an upstream method of construction with two stages. Stage 2 construction (first raise of the embankments) will be 4 m height. Stage 3 comprises a 2 m raise to a final elevation of 414 mAHD.

The following table shows an overview of the TSF construction stages.

TSF Cell	Construction Stage	Embankment Crest Elevation (m RL)	Storage Capacity (Mt)
Cell 1	Stage 1 (starter)	408	2.6
	Stage 2	Up to 412	3.9
	Stage 3	414	2.3

Cell 2	Stage 1 (starter)	408	3.0
	Stage 2	412	3.7
	Stage 3	414	2.1
Total			17.6

Tailings are discharged through multiple rotating spigots on the perimeter embankment of each cell as a slurry consisting of 45%-50% solids. A decant pond forms at the centre of the cells where a central decant tower pumps the water back to the plant for re-use.

Category 6 – Mine dewatering
For mining purposes, dewatering within the site is necessary. MMWM developed a site wide water balance for water management purposes. It is expected that after water is used for dust suppression, mining purposes, or in the Jupiter process plant any excess water from the Jupiter complex will be discharged to the Mt Marven, Ganymeade, Heffernan's or Double Jay open pit via the Jupiter complex turkey's nest. Any excess water at Westralia, that cannot be used for dust suppression, mining purposes (including Craic and Transvaal underground mines) or at the Jupiter processing plant, will be discharged to five existing pits; King Street, Ramornie, Ramornie North, Sarah and Craic.

Dewatering pipelines have been constructed with the following configurations:

- Westralia open pit to Sarah, Ramornie and Ramornie North open pits;
- Westralia open pit to King Street open pit;
- Ramornie open pit to Morgans North open pit and Craic open pit;
- Craic open pit to Sarah open pit;
- Westralia operations to the processing plant;
- Double Jay, Heffernan and Ganymede open pits to the Jupiter complex turkey's nest;
- Jupiter complex turkey's nest to the processing plant;
- Mt Marven open pit to the processing plant;
- Discharge of water used in the wash-down pad back into Sarah pit (0.6 L/s). This water will be treated through an oil-water separator to reduce the hydrocarbon concentration to 15mg/L. On an annual basis, this accounts for 9% of the total pit volume.

All pipelines carrying hypersaline water will be bunded and fitted with leak detection flow meters and shut/off isolation valves.

The construction of the Westralia dewatering pipelines completed stage 1 of works approval W6008/2016/1.

Category 54 – sewage facility
MMWM initially proposed to construct two waste water treatment plants (WWTP) under works approval W6008/2016/1 granted on 3 January 2017. A WWTP would be constructed at the Westralia accommodation village, and a WWTP constructed at the Jupiter process plant and mine site.

On 12 July 2017, MMWM submitted a Compliance Report for the Westralia Accommodation village waste water treatment plant (WWTP) in accordance with the works approval. DWER reviewed the Compliance Report, reassessed the risks and amended the licence on 4 August 2017 to include the Westralia accommodation village WWTP.

The constructed Westralia WWTP has been rated for 420 people accommodated at 180 litres per person per day (75.6 kL/day). The plant consists of two 50 kL/day capacity containerised units (100 kL/day), treating sewage through a combined anoxic/aerobic suspended growth treatment process. The treated waste water is then discharged to a 3.6 Ha irrigation field. As a contingency, a 350kL HDPE lined pond has been constructed for storage of treated waste water during periods of heavy rainfall or during emergency situations for reprocessing back at the treatment plant.

Jupiter WWTP constructed on 6 February 2018 has a capacity of 7.5 kL/day (150 people at 50 L/person/day) and consists of one containerized unit, sewage is treated in a combined anoxic / aerobic suspended growth process and treated wastewater is discharged into the TSF.

The construction of the Westralia and Jupiter WWTP completes stage 3 of works approval

W6008/2016/1.

Category 64 – Class II or Class III landfill
On 25 May 2017, MMWM submitted a Compliance Report for the Westralia Class II or III putrescible landfill facility in accordance with works approval W6008/2016/1, granted on 3 January 2017. DWER reviewed the Compliance Report and amended the licence on 27 June 2017 to include the Westralia landfill.

On 5 July 2017, MMWM submitted a Compliance Report to DWER for the Jupiter Class II putrescible landfill facility in accordance with works approval W6008/2016/1, granted on 3 January 2017. The submission of this compliance report triggered this DWER initiated amendment to Licence L9010/2016/1 to include the category 64 Jupiter Class II putrescible landfill including relevant conditions/plans of licence evaluated for their emission risk at the landfill.

It is anticipated that 2,500 tonnes per year of inert waste and 2,000 tonnes per year of putrescible waste will be generated for disposal at the Westralia and Jupiter landfills.

DWER reviewed the Compliance Report and determined that the Jupiter landfill has been constructed on the North Waste Rock Dump (NWRD) consistent with the infrastructure proposed and assessed against the public health and environmental receptors determined at works approval.

The construction of the Jupiter putrescible landfill facility completes stage 2 of works approval W6008/2016/1.

MMWM are proposing to dispose of tyres in a landfill within Jupiter West Waste Rock Dump and applied for and was granted approval for a putrescible landfill at the disused “Back O Beyond” pit on 24 July 2019.

Category 57 – Used tyre storage
An inspection in February 2020 identified that there was need of a tyre storage condition to assist with tyre management across the site. 3 contractor yards were used to store tyres for the 2 mining areas and haulage; Westralia MSA Workshop (RUC), Juniper MSA Workshop (McMahon) and Surface Haulage Workshop (Merkanooka) The tyres will be temporarily stored prior to disposal within the waste rock dump at Jupiter.

Receptors
The closest human receptor to the Mt Morgans Gold Project is the Mt Margaret Community, which is located directly northwest of Jupiter and is approximately 2 km from the processing plant. The nearest point from the TSF is 900 m from the community. The nearest point from one of the haul roads is 800 m.

The premises lies within the Lake Carey catchment and this is the nearest surface water body, with the lakeshore approximately 2.5 km to the south of the Jupiter prospect. It is separated by a banded iron formation ridge, approximately 80 m high. Lake Carey may fill during occasional intense rainfall events. There are no major river systems in the vicinity of the project area but there are several ephemeral creeks which drain in a southeast direction towards Lake Carey.

MMWM submitted a Native Vegetation Clearing Permit (NVCP) to Department of Mines, Industry Regulation and Safety (DMIRS) in September 2016 which was granted in December 2016. MMWM hold a current Groundwater Well Licence [GWL169901 (5)] that approves the abstraction of up to 1.4 GL of groundwater. A Mining Proposal was submitted to the DMIRS in September 2016 and approved in December 2016.

The licences and works approvals issued for the Premises since 3 February 2017 are:

Instrument log		
Instrument	**Issued**	**Description**
W6008/2016/1	3/2/2017	Works Approval for Mt Morgan Gold Project for the following activities: -Processing

		-Dewatering -Electric power generation -Sewage facility -Putrescible landfill; and -Bulk storage of chemicals
L9010/2016/1	09/02/2017	New Licence for Stage 1 of the Works Approval - Westralia dewatering
L9010/2016/1	27/06/2017	Amend licence to include category 64 Westralia Landfill plus conditions
L9010/2016/1	04/08/2017	Amend licence to include category 54 Westralia WWTP plus conditions
L9010/2016/1	17/01/2018	Amend licence to include category 64 Jupiter Landfill plus conditions
L9010/2016/1	23/02/2018	Amend licence to include tyre landfill facility and changes to the dewatering configuration.
L9010/2016/1	27/03/2018	Amend licence to include category 5 conditions and Jupiter WWTP
L9010/2016/1	24/07/2019	Amend Licence to include category 64 'Back O Beyond' Landfill.
L9010/2016/1	26/05/2020	Amend licence to increase production capacity from 2.5 to 3.5 Mtpa, include TSF cell 2 and include Category 57.
L9010/2016/1	18/10/2021	Include height of Cell 1 to allow for discharge, pipeline construction conditions for Craic Pit to Sarah Pit and include Craic Pit as source of discharge
L9010/2016/1	21/12/2022	Amend licence to reflect current dewatering practice associated with the Jupiter Operation.
L9010/2016/1	XX/07/2024	Amend licence to authorise the operational height of TSF Cell 2 from 408 mRL to 412 mRL.

Severance

It is the intent of these Licence conditions that they shall operate so that, if a condition or a part of a condition is beyond the power of this Licence to impose, or is otherwise *ultra vires* or invalid, that condition or part of a condition shall be severed and the remainder of these conditions shall nevertheless be valid to the extent that they are within the power of this Licence to impose and are not otherwise *ultra vires* or invalid.

END OF INTRODUCTION

Licence conditions

1 General

1.1 Interpretation

1.1.1 In the Licence, definitions from the *Environmental Protection Act 1986* apply unless the contrary intention appears.

1.1.2 For the purposes of this Licence, unless the contrary intention appears:

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

'anniversary date' means 10 February in each year;

'annual period' means a 12 month period commencing from 11 February until 10 February in the following year.

'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 5667.4' means the Australian Standard AS/NZS 5667.4 *Water Quality – Sampling – Part 4: Guidance on sampling from lakes, natural and man-made;*

'AS/NZS 5667.11' means the Australian Standard AS/NZS 5667.11 *Water Quality – Sampling – Guidance on sampling of groundwater's;*

'averaging period 'means the time over which a limit is measured or a monitoring result is obtained;

'CEO' means Chief Executive Officer of the Department of Water and Environmental Regulation;

'CEO' for the purpose of correspondence means;
Chief Executive Officer
Department Administering Division 3 Part V of the Act
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 as presented by the Licence Holder or as specified by the CEO from time to time and published on the Department's website.

'DWER' means Department of Water and Environmental Regulation

As of 1 July 2017, the Department of Environment Regulation (DER), the Office of the Environmental Protection Authority (OEPA) and the Department of Water (DoW) amalgamated to form the Department of Water and Environmental Regulation (DWER). DWER was established under section 35 of the Public Sector Management Act 1994 and is responsible for the administration of the Environmental Protection Act 1986 along with other legislation.

'freeboard' means the distance between the maximum water surface elevations and the top of retaining banks or structures at their lowest point;

'Licence' means this Licence numbered L9010/2016/1 and issued under the Act;

'Licence Holder' means the person or organisation named as Licence Holder on page 1 of the 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;

'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 from1 April to 30 June, 1 July to 30 September, 1 October to 31 December and in the following year, 1 January to 31 March;

'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

'usual working day' means 0800 – 1700 hours, Monday to Friday excluding public holidays in Western Australia;

'WRL' means Waste Rock Landform.

1.1.3 Any reference to an Australian or other standard in the Licence means the relevant parts of the standard in force from time to time during the term of this Licence.

1.1.4 Any reference to a guideline or code of practice in the Licence means the current version of that guideline or code of practice, and shall include any amendments or replacements to that guideline or code of practice made during the term of this Licence.

1.2 Premises operation

1.2.1 The Licence Holder must ensure that all pipelines containing acid or alkaline water, saline water, cyanide, process liquors, or tailings are either:
- (a) equipped with telemetry systems and pressure sensors along pipelines to allow the detection of leaks and failures; or
- (b) equipped with automatic cut-outs in the event of a pipe failure; or
- (c) provided with secondary containment sufficient to contain any spill for a period equal to the time between inspections.

1.2.2 The Licence Holder must:
- (a) undertake inspections as detailed in Table 1.2.1;
- (b) where any inspection identifies that an appropriate level of environmental protection is not being maintained, take corrective action to mitigate adverse environmental consequences; and
- (c) maintain a written log of all inspections undertaken, with each inspection signed off by the responsible person.

Table 1.2.1: Inspection of infrastructure

Scope of inspection	Type of inspection	Frequency of inspection (during operation)	Frequency of inspection (during non-operation)
Mine dewater pipelines	Visual check of pipeline integrity (entire length of pipelines).	12 hourly	Weekly
Tailings pipelines			
Return water lines			
TSF embankment freeboard	Visual check to confirm required freeboard (500 mm) capacity is available		Weekly (Daily during and after rainfall periods)
Oil-water separator	To be inspected and cleaned to ensure it is operating effectively.	Quarterly	Quarterly
Jupiter WWTP	Visual check of WWTP associated infrastructure and pipeline integrity	Daily	Weekly

W2 – Westralia Village WWTP	Visual check of WWTP associated infrastructure and pipeline integrity	Daily	Weekly

1.2.3 The Licence Holder must ensure that tailings, decant water or waste water are only discharged into containment cells and ponds with the relevant infrastructure requirements and at the locations specified in Table 1.2.2.

Table 1.2.2: Containment Infrastructure

Containment point reference	Material	Infrastructure requirements
W2 - Westralia Village WWTP Contingency Pond	Treated wastewater	350 kL capacity, high density HDPE lined with 0.5 m freeboard. The pond will recycle wastewater back to the treatment plant.
Jupiter WWTP	Treated wastewater	Activated Sludge Bioreactor Plant WWTP consists of one containerised unit, treating waste water through a combined anoxic / aerobic suspended growth treatment process, discharging to TSF with a 7.5 kL capacity.
TSF Cell 1 and TSF Cell 2	Tailings	Lined with in-situ clay to a permeability of 2.6 x 10^{-8} m/s limit seepage to groundwater. Embankments not higher than 412 m RL at TSF Cell 2 and 411.5 m RL at TSF Cell 1 when discharge is occurring.
Process water pond	Return water	Lined with HDPE.
Jupiter turkeys nest	Mine dewater	Storage Capacity of 3,500 m^3 Lined with HDPE.

1.2.4 The Licence Holder must manage containment cells and ponds in Table 1.2.2 such that top of embankment freeboard of 500 mm or a 1 in 100 year/72 hour storm event (whichever is greater) is maintained.

1.2.5 The Licence Holder must manage TSF Cell 1 and TSF Cell 2 such that:
(a) a seepage collection and recovery system is provided and used to capture seepage from the TSF; and
(b) seepage is returned to the TSF or re-used in process.

1.2.6 The Licence Holder must undertake an annual assessment of vegetation within the zone of influence of the TSF. The assessment shall:
(a) photograph and record the presence and condition of key vegetation features within the zone of influence;
(b) compare the results of the assessment against previous years assessments and identify whether any deterioration in the presence and/or quality of vegetation has taken place; and
(c) be undertaken by a person qualified in vegetation identification and sampling.

1.2.7 The Licence Holder must undertake monitoring of the water balance for TSF Cell 1 and Cell 2 each monthly period, and (as a minimum) record the following information:
(a) site rainfall;
(b) evaporation;
(c) decant water recovery volumes;
(d) seepage recovery volumes;
(e) volumes of tailings deposited; and
(f) estimate of seepage losses.

1.2.8 The Licence Holder must ensure that wastes accepted onto the landfill are only subjected to the process(es) set out in Table 1.2.3 and in accordance with any process limits described in that Table.

Table 1.2.3: Waste processing

Waste type	Process(es)	Process limits[1, 2, 3]
Inert Waste Type 1 Putrescible waste Clean Fill Inert Waste Type 2 (Tyres)	Disposal of waste by landfilling	All waste types • Disposal of waste by landfilling shall only take place within the Westralia, 'Back 'O Beyond' pit, Jupiter landfill and Tyre landfill areas shown on the Landfill Area Maps in Schedule 1; • No waste shall be temporarily stored or landfilled within 35 metres of the boundary of the premises; and • The separation distance between the base of the landfill and the highest groundwater level shall not be less than 2 m.
Used tyre storage	Storage	• Storage of tyres shall only take place within the Westralia MSA Workshop, Juniper MSA Workshop or Surface Haulage Workshop; • Not more than 400 tyres shall be stored at the premises at any one time; • Used tyre stacks shall not exceed 60 m^2 in area and 3.7 metres in height; • Used tyres must be stacked on their side walls or if stored on their treads, area baled with a securing device made from a non-combustible material; • Tyre stacks are not less than 2.5 m from any other tyre stacks; • Piles of 4 stacks shall not be less than 18 m from other piles; • Firefighting equipment stored onsite is capable of controlling and extinguishing a tyre fire; and • Water and other liquid waste that may result from the fighting of tyre fires, is captured by bunding to prevent that waste entering the environment.

Note 1: Requirements for landfilling tyres are set out in Part 6 of the *Environmental Protection Regulations 1987*.
Note 2: Additional requirements for the acceptance and landfilling of controlled waste (including asbestos and tyres) are set out in the *Environmental Protection (Controlled Waste) Regulations 2004*.
Note 3: Additional details on storage of tyres are set out in DFES Guidance Note: GN02: Bulk storage of rubber tyres including shredded and crumbed tyres (DFES November 2019).

1.2.9 The Licence Holder must ensure that cover is applied and maintained on landfilled wastes in accordance with Table 1.2.4 and that sufficient stockpiles of cover are maintained on site at all times.

Table 1.2.4: Cover requirements[1]

Waste Type	Cover requirements
Putrescible wastes	To be covered by the end of the month in which the waste was deposited with sufficient quantities of Type 1 inert waste, clean fill or other appropriate cover material to prevent the spread of fire and harbouring of disease vectors.
Inert Waste Type 1	No cover required
Tyres	To be covered in batches separated from each other by at least 100 mm of soil and each consisting of not more than 1,000 whole tyres; and Final soil cover of not less than 500 mm of soil.

Note 1: Additional requirements for final cover of tyres are set out in Part 6 of the *Environmental Protection Regulations 1987.*

1.2.10 The Licence Holder must design, construct, and install a groundwater monitoring bore in accordance with the requirements specified in Table 1.2.5.

Table 1.2.5: Infrastructure requirements – groundwater monitoring bore

Infrastructure	Design, construction, and installation requirements	Monitoring bore location
TSF MB7	<u>Bore design and construction:</u> Designed and constructed in accordance with *ASTM D5092/D5092M-16: Standard practice for design and installation of groundwater monitoring bores*. Bore screens must target the part, or parts, of the aquifer most likely to be affected by contamination[1]. Where temporary/seasonal perched features are present, bore must be nested, and the perched features individually screened.	As depicted in Schedule 1: Map of TSF monitoring bore locations.
	<u>Logging of borehole:</u> Soil samples must be collected and logged during the installation of the monitoring bore. A record of the geology encountered during drilling must be described and classified in accordance with the Australian Standard Geotechnical Site Investigations AS1726. Any observations of staining / odours or other indications of contamination must be included in the bore log.	
	<u>Bore construction log:</u> Bore construction details must be documented within a bore construction log to demonstrate compliance with *ASTM D5092/D5092M-16*. The construction logs shall include elevations of the top of casing position to be used as the reference point for water-level measurements, and the elevations of the ground surface protective installations.	
	<u>Bore development:</u> Monitoring bore must be developed after drilling to remove fine sand, silt, clay and any drilling mud residues from around the bore screen to ensure the hydraulic functioning of the bore. A detailed record should be kept of bore development activities and included in the bore construction log.	
	<u>Installation survey:</u> The vertical (top of casing) and horizontal position of each monitoring bore must be surveyed and subsequently mapped by a suitably qualified surveyor.	
	<u>Bore network map:</u> A bore location map (using aerial image overlay) must be prepared and include the location of all monitoring bores in the monitoring network and their respective identification numbers.	

Note 1: refer to Section 8 of Schedule B2 of the *Assessment of Site Contamination NEPM* for guidance on bore screen depth and length.

1.2.11 The Licence Holder must, within 60 calendar days of the monitoring bore being constructed, submit to the CEO a bore construction report evidencing compliance with the requirements of condition 1.2.10.

2 Emissions

2.1 Point source emissions to groundwater

2.1.1 The Licence Holder must ensure that where waste is emitted to groundwater from the emission points in Table 2.1.1 [and identified on the map of emission points in Schedule 1] it is done so in accordance with the conditions of this Licence.

Table 2.1.1: Emission points to groundwater

Emission point reference	Description	Source including abatement
Sarah, Ramornie and Ramornie North open pits	Mine dewater	Westralia open pit, Transvaal open pit and wash-down pad.
King Street open pit		
Morgans North open pit and Craic open pit		Ramornie open pit
Sarah		Transvaal and Craic Underground Mine
Sarah pit	Wash-down bay wastewater – up to 5,000 L per day	Wastewater from LV and HV wash-down bay located at Westralia Mine Service Area
Ganymede open pit Heffernan open pits Double Jay open pit	Mine dewater	Double Jay open pit Heffernans open pit Ganymede open pit Mt Marvin open pit
	Mine dewater via a turkeys nest	Mt Marven open pit

2.2 Emissions to land

2.2.1 The Licence Holder must ensure that where waste is emitted to land from the emission point 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: Emissions to land

Emission point reference	Description	Source including abatement
IRF1 – Westralia Accommodation Village irrigation field.	3.6 ha irrigation field	Treated wastewater from the Westralia accommodation village WWTP.

2.2.2 The Licence Holder must not cause or allow point source emissions to Westralia WWTP irrigation field greater than the limits listed in Table 2.2.2.

Table 2.2.2: Point source emission limits to land

Emission point reference	Parameter	Limit (including units)	Averaging period
W1 and W2	BOD	30 kg/ha/day	Monthly cumulative for annual period
	Total N	480 kg/ha/yr	
	Total P	120 kg/ha/yr	

2.3 Fugitive emissions

2.3.1 The Licence Holder must ensure that dust is managed in accordance with the requirements specified in Table 2.3.1

Table 2.3.1: Fugitive emissions

Description	Operation requirements
Water carts/sprays and/or use of dust suppressants other than water	Shall operate when visible dust is generated from ground surfaces on the Premises; Shall operate proactively on haul roads subject to weather forecasting over a 24-hour period.

Cessation of activities	Cease an activity causing visible dust lift-off where dust management measures have not prevented dust lift-off and there is a risk of dust affecting sensitive receptors.
Vehicles and mining equipment	Adhere to all on-site speed limits; Water sprays or other appropriate methods to be used to suppress wheel-generated dust.
Management response to dust trigger exceedance	In the event the trigger level is reached based on the real time monitoring requirement by condition 3.5.2, and the exceedance is confirmed as attributable to activities on the premises, management measures (such as use of water cart/sprays or, if necessary, temporary cessation of the dust generating activity) are to be promptly employed to control the dust to prevent further exceedance of the trigger value.
Continuous improvement	The Licence Holder shall continuously improve site dust management through identification of dust sources and implementing improved dust controls.

3 Monitoring

3.1 General monitoring

3.1.1 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 laboratory samples are submitted to and tested by a laboratory with current NATA accreditation for the parameters being measured.

3.1.2 The Licence Holder must ensure that:
(a) monthly monitoring is undertaken at least 15 days apart;
(b) quarterly monitoring is undertaken at least 45 days apart;
(c) six-monthly monitoring is undertaken at least 5 months apart; and
(d) annual monitoring is undertaken at least 9 months apart.

3.1.3 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.

3.1.4 The Licence Holder must, 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 groundwater

3.2.1 The Licence Holder must 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 groundwater

Emission point reference	Parameter	Units	Limit	Frequency (during operation)	Frequency (during non-operation)
Sarah, Ramornie and Ramornie North open pits King Street open pit	Volumetric flow rate	kL	-	Monthly	Quarterly
	Freeboard	metres below crest level	5	Monthly	Monthly

Morgans North open pit and Craic open pit Transvaal open pit Ganymede open pit[2] Heffernan open pit[2]	pH[1]	-	-	Quarterly	Quarterly
	Total dissolved solids (TDS)	mg/L	-		
Sarah	Hydrocarbons	mg/L	15 mg/L	Monthly	

Note 1: in-field non NATA accredited analysis permitted
Note 2: pH, TDS can be measured from Jupiter turkey nest, freeboard must be measured at each pit.

3.3 Monitoring of emissions to land

3.3.1 The Licence Holder must undertake the monitoring in Table 3.3.1 according to the specifications in that table.

Table 3.3.1: Monitoring of emissions to land

Monitoring point reference and location	Parameter	Units	Limits	Averaging period	Frequency (during operation)	Frequency (during non-operation)
W1 (Effluent from Westralia WWTP)	Volumetric flow rate (cumulative)	L/s M^3/day kL/day	100 kL/day	Monthly	Continuous	Continuous
W1 (Effluent from Westralia WWTP) and W2 (Effluent from contingency pond spillway when operational)	*E.coli*	cfu/100 mL		Spot sample	Six monthly	Six monthly
	pH[1]	N/A		Spot sample	Monthly	
	Biochemical Oxygen Demand	mg/L				
	Total Nitrogen					
	Total Phosphorus					
	Total Suspended Solids					
	Total Dissolved Solids					
	Ammonium-nitrogen					
	Nitrate+nitrate-nitrogen					

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

3.4 Process monitoring

3.4.1 The Licence Holder must undertake the monitoring in Table 3.4.1 according to the specifications in that table.

Table 3.4.1: Process monitoring					
Process description	**Parameter**	**Units**	**Frequency (during operation)**	**Frequency (during non operation)**	**Method**
Tailings deposition	Volumes of tailings deposited into the TSF	tonnes	Continuous	Continuous	None specified
	Volumes of water recovered from the TSF	kL			
	Volumes of seepage recovered and reused in the process plant	kL			
[2]TSF Cell 1 – decant pond and [2]TSF Cell 2 – decant pond	Total dissolved solids[1]	mg/L	Quarterly	Quarterly	AS/NZS 5667.1
	WAD Cyanide				

Note 1: In-field non-NATA accredited analysis permitted.
Note 2: Monitoring is not required if decant pond is dry.

3.5 Ambient environmental quality monitoring

3.5.1 The Licence Holder must undertake groundwater monitoring:
(a) at the locations specified in Column 1 of Table 3.5.1;
(b) or the parameters specified in Column 2 of Table 3.5.1;
(c) in the units specified in Column 5 of Table 3.5.1;
(d) over the averaging period specified in Column 6 of Table 3.5.1 and
(e) with the frequency specified in Column 7 of Table 3.5.1.

Table 3.5.1: Monitoring of ambient groundwater						
Column 1	**Column 2**	**Column 3**	**Column 4**	**Column 5**	**Column 6**	**Column 7**
Monitoring point reference and location	**Parameter**	**Trigger**	**Limit**	**Units**	**Averaging period**	**Frequency**
Monitoring bore TSF MB1	Standing water level[1]	6	4	meters below ground level (mbgl)	Spot sample	Monthly
Monitoring bore TSF MB2 and TSF MB3		0.5	0			
Monitoring bore TSF MB4		4	2			
Monitoring bore TSF MB5 and TSF MB6		1.5	1			
Monitoring bore TSFAB02		-	-			
Monitoring bore TSF MB7		-	-			
Monitoring bores:	pH[1]	-	-	-	Spot	Quarterly

TSF MB1, TSF MB2, TSF MB3, TSF MB4, TSF MB5, TSF MB6, TSFAB02 and TSF MB7	Total dissolved solids[1]	-	-	mg/L	sample	
	WAD Cyanide	0.5	-	mg/L		
	Arsenic	-	-	mg/L		
	Antimony					
	Cadmium					
	Chromium					
	Cobalt					
	Copper					
	Iron					
	Lead					
	Manganese					
	Mercury					
	Nickel					
	Selenium					
	Sulfate					
	Zinc					
	Thallium					

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

3.5.2 The Licence Holder must, in the event of a parameter in Column 2 of Table 3.5.1 exceeding the corresponding trigger values specified in Column 3 of Table 3.5.1, prepare and implement effective management of groundwater mounding in the vicinity of the TSF Cell 1 and TSF Cell 2 to reduce groundwater levels below the corresponding trigger value. Management measures must include but not be limited to the installation of fit-for purpose[1] groundwater recovery bores.

Note 1: Monitoring bores should be kept separate from groundwater recovery to ensure continuity and reliability of monitoring data. Conversion of monitoring bores into recovery bores will therefore not be accepted.

3.5.3 The Licence Holder must ensure that a parameter in Column 2 of Table 3.5.1 does not exceed the limit specified in Column 4 of Table 3.5.1 when monitored in accordance with condition 3.5.1.

3.5.4 The Licence Holder must undertake the monitoring in Table 3.5.2 according to the specifications in that table and record and investigate results that do not meet any limit specified.

Table 3.5.2: Monitoring of airborne dust

Monitoring point	Parameter	Limit	Units	Sampling duration	Applicable standards
Located to measure airborne dust exposure levels at the Mt Margaret Community	PM_{10}	50	$\mu g/m^3$	24 hours	Monitoring methods: AS 3580.9.8, AS 3580.9.11, or AS 3580.9.6 Siting: AS 3580.1.1

3.5.5 The Licence Holder is exempt from the compliance with the limit specified in Table 3.5.2 if in the case of an event in Table 3.5.3:
(a) the corresponding management action is taken; and
(b) there is sufficient evidence to demonstrate that the exceedance is not attributed to the operations on the Premises.

Table 3.5.3: Management actions – airborne dust		
Monitoring point	**Event**	**Management action**
Located to measure airborne dust exposure levels at the Mt Margaret Community	Exceedance of a limit specified in Table 3.5.2	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.

3.6 Monitoring of inputs and outputs

3.6.1 The Licence Holder must undertake the monitoring in Table 3.6.1 according to the specifications in that table.

Table 3.6.1: Monitoring of inputs and outputs					
Input/Output	**Monitoring point reference**	**Parameter**	**Units**	**Averaging period**	**Frequency**
Sewage plant – Effluent Flow	Flow meter at W1	Volumetric flow rate (cumulative)	m^3/day	Monthly	Continuous
Waste Inputs	N/A	Inert Waste Type 1, Inert Waste Type 2 (including tyres)	m^3 (where no weighbridge is present)	Annual	Each load arriving at the Premises
Waste Outputs	N/A	Waste type as defined in the Landfill Definitions			Each load leaving or rejected from the Premises

4 Information

4.1 Records

4.1.1 All information and records required by the Licence must:
(a) be legible;
(b) if amended, be amended in such a way that the original and subsequent amendments remain legible or are capable of retrieval;
(c) except for records listed in 4.1.1(d) be retained for at least 6 years from the date the records were made or until the expiry of the Licence or any subsequent licence; and
(d) for those following records, be retained until the expiry of the Licence and any subsequent licence:
(i) off-site environmental effects; or
(ii) matters which affect the condition of the land or waters.

4.1.2 The Licence Holder must submit to the CEO within 90 days after the Anniversary Date, a Compliance Report indicating the extent to which the Licence Holder has complied with the Conditions in this Licence for the annual period.

4.1.3 The Licence Holder must 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 an Annual Environmental Report within 60 calendar days after the end of the annual period. 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 (if relevant)	**Parameter**	**Format or form**
-	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
1.2.6	Assessment of vegetation	None specified
1.2.7	Water balance for the TSF	None specified
3.2.1	Monitoring of point source emissions to groundwater	None specified
3.3.1	Monitoring of point source emissions to land	None Specified
3.4.1	Process monitoring	None Specified
3.5.1	Ambient environmental quality monitoring	None Specified
3.5.2	Actions in response to exceedance of groundwater level action criteria	None Specified
3.5.4	Monitoring of airborne dust	None Specified
3.6.1	Monitoring of inputs and outputs	None specified
4.1.3	Complaints summary	None specified

4.2.2 The Licence Holder must ensure that the Annual Environmental Report also contains:
(a) any relevant process, production or operational data; and
(b) an assessment of the information contained within the report against previous monitoring results and Licence limits.

4.2.3 The Licence Holder must 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 (if relevant)	**Parameter**	**Reporting period**	**Reporting date (after end of the reporting period)**	**Format or form[1]**
-	Copies of original monitoring reports submitted to the Licence Holder by third parties	Not Applicable	Within 14 days of the CEOs request	As received by the Licence Holder from third parties

4.3 Notification

4.3.1 The Licence Holder must 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 (if relevant)	**Parameter**	**Notification requirement[1]**	**Format or form[2]**
3.5.1	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. Part B: As soon as practicable	N1

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

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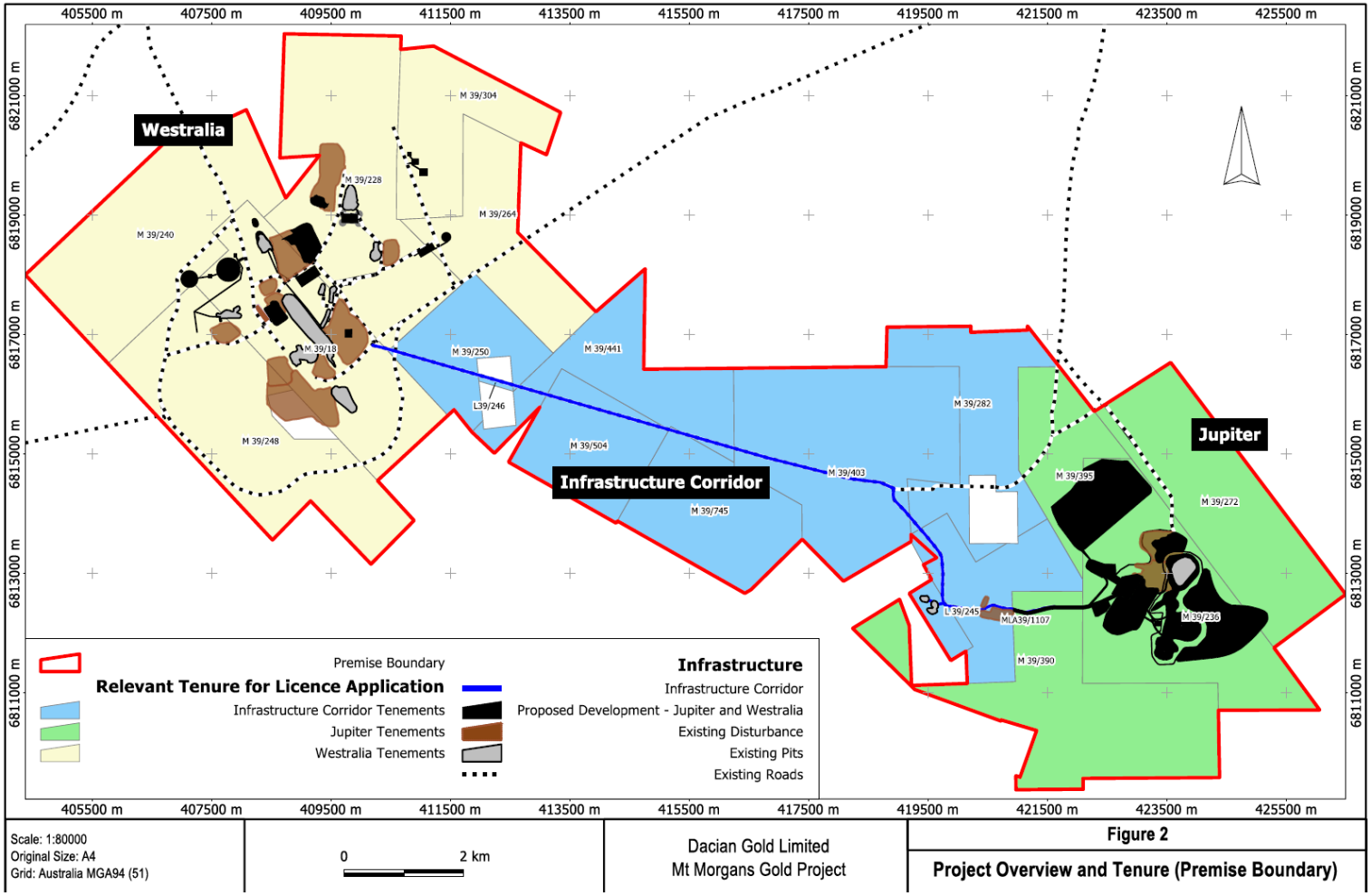
Schedule 1: Maps

Premises map

The Premises is shown in the map below. The red line depicts the Premises boundary.



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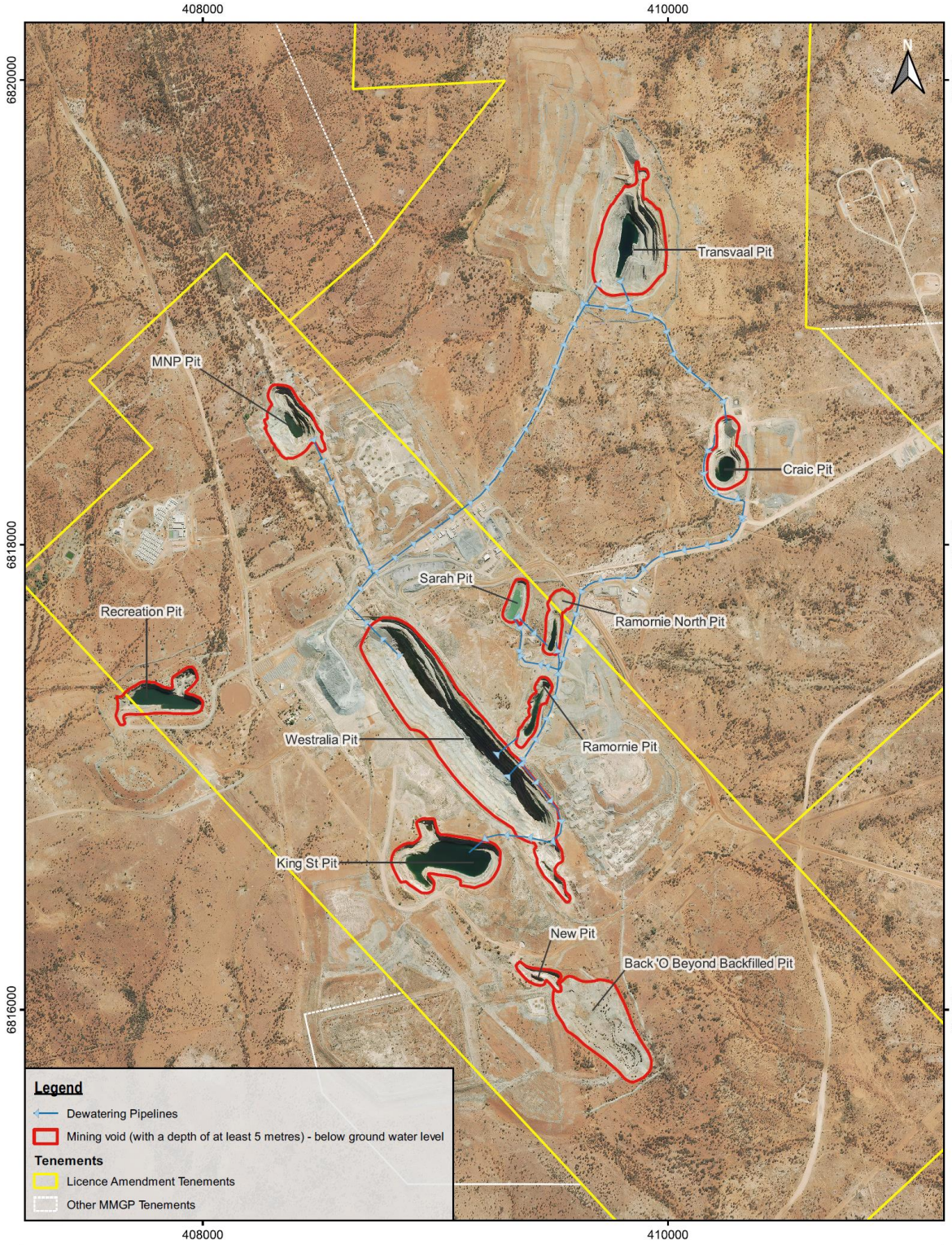
Map of emission points

The locations of the emission points Sarah, Ramornie, Ramornie North, King Street, Morgans North and Craic open pit defined in Table 2.1.1 are shown below.



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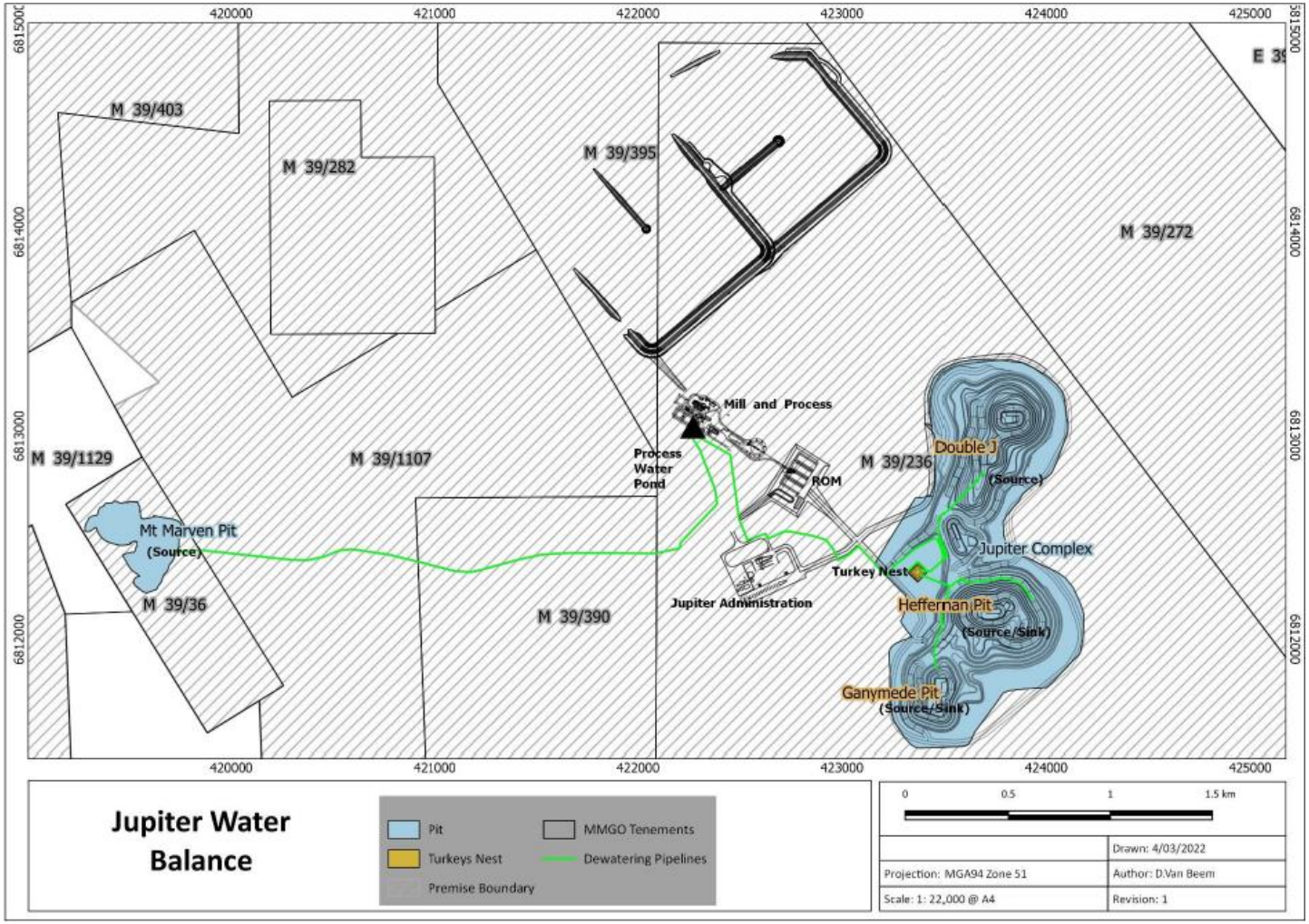
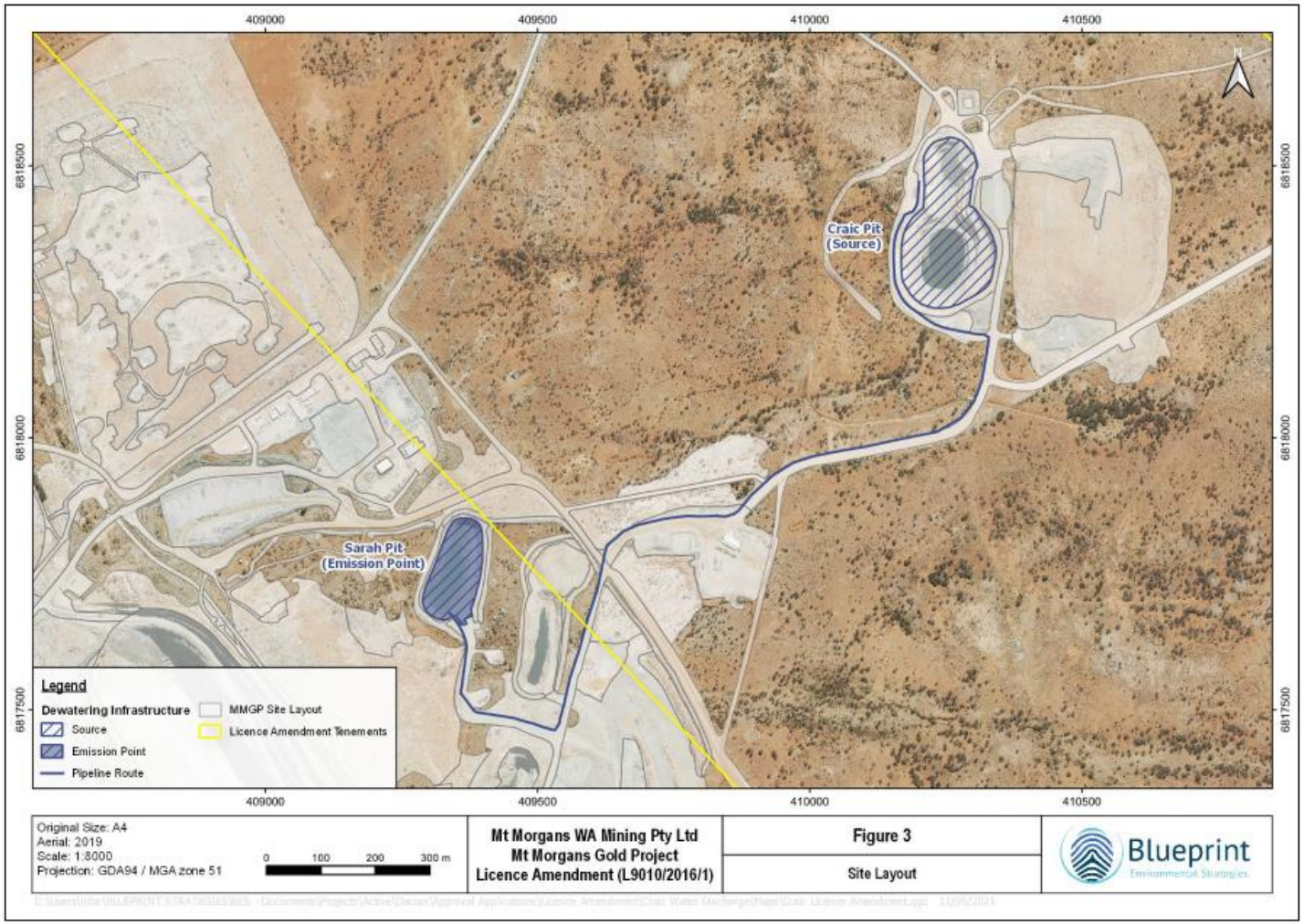
Map of emission points



Map of emission points

The locations of the emission point Sarah Pit and dewatering pipeline from Craic Pit as defined in Table 1.2.5 are shown below.



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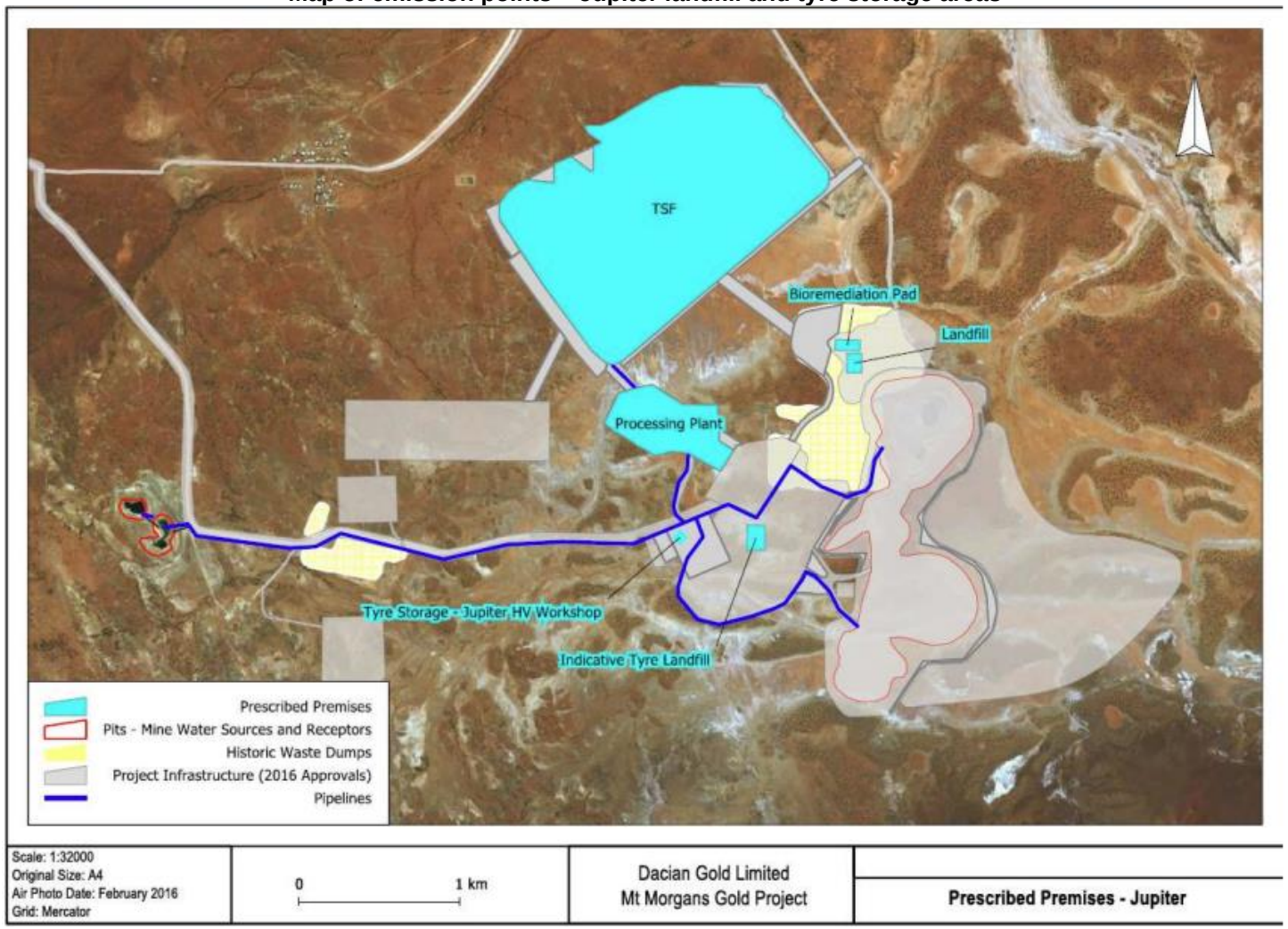
Map of emission points – Jupiter landfill and tyre storage areas



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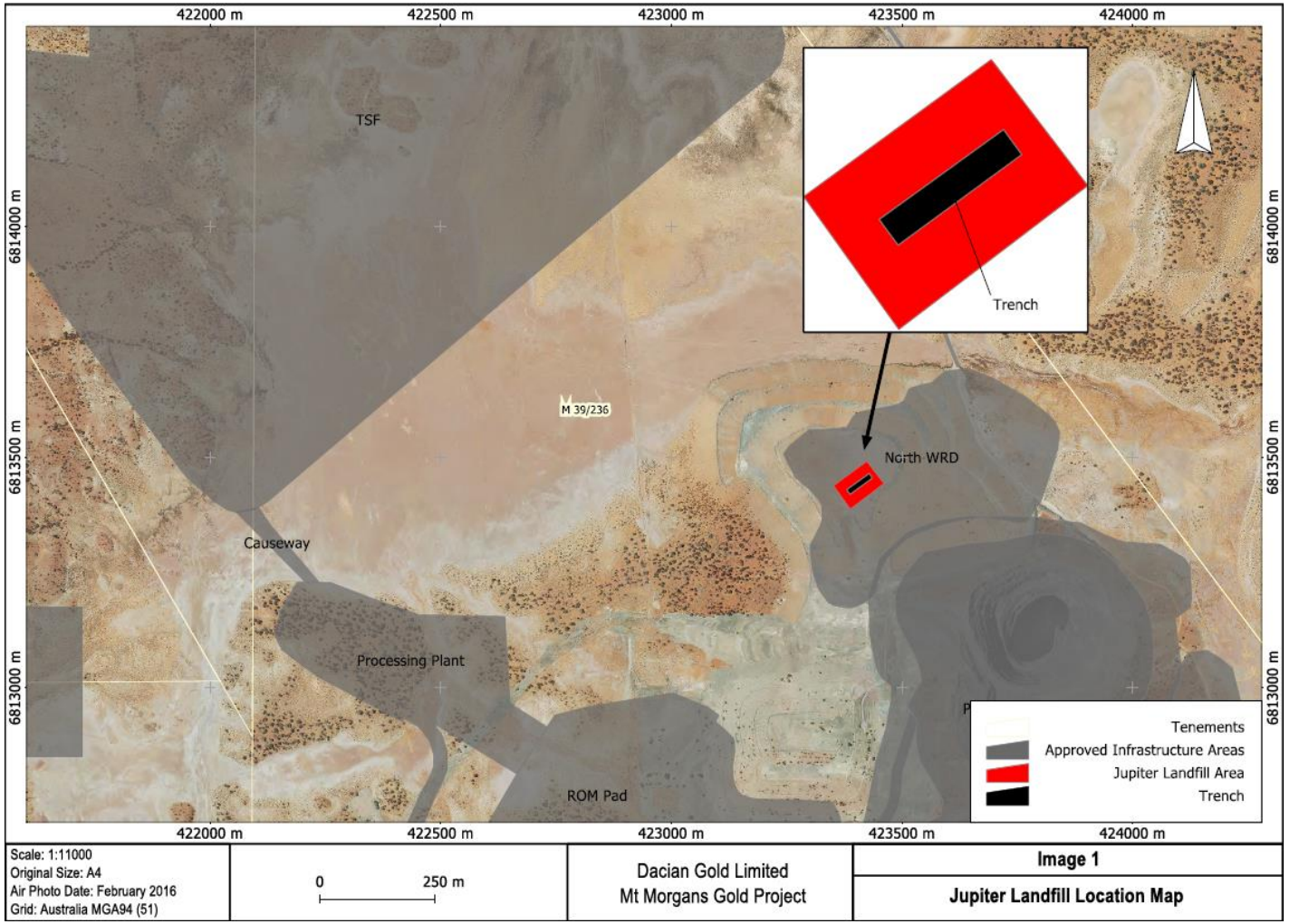
Map of emission points – Landfill Areas Maps

The Jupiter landfill location is depicted by the red area on the map below.



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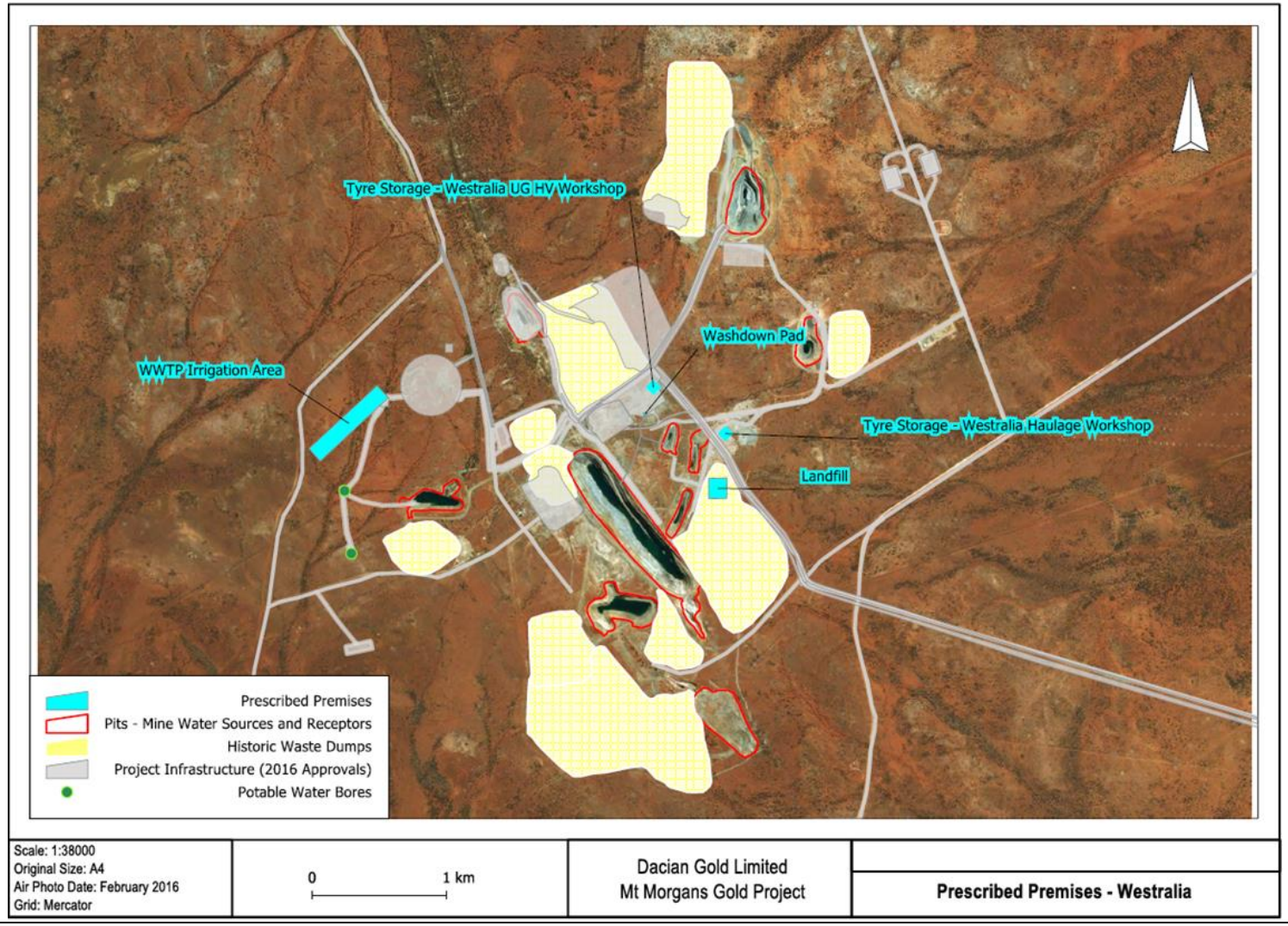
Map of emission points – Westralia landfill and tyre storage areas



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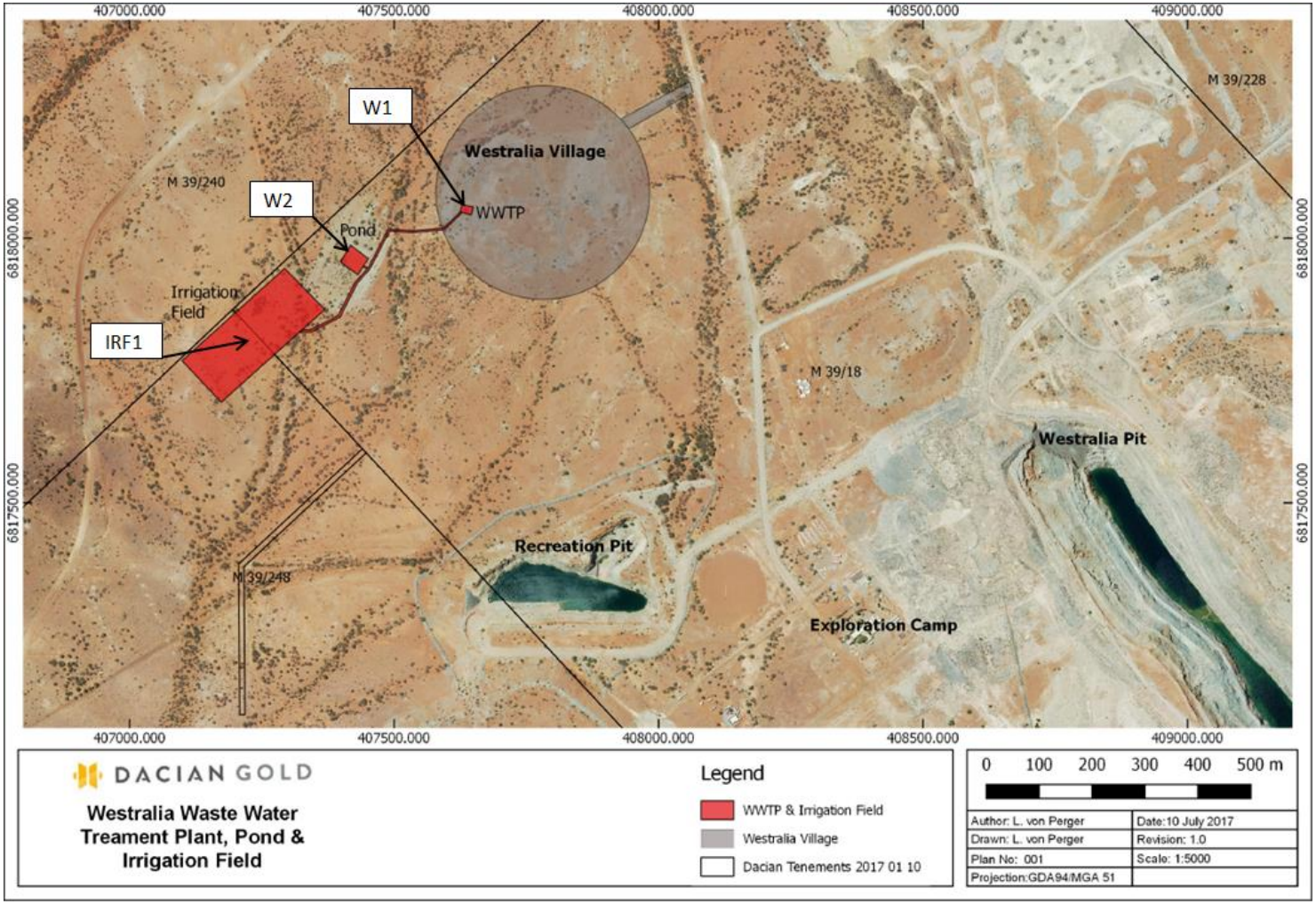
Map of emission points

The locations of the emission points defined in Table 2.2.1 are shown below. (IRF1)



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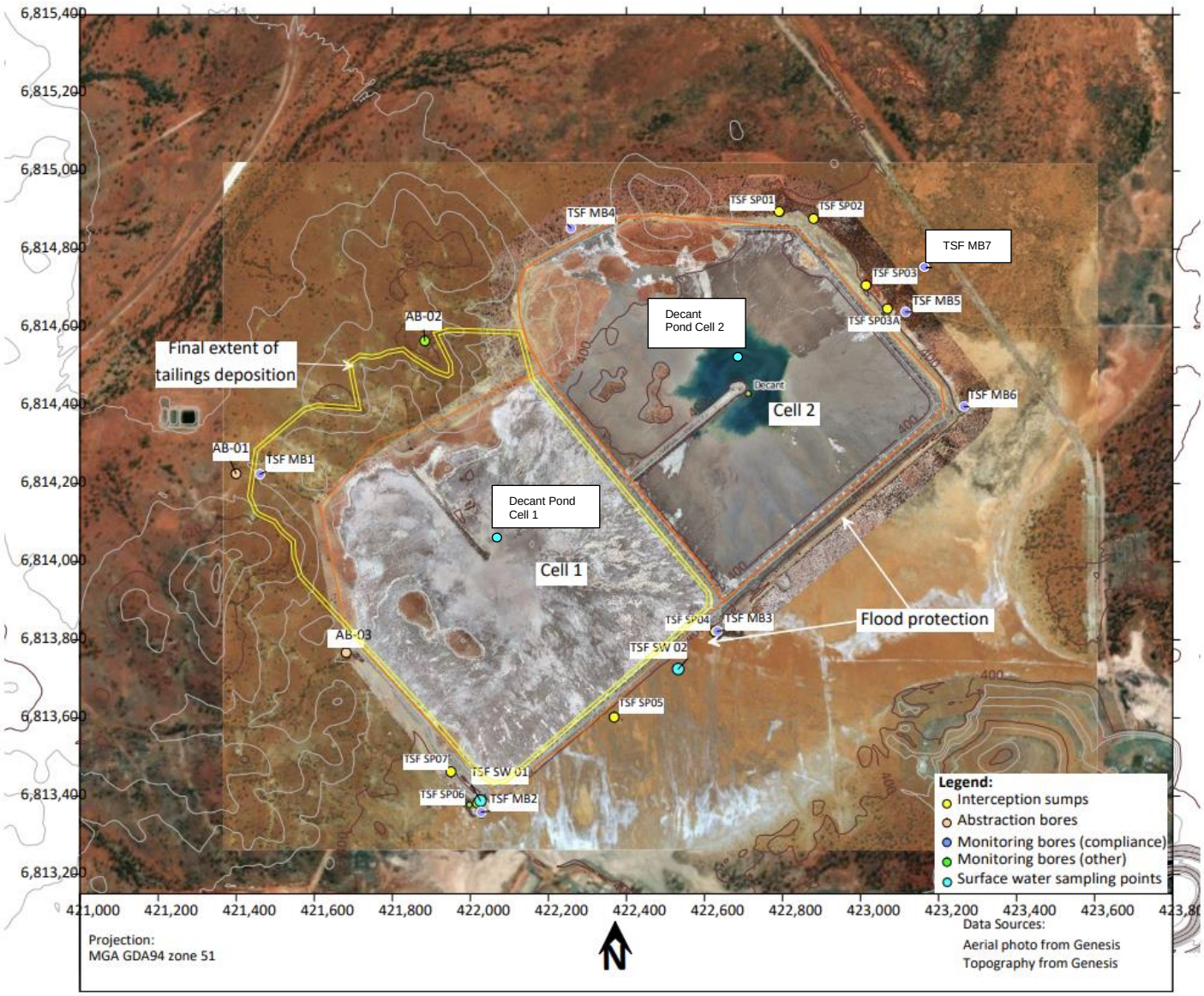
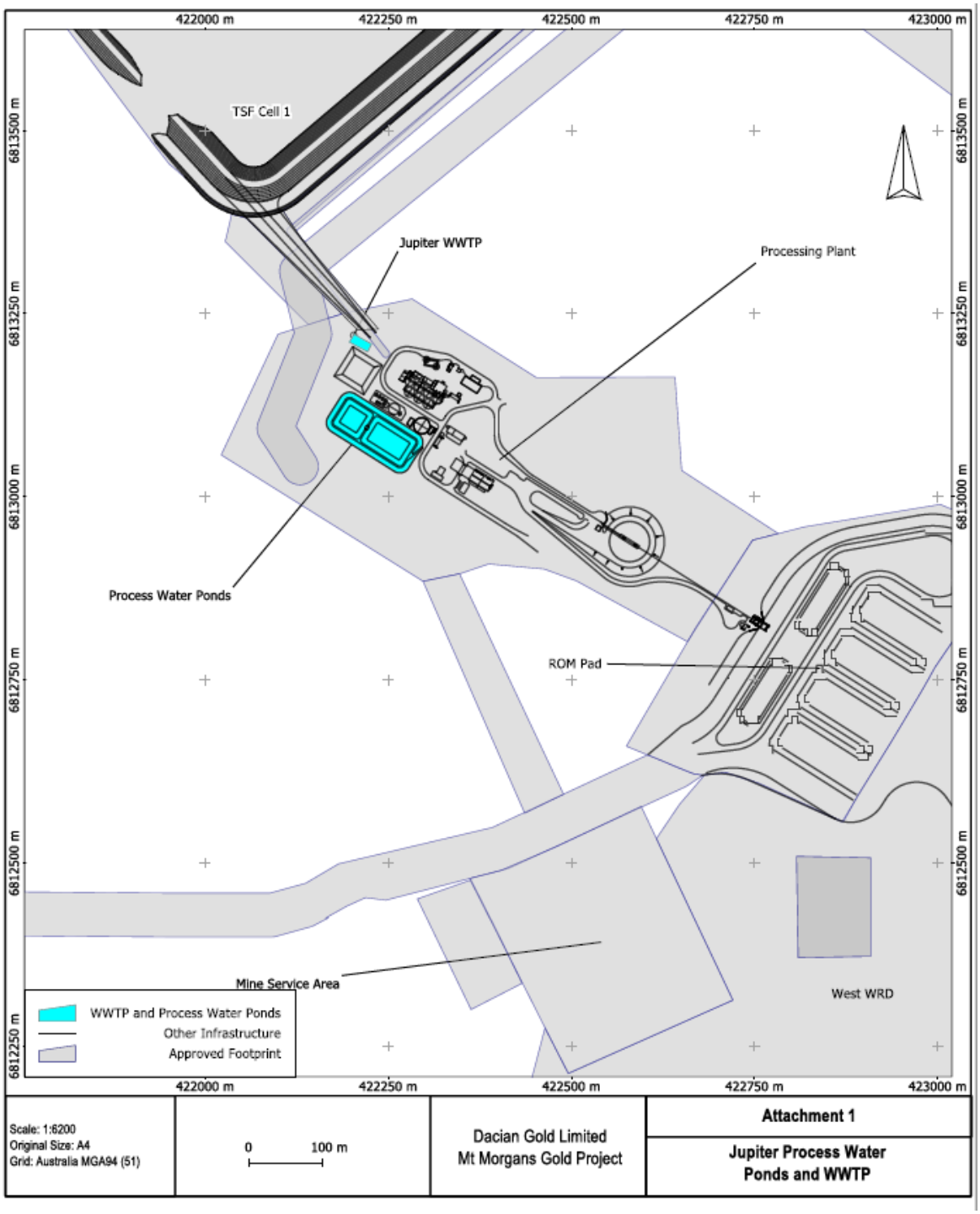
Map of emission points

TSF Monitoring bore locations– TSF MB1, MB2, MB3, MB4, MB5, MB6, MB7 & AB02



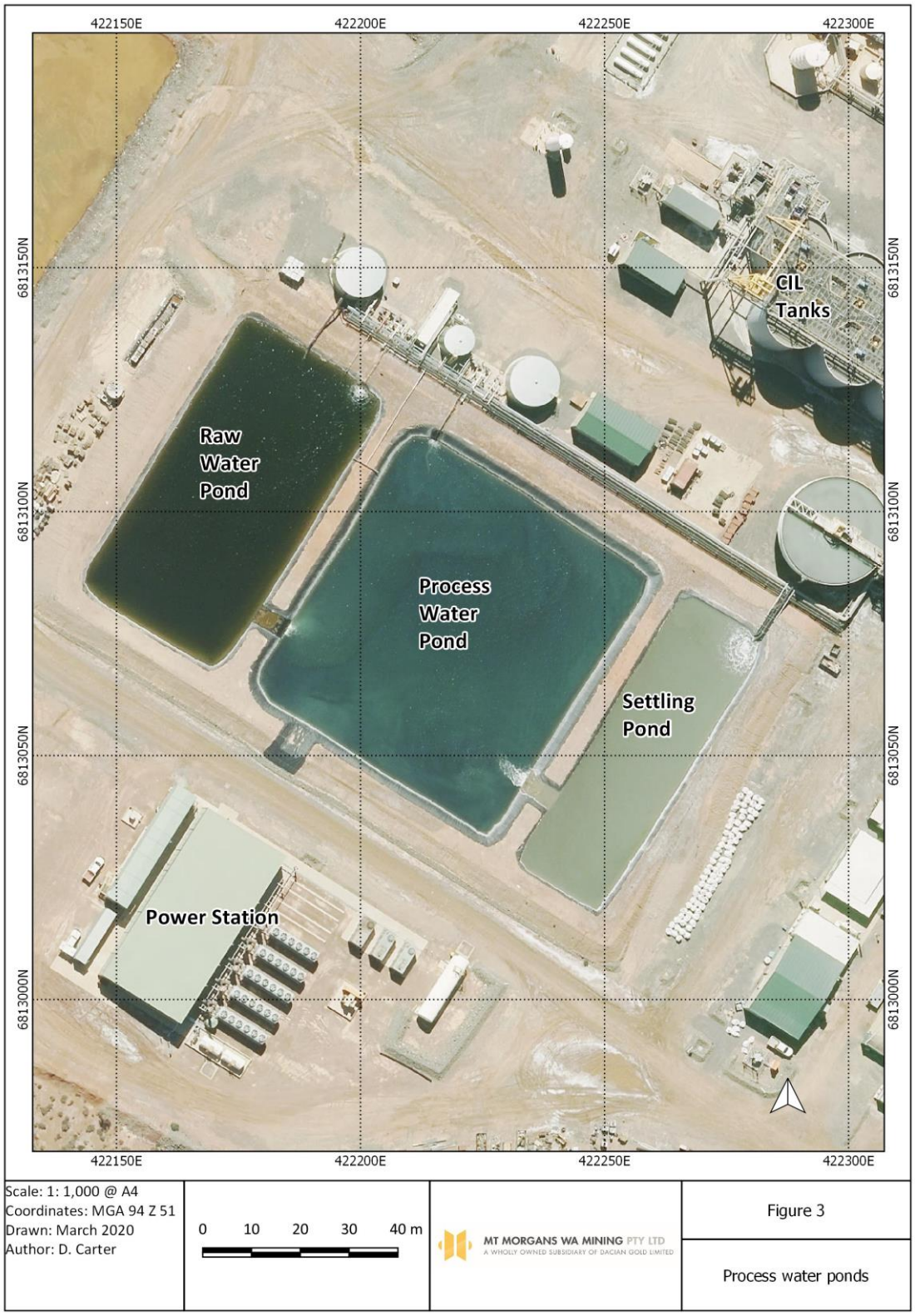
Map of emission points

Jupiter WWTP



Map of emission points

Process Water Ponds



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Schedule 2: Reporting & notification forms

Licence: L9010/2016/1 Licence Holder: Mt Morgans WA Mining 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	L9010/2016/1
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	

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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	
Post	
Signature on behalf of Mt Morgans WA Mining Pty Ltd	
Date	