Government of Western Australia
Department of Water and Environmental Regulation

Amendment Notice 2

Licence Number	L5529/1988/12
Licensee	Mt Magnet Gold Pty Ltd
ACN	008 669 556
File Number:	2013/003855 and DER2016/001228
Premises	Mt Magnet Gold M58/30, M58/121, M58/136, M58/172, M58/181, M58/185, M58/187, M58/191, M 58/193, M58/202, M 58/205 and M58/234. MOUNT MAGNET WA 6638
Date of Amendment	**18/09/2017**

Amendment

The Chief Executive Officer (CEO) of the Department of Water and Environmental Regulation (DWER) has amended the above Licence in accordance with section 59 of the *Environmental Protection Act 1986* as set out in this Amendment Notice. This Amendment Notice constitutes written notice of the amendment in accordance with section 59B(9) of the EP Act.

Date signed: 18 September 2017

Alana Kidd

Manager Licensing - Resource Industries

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

Definitions and interpretation

Definitions

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

Table 1: Definitions

Term	Definition
ACN	Australian Company Number
AER	Annual Environmental Report
AACR	Annual Audit Compliance Report
AHD	Australian Height Datum
Category/ Categories/ Cat.	categories of Prescribed Premises as set out in Schedule 1 of the EP Regulations
Decision Report	refers to this document
Delegated Officer	an officer under section 20 of the EP Act
DER	Department of Environment Regulation (former) (from 1 July 2017 DER is part of the Department of Water and Environmental Regulation – see https://publicsector.wa.gov.au/public-administration/machinery-government/2017-machinery-government-changes for further details)
DWER	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.
EP Act	*Environmental Protection Act 1986* (WA)
GCMP Project	Galaxy-Cosmos Multi Pit Project
km	kilometre
Licensee	Mt Magnet Gold Pty Ltd
L/sec	Litres per second
m	metre
mbc	metres below collar of bore
mbgl	metres below ground level

MMG	Mt Magnet Gold Pty Ltd
PDWSA	Public Drinking Water Source Area
Prescribed Premises	has the same meaning given to that term under the EP Act.
Premises	refers to the premises to which this Decision Report applies, as specified at the front of this Decision Report.
PDWSA	Public Drinking Water Source Area
Risk Event	as described in *Guidance Statement: Risk Assessment*
RIWI Act	*Rights in Water and Irrigation Act 1914*
TDS	Total Dissolved Solids

Amendment Notice

This amendment is made pursuant to section 59 of the *Environmental Protection Act 1986* (EP Act) to amend the licence L5529/1988/12 issued under the EP Act for a prescribed premises as set out below. This notice of amendment is given under section 59B(9) of the EP Act.

This notice is limited only to an amendment for category 6 activities, and a change to the due date for submission of the Annual Environmental Report (AER). No changes to the aspects of the Licence relating to categories 5 or 64 have been requested by the Licensee.

The following guidance statements have informed the decision made on this amendment:

- *Guidance Statement: Setting Conditions* (October 2015)
- *Guidance Statement: Decision Making* (February 2017)
- *Guidance Statement: Risk Assessment* (February 2017)
- *Guidance Statement: Environmental Siting* (November 2016)

Amendment background and description

The Licensee, Mt Magnet Gold Pty Ltd (MMG) operates the Mt Magnet Gold mine. Further to current mining activities at the site, which currently focuses on a collection of open pits known as the Galaxy Project Area, MMG proposes to develop and mine pits in what is known as the Cosmos Area.

On 7 August 2017, MMG submitted an application to DWER for an amendment to Licence L5529/1988/12 to include dewatering of the Cosmos area pits: Stellar; Stellar West; Milky Way; and Shannon pits.

The dewater will be discharged via pipeline to Franks Tower pit and on to Ruby Queen Pit for temporary storage before being pumped to the Checker salt water dam for reuse in the process plant. A small amount of dewater will also be transferred to the Cosmos turkeys nest for dust suppression.

Both the Checker salt water dam and Cosmos turkeys nest are lined with High Density Polyethylene (HDPE) and hence are not considered dewater emission points.

The location of the pits and dewater pipeline network is shown in Figure 1 below.

The Licensee has requested the premises boundary to be extended to include additional mining tenements M58/30, M58/136, M58/172, M58/181, M58/185, M58/187, M58/191, M58/202 and M58/234 to include the Cosmos area dewatering activities.

The Licensee has estimated that the category 6 dewatering throughput capacity will increase from 500,000 to 660,000 tonnes per annual period due to the dewatering of the additional pits. Table 2 below outlines the proposed changes to the Licence's approved throughput.

Table 2: Proposed design or throughput capacity changes

Category	Current design or throughput capacity	Proposed design or throughput capacity
6	500,000 tonnes per annual period	660,000 tonnes per annual period

The Licensee also requested a change to the due date for submission of the Annual Environmental Report (AER).

It is noted that DWER is currently reviewing groundwater data for the premises. Should further actions, or groundwater bores be required to be added to the licence, this will be done at a later date via a DWER initiated licence amendment.

Other approvals

The Licensee has provided the following information relating to other approvals as outlined in Table 3.

Table 3: Relevant approvals

Legislation	Number	Approval
Mining Act 1978	Reg. ID 64904	13 June 2017
Rights in Water and Irrigation Act 1914 (RIWI Act)	GWL151513(7) addendum	23/08/2017 Approval for abstraction of groundwater from Stellar, Stellar West, Milky Way, Franks Tower and Ruby Queen pits.

Amendment history

Table 4 provides the instrument history for L5529/1988/12.

Table 4: Instrument Log

Instrument	Issued	Description
W4695/2010/1	30/8/2010	Works Approval for the dewatering of pits.
L5529/1988/11	10/9/2010	Licence re-issue
L5529/1988/11	07/02/2013	Licence amendment. Company name change and removal of condition referencing a dust management plan.
W5385/2013/1	08/08/2013	Tailings storage facility embankment lift.
L5529/1988/11	17/10/2013	Licence amendment following partial compliance with W4695/2010/1.
L5529/1988/11	09/01/2014	Licence amendment following partial compliance with W4695/2010/1.
L5529/1988/12	03/09/2015	Licence reissue
L5529/1988/12	16/06/2016	Licence amendment for the removal of an obsolete groundwater monitoring bore and the replacement with new groundwater monitoring bores, update of Schedule 1 maps, change landfill category from 89 to 64 as a result of an increase in the throughput from 5,000 tpa to 10,000 tpa, and correction of monitoring reference in Table 3.4.1.

L5529/1988/12 Amendment Notice 1	30/06/2017	Amendment Notice for the discharge of mine dewatering to Ruby Queen and Saturn Pits.
L5529/1988/12 Amendment Notice 2	18/09/2017	Amendment Notice to include dewatering of Stellar, Stellar West, Milky Way and Shannon Pits, discharging via Frank Tower Pit and Ruby Queen Pit to Checker salt water dam. Premise boundary extended. AER submission dates aligned with the AACR.

Location and receptors

Table 5 below lists the relevant sensitive land uses in the vicinity of the Prescribed Premises which may be receptors relevant to the proposed amendment.

Table 5: Receptors and distance from activity boundary

Residential and sensitive premises	Distance from Prescribed Premises
Town of Mt Magnet	Approximately 5 kilometres (km) east of the Cosmos–Galaxy pits and 3.6 km south east of the Ruby Queen pit.

Table 6 below lists the relevant environmental receptors in the vicinity of the Prescribed Premises which may be receptors relevant to the proposed amendment.

Table 6: Environmental receptors and distance from activity boundary

Environmental receptors	Distance from Prescribed Premises
Minor tributary of the Salt River	A minor tributary runs through the Premises from the north to the south. A number of minor non-perennial watercourses run from the premises with a constructed diversion around the northern part of the tailings storage facility and bunds at pits. The Salt River is located 20 km away.
(RIWI Act) Groundwater Area	The premises is located on the East Murchison Groundwater Area.
Groundwater - Public Drinking Water Source Areas (PDWSA)	The nearest PDWSAs are the Mount Magnet Water Reserves and Town Water supply bores – Genga (Prority1 and Priority 2); and Lennonville (Priority 1). The Genga P1 area is 3.4 km south-southwest of Franks Tower pit; and 8 km southwest of Ruby Queen pit. The Genga P2 area is 2 km west of Franks Tower pit; 5km west of Ruby Queen pit; and 900- 1,000 m west of Stella West Stella and Shannon pits/pipelines. Figure 2 below shows the location of proposed dewatering and activities in relation to the PDWSAs.
	The Mount Magnet Water Reserve Drinking Water Source Protection Plan "*provides a basis for establishing planning and land use management strategies within the Water Reserve at Mt Magnet. Proclaiming water reserves under the Country Areas Water Supply Act 1947 (CAWSA) enables DoE to control potentially polluting activities, regulate land use, inspect premises and take steps to prevent or clean up pollution in accordance with the CAWSA By-laws*" (DoE, 2005). Parameters of nitrate, Total Dissolved Solids (TDS) and arsenic have been found to be slightly elevated within the borefield. *"Nitrate levels are naturally high in the area possibly due to nitrogen fixing vegetation". "The Water Corporation has been granted an exemption from the Department of Health for meeting this guideline"* (DoE,

	2005). *'Distance and local hydrogeology, including the presence of an iron banding barrier, are thought to limit the ability of open pit water infiltrating and reaching the Borefield'* (DoE, 2005). The Water Corporation is currently administering the Murchison program, an $8 million program to improve water quality in Cue, Meekatharra, Mt Magnet and Sandstone, with a delivery date of 2017–18. These regions have naturally occurring underlying rock conditions that affect the quality of drinking water sourced from local bores. Water in these towns may be affected by salinity, hardness, magnesium, nitrates and silica in the groundwater.
Groundwater bores – privately owned	The nearest privately owned bore (use unknown) is 2.0 km away in a westerly direction from the Ruby Queen pit (DWER GIS WIN groundwater sites). The nearest livestock watering groundwater bore is located 1.8 km away from Franks Tower pit (DWER GIS WIN groundwater sites).
Groundwater	Depth to groundwater ranges considerably across the premises. The groundwater monitoring bores that are listed on the licence surrounding the Checkers TSF range between 4.25 – 31.8 mbgl (although influenced from seepage of the TSF). The depth to groundwater at the Ruby Queen Pit is estimated at 30 mbgl. The Ruby Queen pit has a depth of 27 metres so there is an estimated separation distance of 3 metres between the base of the pit and groundwater. However this was based on monitoring conducted in 1989 and due to seasonal variations, the water table could possibly have risen allowing for pit water to interact with groundwater. Bores FT2, W18 and W9, in the vicinity of the Cosmos pits and dewater pipelines recorded water levels (mbc) ranging from 19.4 to 50.2 m during the June 2015 – June 2017 period. (For bore locations refer to Figure 3).

Meteorology

Rainfall patterns are highly variable, with large variations from year to year. Evaporation is seasonal with very high rates in summer. In March 2006, 24 hour totals of 91.4 mm and 96.4 mm were recorded (MWES, 2017).

Hydrogeology

The multi pit project is located in the Meekathara-Wydgee Greenstone Belt comprising basalts, schists, amphibolite gabbro, serpentinite and several dipping chert and banded iron formations. Groundwater occurs mainly in fractures and joints. There are several main fault systems that exert a major control of movement of groundwater (MWES, 2017).

MWES (2017) states that groundwater aquifers in the area are known to be low permeability. An MWES water balance study in 2015 confirmed historical low groundwater inflow rates at all studied pits. MWES concluded that "*if any groundwater outflows from pits did occur they will have minor and only localized impact on the groundwater environment, and are very unlikely to impact the Genga Bore field".* Figure 2 below shows groundwater levels and contours in mAHD at June 2017. MWES concluded by a water balance study that after closure, all pits will remain groundwater sinks, due to the combination of high evaporation, low rainfall and low to moderate groundwater yield (MWES, 2017).

Groundwater Quality

A comparison of the discharge water quality from Stellar, Milky Way and Shannon pits, with Franks Tower pit and Ruby Queen Pit from water quality sampling is presented in Table 7 below. No water quality data is available for Stellar West pit as it has not been previously mined.

Water quality sampled in 2017 within Stellar, Milky Way, Shannon and Frank Tower pits is generally brackish to moderately saline with neutral pH and low in heavy metals. Milky Way and Shannon pits recorded nitrate levels of 33 and 43 mg/L respectively.

Water quality in Ruby Queen pit is variable and reflects the inputs from a number of different sources, (Lou Ann and St George Shafts and production bore WTHB001 (at the St George/Water Tank Hill mining area), but is generally moderately saline, neutral pH, low in heavy metals, and elevated levels of nitrate (46 mg/L).

Table 7: Water quality sampling of pits - results

Parameter	Stellar 18/06/2017	Milky Way 17/06/2017	Shannon 4/12/2015	Franks Tower 10/08/2017	Ruby Queen 18/06/2017
pH	7.9	8.2	8.7	8.2	8.1
Electrical conductivity µS/cm	150	3,200	1,600	13,000	8,800
Total Dissolved Solids (TDS) mg/L	91	2,000	900	7,800	5,400
Total Suspended Solids (TSS) mg/L	<5	12	<5	10	<5
Nitrate as NO3 mg/L	2.3	43	33	11	46
Nitrite as NO2 mg/L	<0.5	<1	<0.5	<5	<2.5
Ammonia as N mg/L	2.0	0.010	0.015	<0.005	0.19
Phosphate as P mg/L	<0.005	<0.005	<0.005		<0.005
Calcium mg/L	9.4	100	39	200	190
Potassium mg/L	3.6	18	15	49	27
Magnesium mg/L	7.9	98	43	200	190
Sodium mg/L	51	340	260	2,100	1,600
Hardness as CaCO3 mg/L	56	660	270	1,300	1,300
Chloride mg/L	27	770	270	2,700	2,300
Sulfate mg/L	9	78	59	130	640
Aluminum mg/L	<0.01	<0.01	0.01	0.01	<0.01
Silver mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Arsenic mg/L	<0.001	0.003	0.002	0.008	0.007
Boron mg/L	0.1	0.87	0.91	1.3	1.9

Bismuth mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Cadmium mg/L	<0.0001	<0.0001	<0.0001	<0.0001	0.0003
Cobalt mg/L	<0.001	<0.001	<0.001	<0.001	0.005
Dissolved Chromium (VI) mg/L	<0.005	0.13	0.013	<0.005	<0.005
Copper mg/L	0.001	<0.001	<0.001	<0.001	0.001
Iron mg/L	<0.01	<0.01	<0.01	<0.001	<0.01
Mercury mg/L	<0.0005	<0.00005	<0.0005	<0.00005	<0.00005
Manganese mg/L	<0.005	<0.005	<0.005	<0.005	0.058
Molybdenum mg/L	<0.001	0.004	0.004	0.018	0.032
Nickel mg/L	0.002	<0.001	<0.001	<0.001	0.018
Lead mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Selenium mg/L	<0.001	<0.001	<0.001	0.003	0.006
Zinc mg/L	0.001	0.003	<0.001	0.003	0.004
Total CN mg/L					<0.004*
WAD-CN mg/L					<0.004*

* Value from 08/02/2017

Water Balance Modelling

Franks Tower and Ruby Queen pits will be used as staging nodes in the dewatering network (i.e. temporary storage of mine dewatering discharges). Prevention of pit inundation by drain or creek flow is primarily by pit bunds.

Franks Tower pit

Franks Tower pit provides large storage capacity for the short term rainfall variations. Based on water modelling by MWES (2017) the projected water transfer to Franks Tower pit will be in the range of 1,200 – 1,800 m^3/day (maximum 21 L/sec). Franks Tower pit will contribute groundwater only when contribution from other pits is low and hence maximum pump requirements will remain at 21 L/sec. A 2 m freeboard will be maintained to prevent overtopping in extreme weather event.

Ruby Queen pit

Ruby Queen currently accepts water from Lou Ann and St George Shafts, production bore WTHB001 (at the St George/Water Tank Hill mining area), and the St George and Water Tank Hill underground workings.

With additional water transferred from the Cosmos pits via Franks Tower Pit, water modelling by MWES (2017), calculates that the average total dewater transfer to Ruby Queen pit will be 3,500 – 4,100 m^3/day (41 - 48 L/sec) which is a net increase in current volumes. A 2 m freeboard will be maintained to prevent overtopping in extreme weather event.

Figure 1: Cosmos pits dewatering overview map

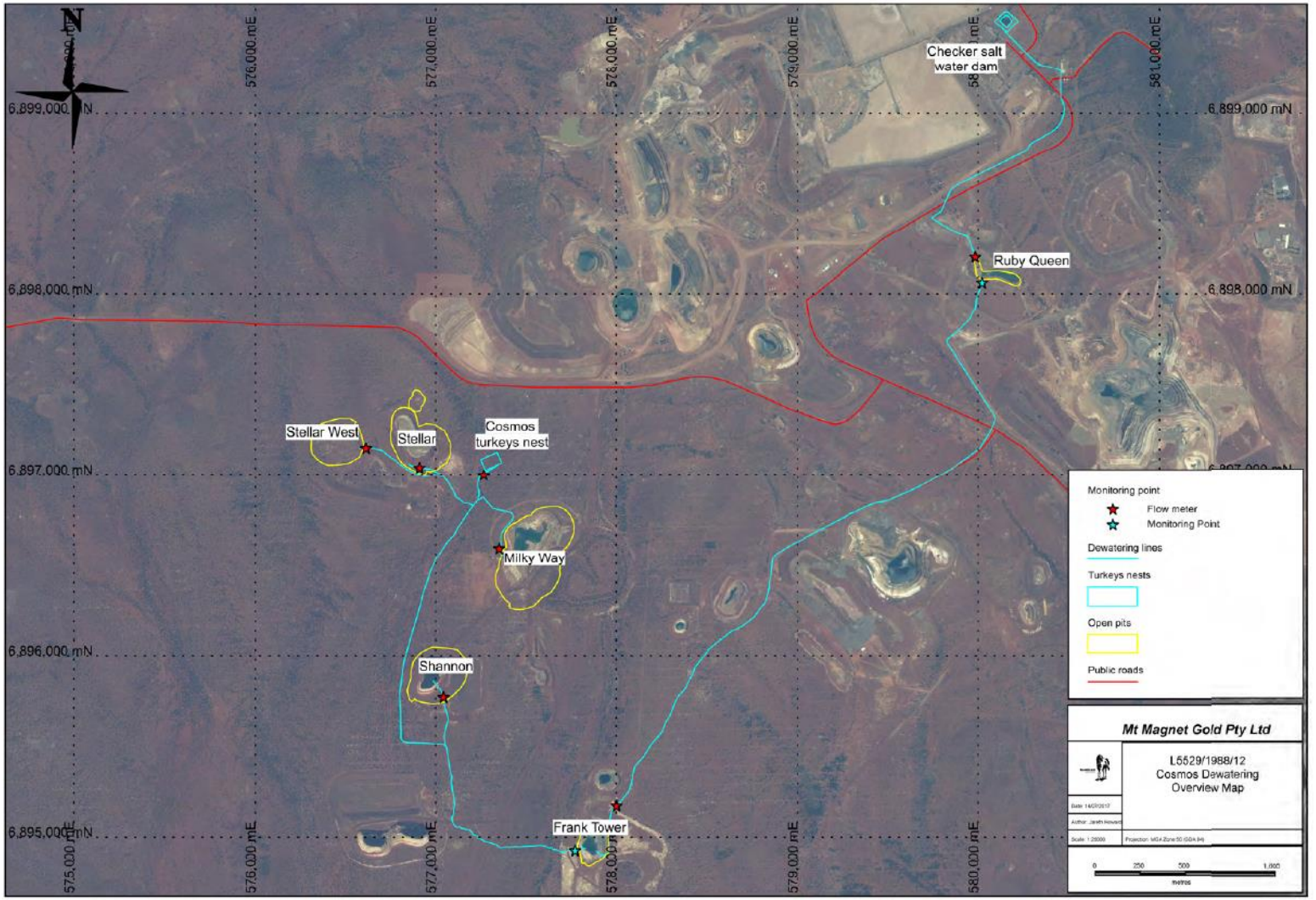


Figure 2: Location of PDWSAs and pits, with creek lines

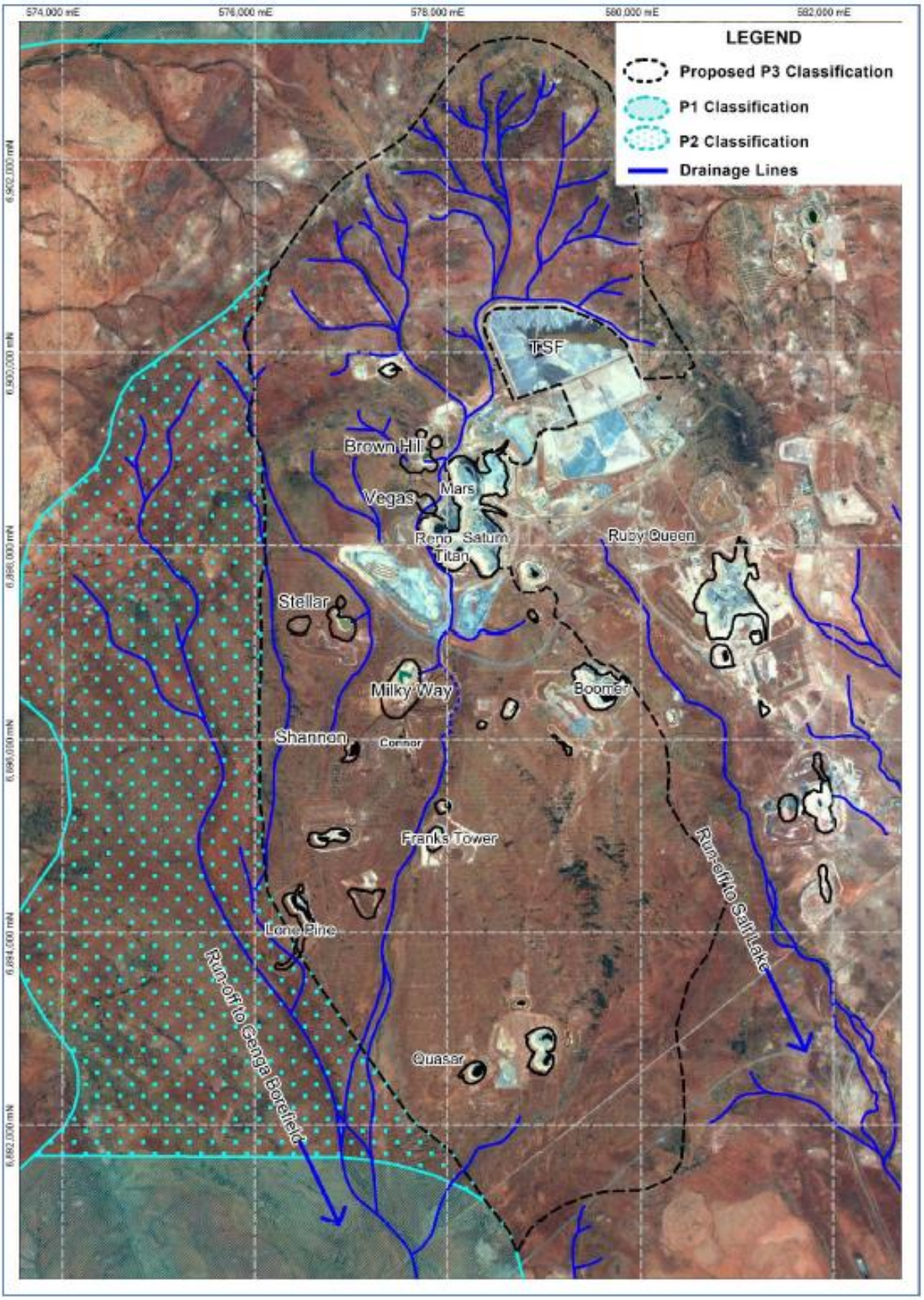
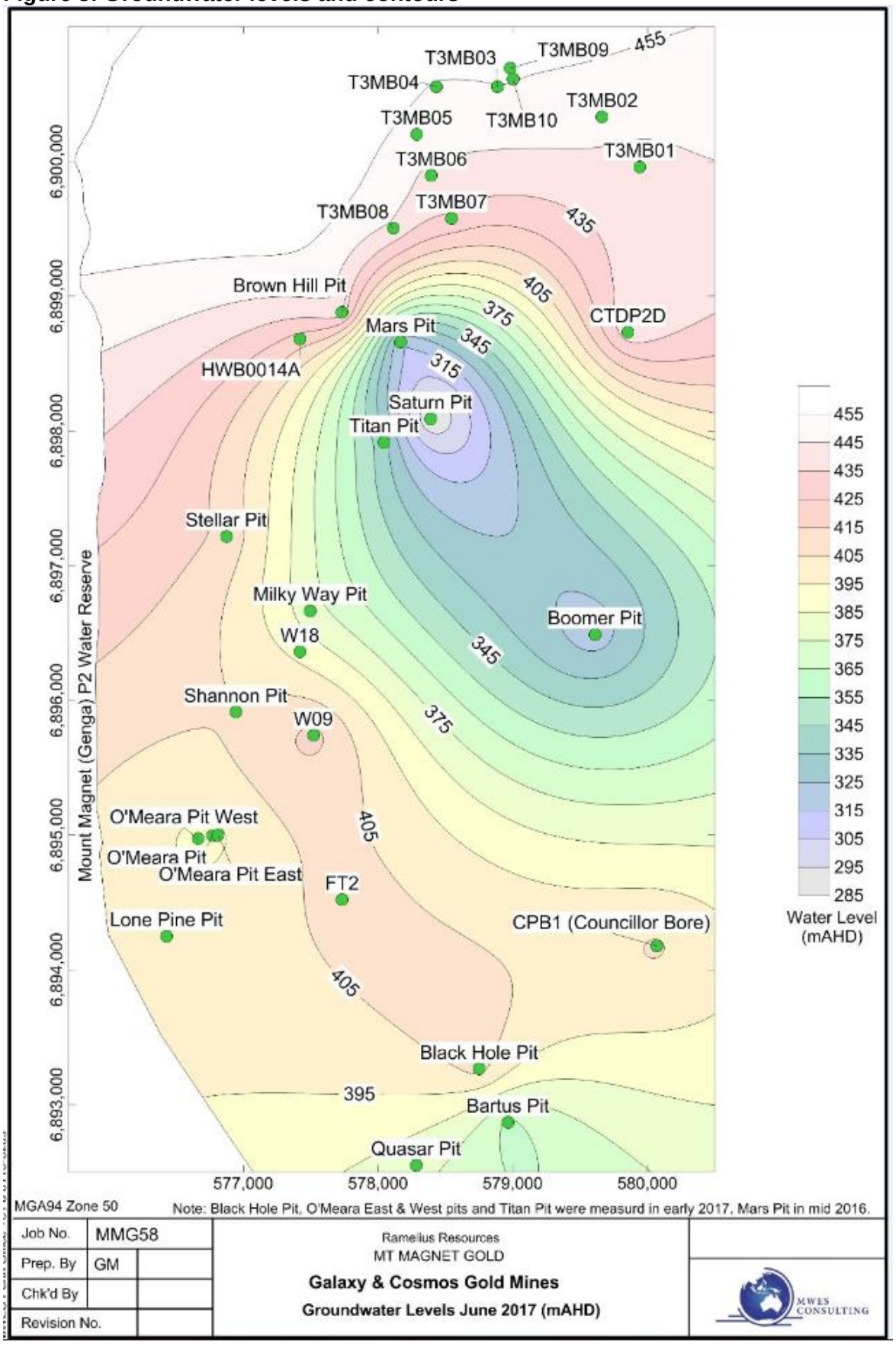


Figure 3: Groundwater levels and contours



Risk assessment

Tables 8 and 9 below describe the Risk Events associated with the amendment consistent with the *Guidance Statement: Risk Assessments*. Both tables identify whether the emissions present a material risk to public health or the environment, requiring regulatory controls.

Table 8: Risk assessment - construction

Risk Event						Consequence rating	Likelihood rating	Risk	Reasoning
Source/Activities		**Potential emissions**	**Potential receptors**	**Potential pathway**	**Potential adverse impacts**				
Dewatering of Cosmos pits (Stellar, Stellar West, Milky Way and Shannon pits)	Laying down of pipes and joining.	No potential emissions of consequence.	N/A	N/A	N/A	N/A	N/A	N/A	The Delegated Officer considers that there would be no emissions of consequence due to construction consisting only of laying down pipes and joining.

Table 9: Risk assessment for proposed dewatering operations

Risk Event						Consequence rating	Likelihood rating	Risk	Reasoning
Source/Activities		**Potential emissions**	**Potential receptors**	**Potential pathway**	**Potential adverse impacts**				
Cat 6 Dewatering of Cosmos pits (Stellar, Stellar West, Milky Way and Shannon pits)	Discharge of dewater from Cosmos pits to Franks Tower pit.	Mine dewater - (currently brackish to moderately saline, low in heavy metals. Milky Way, Shannon and Franks Tower pits record	Groundwater with beneficial use: local aquifers and P1 and P2 PDWSA (Genga bores). Parameters of nitrate TDS and arsenic have been found to be slightly elevated within	Ground: seepage through ground to aquifers. Water: direct interaction with pit water and groundwater aquifers.	Contamination of local groundwater aquifers of beneficial use including P1 and P2 PDWSAs.	Minor (Specific Consequence Criteria for public health likely to be met).	Unlikely (The risk event will probably not occur in most circumstances).	Medium	Water quality in Stellar, Stellar West, Milky Way and Shannon pits is similar to Franks Tower pit (refer to Table 7). Therefore, water quality of Franks Tower pit water is not likely to change due to addition of the Cosmos pits dewater. The Genga P2 area is 2 km west; Genga P1 area

		slightly elevated nitrate levels 33 – 43 mg/L which is below the ADWG value of 50mg/L for infants)	the Genga bore field. *"Nitrate levels are naturally high in the area possibly due to nitrogen fixing vegetation".* (DoE, 2005).						is 3.4 km south-southwest, of Frank Tower pit. Distance and local hydrogeology, including the presence of an iron banding barrier, are thought to limit the ability of open pit water infiltrating and reaching the bore field (DoE, 2005). The Licensee has committed to install flow meters and sample points where dewater discharge will be to open pits.
	Discharge of dewater from Franks Tower pit to Ruby Queen pit.	Mine dewater (brackish to moderately saline, low in heavy metals, slightly elevated nitrate levels).	Groundwater with beneficial use: local aquifers and P1 and P2 PDWSA (Genga bores).	Ground - seepage through ground to aquifers. Water - direct interaction with pit water and groundwater aquifers.	Contamination of local groundwater aquifers of beneficial use including P1 and P2 PDWSAs.	Minor (Specific Consequence Criteria for public health likely to be met).	Unlikely (The risk event will probably not occur in most circumstances).	Medium	Stellar, Stellar West, Milky Way, Shannon and Franks Tower pits have better water quality than Ruby Queen pit (refer to Table 7). Therefore, water quality of Ruby Queen pit is not likely to deteriorate due to the addition of the Cosmos pits and Franks Tower dewater. The Genga P1 area is 8 km southwest and the P2 area 5km west of Ruby Queen pit. Distance and local hydrogeology, including the presence of an iron banding barrier, are thought to limit the ability of open pit water infiltrating and reaching the bore field (DoE, 2005).

									The Licensee has committed to install flow meters and sample points where dewater discharge will be to open pits.
	Discharge of dewater to land by overtopping of Franks Tower pit and Ruby Queen pit.	Mine dewater (brackish to moderately saline, low in heavy metals, slightly elevated nitrate level)	Native vegetation. Groundwater with beneficial use: local aquifers and P1 and P2 PDWSA (Genga bores).	Ground - direct discharge and seepage through ground to aquifers.	Contamination with brackish water of surrounding land, surface water and groundwater including P1 and P2 PDWSAs.	Slight (Specific Consequence Criteria likely to be met)	Unlikely (The risk event may only occur in exceptional circumstances)	Low	Vegetation in the area is highly degraded. Natural drainage lines may direct overtopping water from Franks Tower pit towards the Genga bore field. However: dewater is reasonable quality; depth to groundwater is more than 15 mbgl; the Genga P1 area is 3.4 km from Franks Tower pit. Ruby Queen pit is surrounded by mined pits and overtopping is expected to discharge into these pits. The Licensee has committed to maintaining a minimum freeboard of 2m below the pits' spill level by managing water between pits and pumping water to the Checker Salt Water Dam for use in the processing plant.
	Rupture of dewater pipelines.	Mine dewater (brackish to moderately saline, low in heavy metals,	Native vegetation Groundwater with beneficial use: local aquifers and P1 and P2 PDWSA	Ground - direct discharge and seepage through ground to aquifers.	Contamination with brackish water of surrounding land, surface water and groundwater	Slight (Specific Consequence Criteria likely to be met)	Unlikely (The risk event will probably not occur in most circumstances).	Low	Vegetation in the area is highly degraded. Natural drainage lines may direct ruptured pipe water towards the Genga bore field. However: dewater is reasonable

		slightly elevated nitrate levels)	(Genga bores).		including P1 and P2 PDWSAs.				quality; depth to groundwater is at least 15 mbgl; and the pipelines are at least 3 km from Genga P1. The Licensee has committed to inspect pipelines at least daily.

Decision

The Delegated Officer has determined that the key emissions associated with the dewatering discharge from the Cosmos pits to Franks Tower and Ruby Queen pits is dewater being discharged to groundwater, and accidental discharge of saline dewatering effluent to land from overtopping and pipeline failure.

The Applicant's controls are conditioned on the Licence to ensure controls to manage risk as assessed, are implemented.

Condition 1.3.9 on the current Licence for daily inspection of dewater pipelines captures risk of emissions relating to rupture of dewater pipelines.

Existing conditions 1.3.8, 1.3.9, 1.3.10, 2.2.1 and 3.2.1 in the Licence and Amendment Notice 1 are amended to include:

- the discharging of dewater from Stella, Stellar West, Milky Way and Shannon pits into Franks Tower pit;
- the discharging of dewater from Franks Tower pit to Ruby Queen pit;
- requirement for maintenance and inspection of a 2 m freeboard at Franks Tower and Ruby Queen pits and daily inspection;
- increase in approved category 6 production capacity to 660,000 tonnes per annum; and
- monitoring, analysis and reporting of dewatering effluent discharged to groundwater from Stella, Stellar West, Milky Way, Shannon and Franks Tower pits.

The Delegated Officer has also determined to:

- change the due date for the Annual Environmental Report to match that of the Annual Audit Compliance Report; and
- amend the premises boundary to include dewatering activities,

as requested by the Licensee.

Licensee's comments

The Licensee was provided with the draft Amendment Notice 2 on 31 August 2017. Comments received from the Licensee have been considered by the Delegated Officer as shown in Appendix 2.

Amendment

1. The front page of the Licence is amended by the addition of the text shown in bold underline below:

Premises address: Mt Magnet Gold
M58/30, M58/121, **M58/136, M58/172, M58/181, M58/185, M58/187, M58/191,** M58/193, **M58/202,** M58/205 **and M58/234**
MOUNT MAGNET WA 6623
as depicted in Schedule 1.

2. The front page of the Licence is amended by the deletion of the text shown in strikethrough below and the insertion of the text shown in underline and bold below:

Prescribed premises category
Schedule 1 of the *Environmental Protection Regulations 1987*

Category number	Category description	Category production or design capacity	Approved Premises production or design capacity
5	Processing or beneficiation of metallic or non-metallic ore	50,000 tonnes or more per year	2,400,000 tonnes per annual period
6	Mine dewatering	50,000 tonnes or more per year	~~500,000~~ **660,000** tonnes per annual period
64	Class II putrescible landfill site	20 tonnes or more per year	10,000 tonnes per annual period

3. Definitions of the Licence is amended by the insertion of the text shown in underline and bold below:

'TSF' means Tailings Storage Facility

4. Condition 1.3.8 is amended by the insertion of the text shown in underline and bold below:

1.3.8 The Licensee shall ensure that waste materials are discharged into dams **and pits** with the relevant infrastructure requirements and at the location specified in Table 1.3.4 and identified in Schedule 1.

Table 1.3.4: Containment infrastructure		
Containment point reference	**Material**	**Infrastructure requirements**
CTSF3	Tailings	Measures to prevent or minimise dust generated from surface of the tailings storage facility installed A seepage interceptor drain is maintained immediately downstream of the external toe of the tailings dam to recover any liquid matter resulting from seepage or breach of the embankment Any matter collected in interceptor drain(s) shall be returned to either the tailings dam, an evaporation dam or used in the processing plant Seepage recovery bores T3RB1, T3RB2A, T3RB3, T3RB4, T3RB6 and T3RB7 are maintained to recover any liquid matter resulting from seepage A minimum top of embankment freeboard of 300mm is maintained in order to accommodate an extreme rainfall event
Process Water Dam	Dewatering effluent water and seepage recovery water	A minimum top of embankment freeboard of 300mm is maintained Lined to achieve a permeability of 10^{-9} m/s or less.
Franks Tower pit **Ruby Hill pit**	**Dewatering effluent**	**A minimum freeboard of 2 m is maintained in order to accommodate an extreme rainfall event.**

5. Condition 1.3.9 is amended by the insertion of the text shown in underline and bold below:

1.3.9 The Licensee shall:
(a) undertake inspections as detailed in Table 1.3.5;
(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 1.3.5: Inspection of infrastructure		
Scope of inspection	**Type of inspection**	**Frequency of inspection**
Tailings delivery pipelines	Visual integrity	Daily
Return water lines		
Dewatering pipelines		
Chemical storage areas		Weekly
Processing plant		
TSF embankment freeboard	Visual to confirm required freeboard capacity is available	Daily
Franks Tower pit		
Ruby Queen pit		

6. Condition 1.3.10 of the Licence is amended by the deletion of the text shown in strikethrough below and the insertion of the text shown in bold and underlined below:

1.3.10 The Licensee shall ensure the limits specified in Table 1.3.6 are not exceeded.

Table 1.3.6: Production or design capacity limits		
Category[1]	**Category description**[1]	**Premises production or design capacity limit**
5	Processing or beneficiation of metallic or non-metallic ore	2,400,000 tonnes per annual period
6	Mine dewatering: premises on which water is extracted and discharged into the environment to allow mining of ore	~~500,000~~ **660,000** tonnes per annual period

7. Note 1: *Environmental Protection Regulations 1987,* Schedule 1.

7. Condition 2.2.1 of the Licence is amended by the insertion of the text shown in bold and underlined below:

2.2.1 The Licensee shall ensure that where waste is emitted to groundwater 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: Emission points to groundwater		
Emission point reference	**Description**	**Source including abatement**
Saturn pit	Dewatering waste water discharge into disused mine pits.	Water from dewatering of the Titan pit.
Franks Tower pit		**Water from dewatering of Stellar, Stellar West, Milky Way and Shannon pits (Cosmos pits).**

Ruby Queen pit		Water from dewatering of the St George open pits, St George/Water Tank Hill underground pits, **and Franks Tower pit.**

8. Condition 3.2.1 of the licence is amended by the insertion of the bold text shown in underline below.

3.1.1 The Licensee 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 groundwater

Emission point reference **as located in Schedule 1**	Parameter	Units	Averaging Period	Frequency
Dewatering discharge outlet**s** into the Saturn, **Franks Tower** and Ruby Queen pits	Volumetric flow rate	m^3/day	Monthly	Continuous
	Aluminium Arsenic Cadmium Chromium Cobalt Copper Iron Lead Manganese Mercury Molybdenum Nickel Selenium Total recoverable hydrocarbons Zinc	mg/L	Spot sample	Annually
	Standing water level in pits	mbgl		Quarterly
	Total dissolved solids and Total Nitrogen	mg/L		
	pH[1]	-		

9. Condition 4.2.1 of the licence is amended by the deletion of the text shown in strikethrough below and the insertion of the bold text shown in bold and underline below.

4.2.1 The Licensee shall submit to the CEO an Annual Environmental Report within ~~60~~ **90** 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[1]
-	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
-	Brief overview of the Premises and its processes and a current plan of the Premises	None specified
Table 3.2.1	Specified monitoring of point source to groundwater	~~GR1~~ **None specified**
Table 3.3.1	Volumes of tailings deposited into the CTSF3 and volumes of water recovered from the CTSF3	None specified

Table 3.4.1	Monitoring of ambient groundwater quality	None specified
4.1.2	Compliance	Annual Audit Compliance Report (AACR)
4.1.3	Complaints summary	None specified

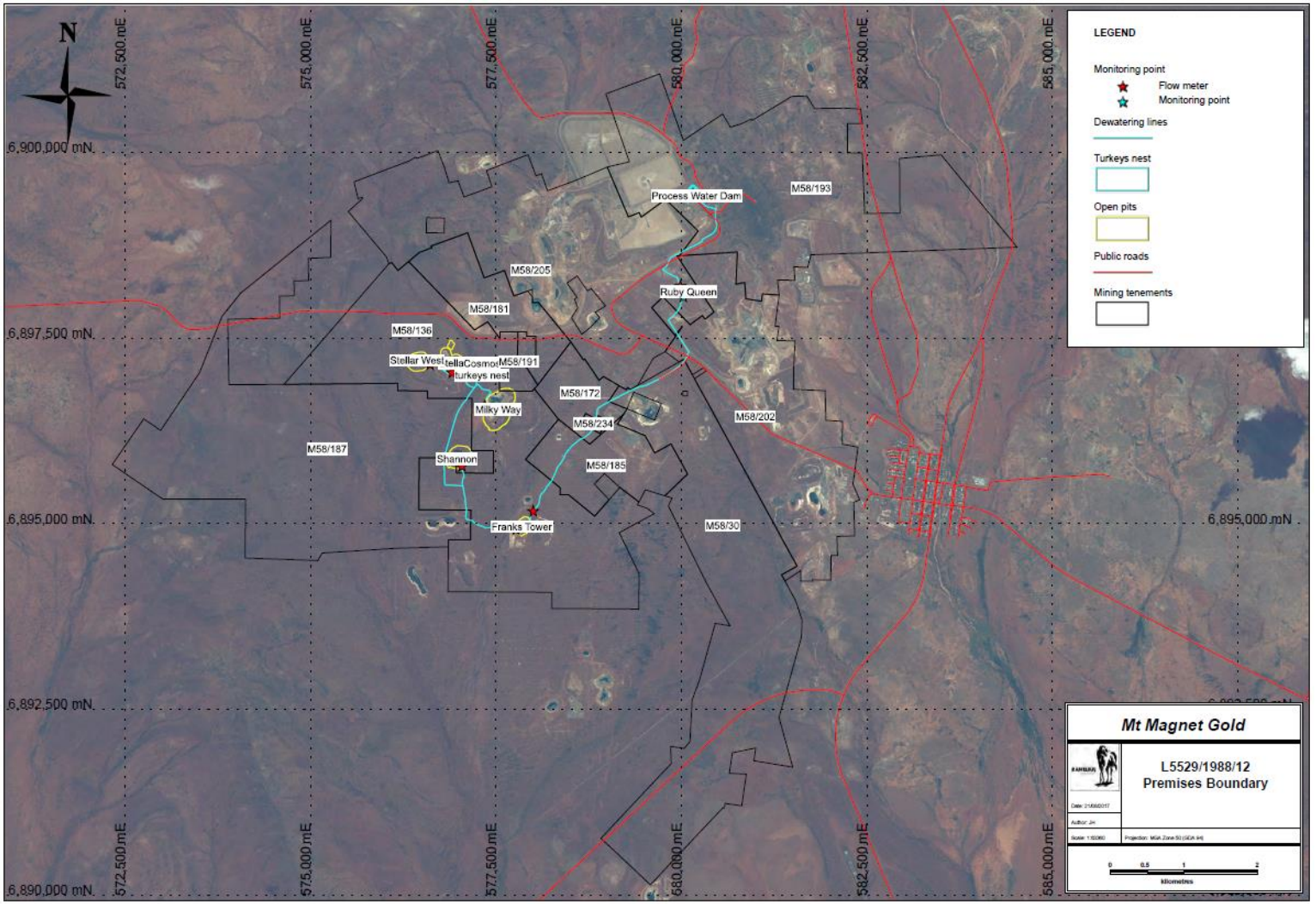
10. Schedule 1 **Premises map** of the Licence is amended by the deletion of the text shown in strike through below and insertion of the text shown in bold and underline below, with amendment of the premises boundary map to that shown below.

11. Schedule 1 **Map of emission points** of the Licence is amended by the insertion of the text shown in bold and underline below and insertion of the map as shown below.

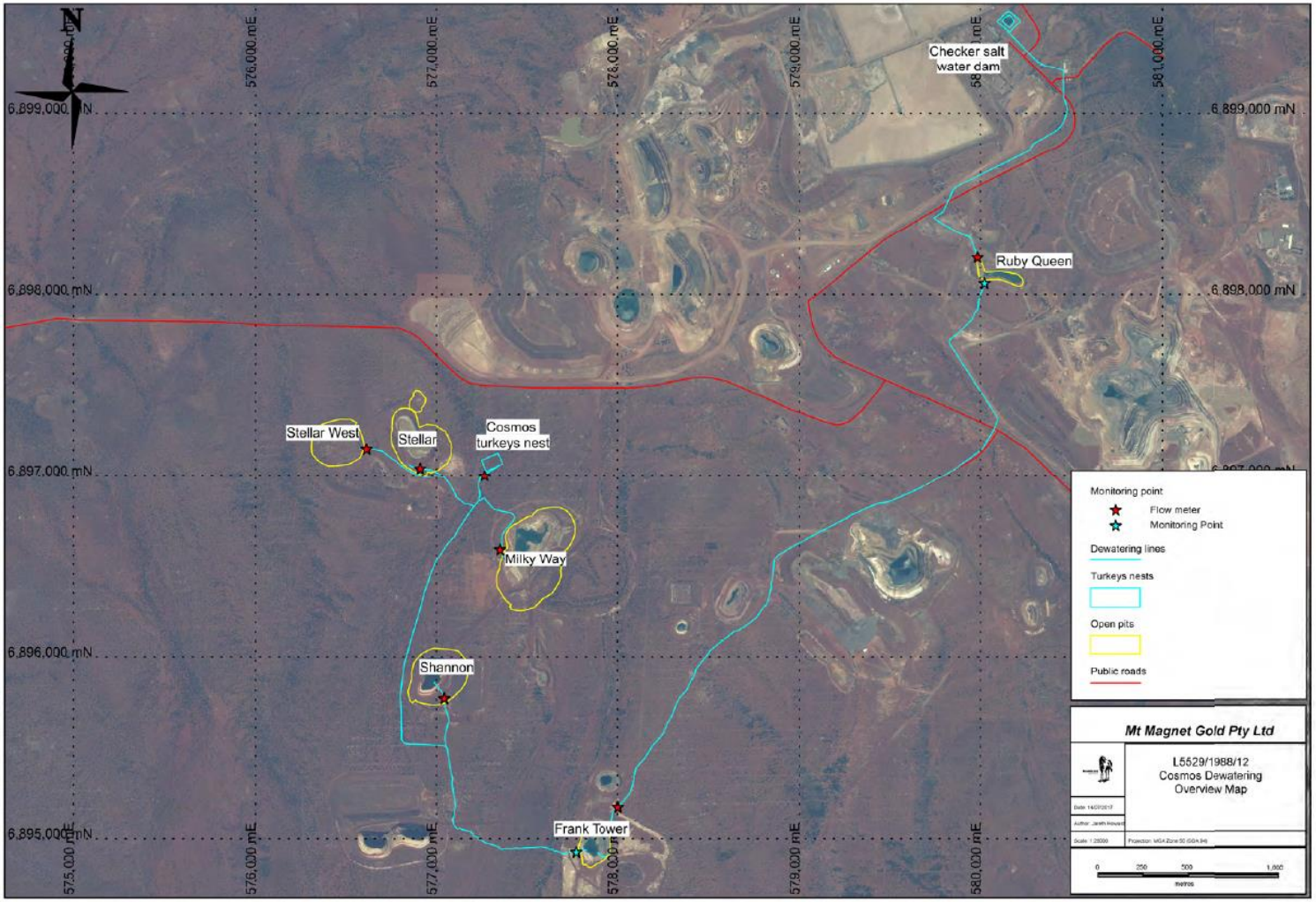
12. Schedule 1 **Map of monitoring points** of the Licence is amended by the insertion of the text shown in bold and underline below and insertion of the map as shown below.

Premises map

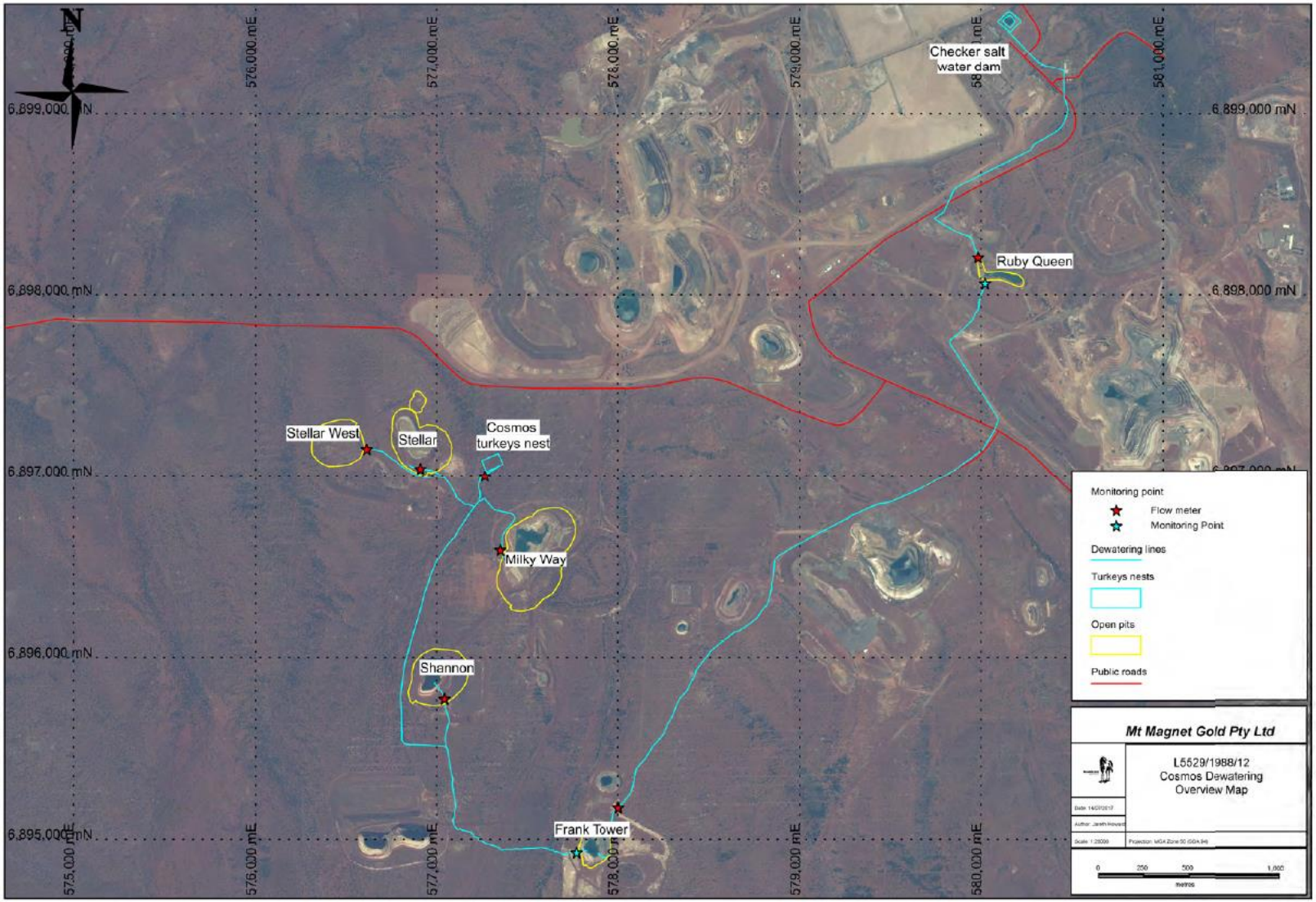
The Premises is shown in the map below. The ~~pink~~ **black** line depicts the Premises boundary.



Map of emission points
Dewatering discharge to Frank Tower and Ruby Queen pits from Cosmos pits



Map of monitoring points
Dewatering of cosmos pits - monitoring points



Appendix 1: Key documents

Document title	In text ref	Availability
Licence L5529/1988/12 – Mt Magnet Gold	L4432/1989/14	accessed at www.dwer.wa.gov.au
Licence L5529/1988/12 Amendment Notice 1 – Mt Magnet Gold	Amendment Notice 1	accessed at www.dwer.wa.gov.au
Application Form and Attachments, dated 16/07/2017.	Application	DWER Records (A1499856)
Mt Magnet Gold Multi-Pit Project Hydrology and Hydrogeology Assessment, MWES Hydrological Services, 1 March 2017	MWES, 2017	DWER Records (A1508316)
Email: *Subject: Clarifying information request for L5529 amendment application.* From Mt Magnet Gold Pty Ltd, Sent: Wed 16/08/2017 1:57 PM	-	DWER records (A1508314)
Email: *Subject: Re: L5529 Amendment query Frank Tower pit monitoring and GWL.* From Mt Magnet Gold Pty Ltd, Send Fri 25/08/2017	-	DWER records (A1510445)
Mount Magnet Water Reserve Drinking Water Source Protection Plan. Department of Environment. Water Resources Protection Series (WRP no.38) Department of Environment, 2005.	DoE, 2005	DWER record
Australian Drinking Water Guidelines, NHMRC & ARMCANZ, 20011	ADGW	accessed at www.nhmrc.gov.au
Guidance Statement: Environmental Siting, Department of Environment Regulation, November 201.	-	accessed at www.dwer.wa.gov.au
Guidance Statement: Setting conditions. Department of Environment Regulation, October 2015	-	
Guidance Statement: Risk Assessments. Department of Environment Regulation, February 2017.	-	
Guidance Statement: Decision Making. Department of Environment Regulation, February 2017	-	

Appendix 2: Summary of Licensee's comments

The Licensee was provided with the draft Amendment Notice on 31 August 2017 for review and comment. The Licensee responded on 7 September waiving the remaining comment period and with no comments.

Condition	Summary of Licence Holder comment	DWER response
N/A	No comments/changes requested	N/A