RUMBLE
RESOURCES LTD

Western Queen Project

Works Approval Supporting Document

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PART 1. APPLICATION TYPE

Application Type: New Works Approval Application.

This report is to be read with the Works Approval Application Form. The report Parts, Attachment titles and numbering used within this document are based on the system prescribed within the DWER Application Form. Some parts of the application form did not require further information and are not referenced in the Supporting Document.

A summary of the Application Form Parts and Attachments requested within each Part, and where they can be found (i.e. in the Application Form or within this Supporting Document) is provided in Table 1.

Table 1 Completion Matrix from the DWER Application Form

Application Form Section	Required in new applications	Reference
Part 1: Application type	yes	Application Form
Part 2: Applicant details	yes	Supporting Document, Part 2
Part 3: Premises details	yes	Supporting Document, Part 3
Part 4: Proposed activities	yes	Supporting Document, Part 4
Part 5: Index of Biodiversity Surveys for Assessment and Index of Marine Surveys for Assessment	If relevant	Application Form
Part 6: Other DWER approvals	yes	Supporting Document, Part 6
Part 7: Other approvals and consultation	yes	Supporting Document, Part 7
Part 8: Applicant history	yes	Application Form
Part 9: Emissions, discharges, and waste	yes	Supporting Document, Part 9
Part 10: Siting and location	yes	Supporting Document, Part 10
Part 11: Submission of any other relevant information	yes	Application Form
Part 12: Category checklist(s)	yes	Application Form
Part 13: Proposed fee calculation	yes	Application Form
Part 14: Commercially sensitive or confidential information	yes	Application Form
Part 15: Submission of application	yes	Application Form
Part 16: Declaration and signature	yes	Application Form
Attachment 1A: Proof of occupier status	yes	Supporting Document, Part 2

Application Form Section	Required in new applications	Reference
Attachment 1B: ASIC company extract	yes	Supporting Document, Part 2
Attachment 1C: Authorisation to act as a representative of the occupier	yes	Application Form
Attachment 2: Premises map/s	yes	Supporting Document, Part 3
Attachment 3A: Environmental commissioning plan	If relevant	NA
Attachment 3B: Proposed activities	yes	Supporting Document, Part 4
Attachment 3C: Map of area proposed to be cleared (only applicable if clearing is proposed)	yes	Application Form
Attachment 3D: Additional information for clearing assessment	If relevant	NA
Attachment 4: Marine surveys (only applicable if marine surveys included in application)	yes	Application Form
Attachment 5: Other approvals and consultation documentation	yes	Supporting Document, Part 7
Attachment 6A: Emissions and discharges	If relevant	Supporting Document, Part 9
Attachment 6B: Waste acceptance	If relevant	NA
Attachment 7: Siting and location	yes	Supporting Document, Part 10
Attachment 8: Additional information submitted	If relevant	NA
Attachment 9: Category-specific checklist(s)	yes	Application Form
[redacted]		

PART 3. PREMISES DETAILS

Overview

The Western Queen Gold Project is owned by Western Queen Pty Ltd a wholly owned subsidiary of Rumble Resources Pty Ltd (Rumble) who has entered into an Indicative Non-Binding Term Sheet with Bain Global Resources (Bain) and MEGA Resources (MEGA) to develop the open pit resources at Western Queen. The parties are currently negotiating the commercial arrangements including a Joint Venture Agreement and Mining Services Agreement.

Licensee and Occupier

Rumble (Western Queen Pty Ltd) are applying for a works approval and licence for the Western Queen Gold Project.

Location, Tenure and Site Layout

The Western Queen Gold Project lies 110km NW of Mt Magnet within the Yalgoo mineral field of Western Australia (Figure 1). Western Queen comprises two contiguous mining leases (M59/45 and M59/208) for a total area of 9.8 km^2. Details of project tenure and associated infrastructure are summarised in Table 2.

In addition to the mining leases, there is L59/40 (Miscellaneous License) which covers a portion of the original haul road between Western Queen and Dalgaranga (Figure 2). Historic ore reserves from the Western Queen Central deposit were treated at Dalgaranga. The original haul road is still open and is the main access into the project. L59/40 is not included in the Works Approval application and is not part of the Prescribed Premises.

Rumble holds 100% equity in the project.

Table 2 Relevant Project Tenure and associated Infrastructure

Tenement	Holder	Infrastructure
M59/208	Rumble Resources Ltd (Western Queen Pty Ltd)	Waste rock landform Mobile crushing and screening plant Temporary stockpile Workshop Office / crib Fuel storage Washdown facilities Laydown and hardstand Topsoil stockpiles Landfill Haul road / Internal roads Stormwater management structures Borrow pits Mine Dewater Discharge Point
M59/45	Rumble Resources Ltd (Western Queen Pty Ltd)	Mine Pit

Figure 1 Regional Location of the Western Queen Tenements

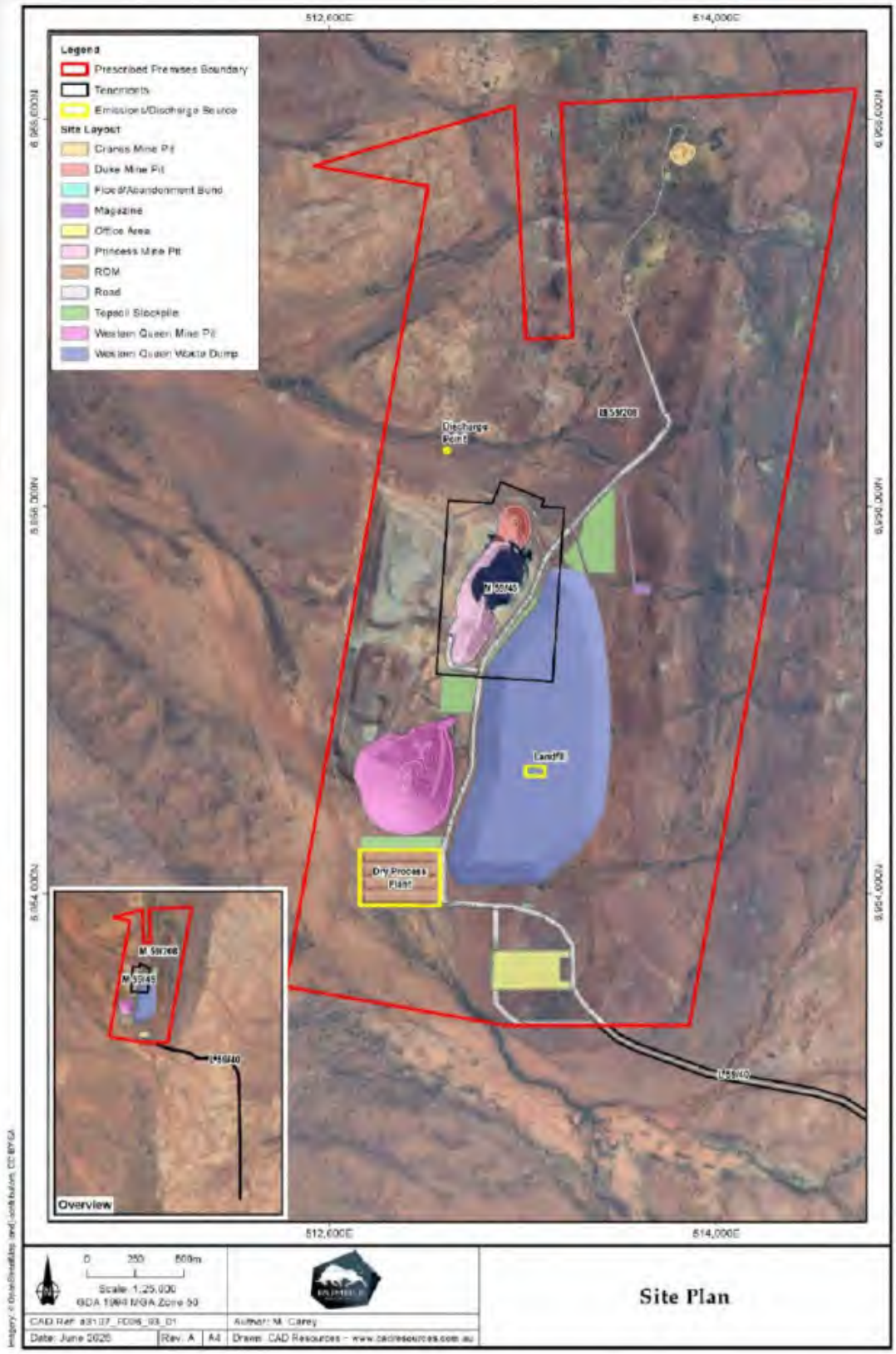


Figure 2 Prescribed Premises Boundary and Project Layout for the Western Queen Project

History and Existing Infrastructure

Mining at the Western Queen prospect has been active since the 1930s, with extraction from gold from underground and open pits undertaken by several groups over this time.

More recently, the project was acquired by Harmony Gold Pty Ltd (Harmony) in 2002 from Equigold and placed under care and maintenance in 2008 (Harmony Gold 2007). In May 2010, Harmony Gold sold Mt Magnet Gold, including the Western Queen Project, to Ramelius Resources Ltd (Ramelius) (Outback Ecology 2012a).

Following a period of mining by Ramelius at Western Queen South, the project was rehabilitated in 2013. In 2021, the tenements associated with the Western Queen Project were acquired by Rumble Resources Ltd (Rumble).

Existing disturbance and rehabilitation areas at the site include the Western Queen (WQ) and Western Queen South (WQS) pit lakes, two waste rock landforms, and areas of previous infrastructure. Most areas proposed for development are within these previously disturbed areas.

Historically, the Western Queen area has produced over 215,000oz @ 7.6g/t gold and has current open pit and underground resources of over 287,000oz of gold on existing Mining Leases, and near several gold plants in the region.

Prescribed Premises Categories

Specific infrastructure and activities for the Project are classified as Prescribed Premises under Schedule 1 of the Environmental Protection Regulations 1987.

Prescribed Premises categories applicable to this Environmental Licence application are listed in Table 3.

Table 3 Description of Prescribed Premises Categories

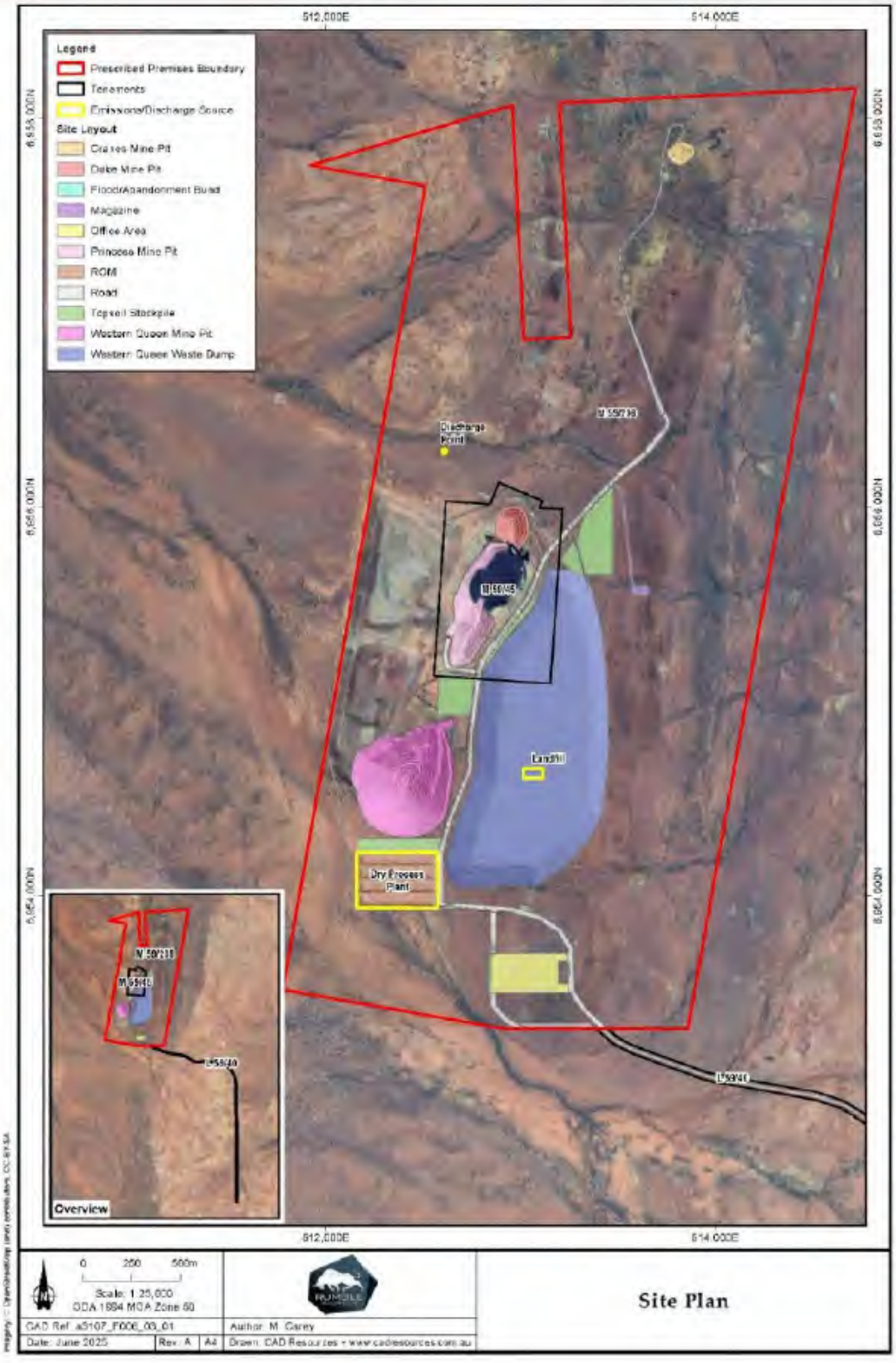
Category Number	Category Description	Prescribed Capacity	Project Capacity
05	Processing or beneficiation of metallic or non-metallic ore: premises on which: (a) Metallic or non-metallic ore is crushed, ground, milled or otherwise processed. (b) Tailings from metallic or non-metallic ore are reprocessed. (c) Tailings or residue from metallic or non-metallic ore are discharged into a containment cell or dam.	50,000 tonnes or more per year	1,000,000 tonnes per year
06	Mine dewatering: premises on which water is extracted and discharged into the environment to allow mining of ore.	50 000 tonnes or more per year	2,500,000 tonnes per year
89	Putrescible landfill site: premises (other than clean fill premises) on which waste of a type permitted for disposal for this category of prescribed premises, in accordance with the *Landfill Waste Classification and Waste Definitions* 1996, is accepted for burial.	More than 20 but less than 5 000 tonnes per year	500 tonnes per year

The Prescribed Premises boundary is shown on Figure 2 and follows the boundary of mining lease M59/208. Coordinates for the Prescribed Premises boundary are provided in Table 4.

Table 4 Co-ordinates for the Western Queen Prescribed Premises Boundary

Easting (MGA 94, Zone 50)	Northing (MGA 94, Zone 50)
512512.4028	6957652.6410
511921.4905	6957757.5848
512958.4708	6958066.7036
513017.1616	6956862.4095
513258.0927	6956874.1163
513199.4919	6958078.4092
514719.9511	6958152.2333
513860.1702	6953317.1983
512910.5090	6953317.9128
511778.6421	6953518.6395
512512.4028	6957652.6410

ATTACHMENT 2 PREMISES MAPS



PART 4: PROPOSED ACTIVITIES

ATTACHMENT 3B: PROPOSED ACTIVITIES

CATEGORY 5 - PROCESSING OF METALLIC OR NON-METALLIC ORE

Premises on which metallic ore is crushed, ground, milled or otherwise processed

The current design of the dry processing plant consists of a crushing and screening plant that produces a crushed product for third party processing. A flowchart for the Dry Processing Plant for the Western Queen Project is shown in Figure 3.

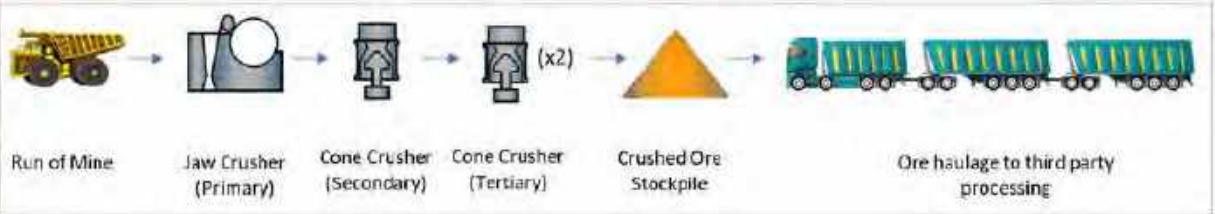


Figure 3 Flow Chart for the Dry Processing Plant at the Western Queen Project

The dry processing plant shall be located immediately adjacent to the ROM pad and will also comprise a hardstand area to accommodate the mobile crushing and screening facility, crushed ore stockpile and access for heavy vehicle loading equipment and road trains for haulage.

Ore will be reclaimed from the ROM pad via front-end loaders and transported to the crushing circuit which consists of a jaw crusher, cone crusher and stacker. Ore is passed over vibrating screens to remove fine material, with oversized material reporting to jaw crushers. The crushed rock is then transported via conveyor to the secondary crushing circuit, where it is fed to the secondary crushers and tertiary screens. The product re-circulates through the secondary and tertiary circuits until it is fine enough to pass through the tertiary screens. The final product is then conveyed to an ore stockpile where it is stacked in preparation for haulage to a third party (to be determined) for final processing.

Dust shall be managed via multiple controls at the dry process plant. A water tank shall be connected to high pressure sprays on the crushing and screening facility, along with skirting seals and dust box covers within the plant. Water carts will also manage dust around the plant and stockpile area.

Waste rock will report to, and expand on, an existing (rehabilitated) waste rock landform east of the WQS pit. No wet processing will be undertaken on site, nor will any tailings be produced.

The stockpile storage capacity on the ROM and dry processing plant footprint area is designed to store up to approximately 366,000 BCM of ore.

CATEGORY 6 - MINE DEWATERING

Premises on which water is extracted and discharged into the environment to allow mining of ore

As part of the mining requirements to achieve required depths within WQS for mining expansion, the pit lake (current level is estimated at approximately 362 m AHD and a volume of 0.7GL) will require dewatering prior to the commencement of mining (AECOM 2025b). Historically, water from WQS has been transferred to the existing WQ pit. It has been concluded (AECOM 2025b) that pit lake water quality in both open pits has likely undergone evapoconcentration over the estimated 10-year period as pit lake levels have recovered. The water quality is however observed to have similar chemical composition and therefore mixing between the two pits would pose little additional risk.

Figure 4 presents a schematic of the conceptual water management strategy proposed for WQS pit with the dewatering strategy further described in the groundwater assessment report (AECOM 2025a) (Appendix 1).

Simplified analytical groundwater models have been completed to determine indicative dewatering rates and maximum drawdown extents for WQS (AECOM 2025a). Dewatering for the WQ Pit will require the pit lake to be partially lowered. Findings from the predictive WQS groundwater modelling are summarised in Table 5.

Table 5 Summary of Predicted Dewatering Estimates (AECOM 2025a)

Deposit	Estimated Dewatering Duration1	Predicted Steady-State Abstraction Range		Predicted Total Maximum Abstraction Volume	Predicted Drawdown Distance - 1 m contour (m)	Comments
		(kL/day)	L/sec			
WQS	608 days	2,300 to 5,800	27 to 67	1,400 to 2,700 ML/annum	1,700 to 2,000	Drawdown will propagate to the adjacent WQ pit and proposed discharge location

Note [1] – MEGA, 2025

Based on the modelling, an indicative reasonable case (lower-case) maximum abstraction is predicted to be up to about 1.0 GL/annum.

Pit lake dewatering is typically undertaken using a pontoon type pumping system. To minimise pit wall stability issues and allow groundwater water to drain and pore pressures to be lowered, it is recommended the pit lake be emptied over a period at least 90 days. Over the 90-day period an expected additional 0.2 GL of dewater water from groundwater inflows is estimated, based on the assumed 2,200 kL/day, and an additional estimated 500 kL/day from interconnection between WQ and WQS. This equates to a total of up to 1.0 GL, that may require abstraction to allow access to the pit floor (AECOM 2025a).

With a reported current pit lake level in WQ of 362m AHD, the available storage volume in WQ is estimated at about 2.4 GL, 1.5m below the current pit crest. Water from the pit will initially be piped to a turkey's nest (or a dedicated tank) via 110 mm HDPE pipe at a rate of 20-30 L/sec before being pumped to the existing WQ pit. The pipeline will traverse previously disturbed ground and will be housed in a v-drain to contain any potential spills. The turkey's nest will be lined with engineered soil (compacted clay) to limit infiltration. Flow meters and telemetry shall be installed on the discharge pipeline to monitor volumes and velocity. Records of dewatering abstraction will be kept, to monitor volumes being discharged into the WQ pit.

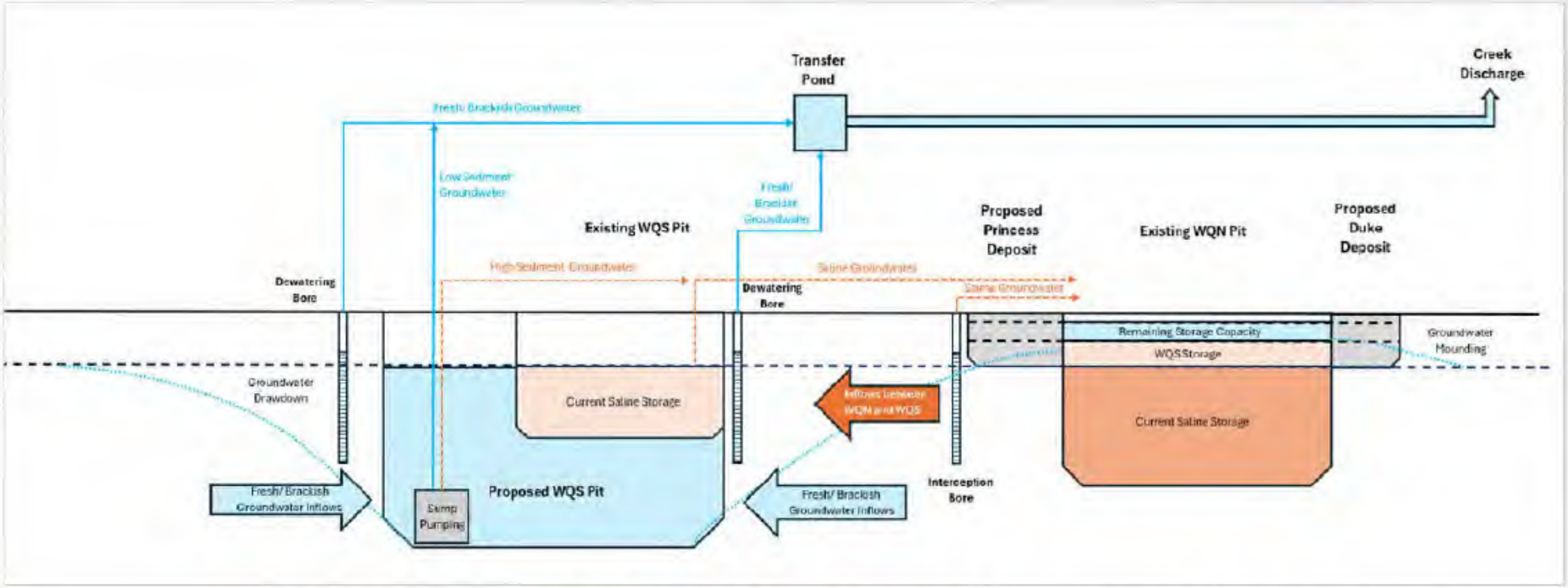


Figure 4 Schematic of the Conceptual Water Management Strategy Proposed for the Western Queen South Pit (AECOM 2025a).

Following the transfer of higher salinity (18,000 mg/L TDS) WQS pit lake stored water (totalling about 1.0GL) to WQ, it is estimated WQ will have a remaining void capacity of about 1.5GL. With a predicted range of WQS groundwater inflows of between 2,300 to 4,500 kL/day, a total dewatering volume is predicted to be between about 1.4 and 2.7 GL over the anticipated 608 days of mining. Groundwater salinity in the WQS area has previously been reported to average about 2,100 mg/L TDS (maximum 3,700 mg/L TDS) (AECOM 2025a).

With the above in mind, several alternative excess water management options have been identified (AECOM 2025a) and in order of priority, include:

- Mine water use – road watering, dust suppression
- Environmental discharge to local creekline – reserved for fresh brackish groundwater (<2,100 mg/L TDS)
- Additional Storage within WQ – reserved for water salinity above 15,000 mg/L TDS.
- Environmental discharge to the Sandford River – salinity concentrations over 200,000 mg/L TDS were measured in a surface water ponded sample in the Sandford River in April 2025 (AECOM 2025a). Discharge to the Sandford River was undertaken in the early periods of mine dewatering given limited options to develop the project with significant excess water management requirements. Little information is available outside a licenced approval to discharge 5,000 kL/day with a maximum salinity of 15,000 mg/L TDS, to a location about 9.3 km from the mine.
- Use of mechanical evaporators on WQ to allow more storage capacity.
- Dedicated evaporation pond.
- Future discharge to the Sandford River.

Importantly, prior to discharge, all abstracted water will require retention within a suitably designed transfer pond to minimise sediment loads. Minimising sediment can be achieved through abstraction from production bores.

Having multiple water discharge options allows the project to manage water quality constraints (salinity) outside the option to discharge local groundwater to the environment via a local creekline (AECOM 2025a).

Following disposal of higher salinity (18,000 mg/L TDS) WQS pit lake stored water (totalling about 0.9 GL) to WQ, it is estimated WQ will have a remaining void capacity of about 1.5 GL. With a predicted range of WQS groundwater inflows of between 2,300 to 4,500 kL / day, a total dewatering volume is predicted to be between about 1.4 and 2.7 GL over the anticipated 608 days of mining (AECOM 2025a).

Previously up to about 800 kL / day (10 L/s) was used during mining for dust suppression on site (Morgan, 1999). Using these estimates for water usage, the total water excess may be up to about 1.5 GL over the duration of mining. Although not likely to be a uniform volume per day, this equates to an excess of up to 2,400 kL / day or 28 L/s.

As a result of mine dewatering, predicted drawdown may propagate up to two kilometres from the WQS pit. To help mitigate some of the drawdown impacts, it is proposed to discharge excess water during operations to a local creekline (indicative location 512,600mE, 6,956,288mN) within the drawdown capture zone (Figure 5).

Groundwater salinity in the WQS area has previously been reported to average about 2,100 mg/L TDS (maximum 3,700 mg/L TDS) and is of higher quality (lower salinity) than that measured in other areas within the WQ project area and is proposed to be discharged to the environment over the duration of the project (1.7 years). Prior to discharge, all abstracted water will require retention within a suitably designed transfer pond to minimise sediment loads. Minimising sediment can be achieved through abstraction from production bores.

Flow meters shall be installed at the start of the pipeline and at the discharge point (Figure 5) and a structure shall be installed at the discharge point to reduce velocity and prevent erosion when dewater is released.

A recent vegetation and fauna survey (Botanica, 2025) within the WQP area did not identify any significant vegetation assemblages and there is a low risk of occurrence of potential terrestrial Groundwater Dependent Ecosystems (GDE) in the adjacent floodplain areas. The closest station well, Wanrey Well, is about seven kilometres northwest and down-gradient of the proposed outfall location.

Surface water modelling was undertaken by AECOM (2025b) to assess the sensitivity of the predicted wetting front extent with discharge rates. It was recommended that an average discharge rate of 2400 kL/day (total 1.5 GL/annum) would produce a wetted front extent of two kilometres which would be acceptable. Full details are provided in AECOM (2025b) (Appendix 2).

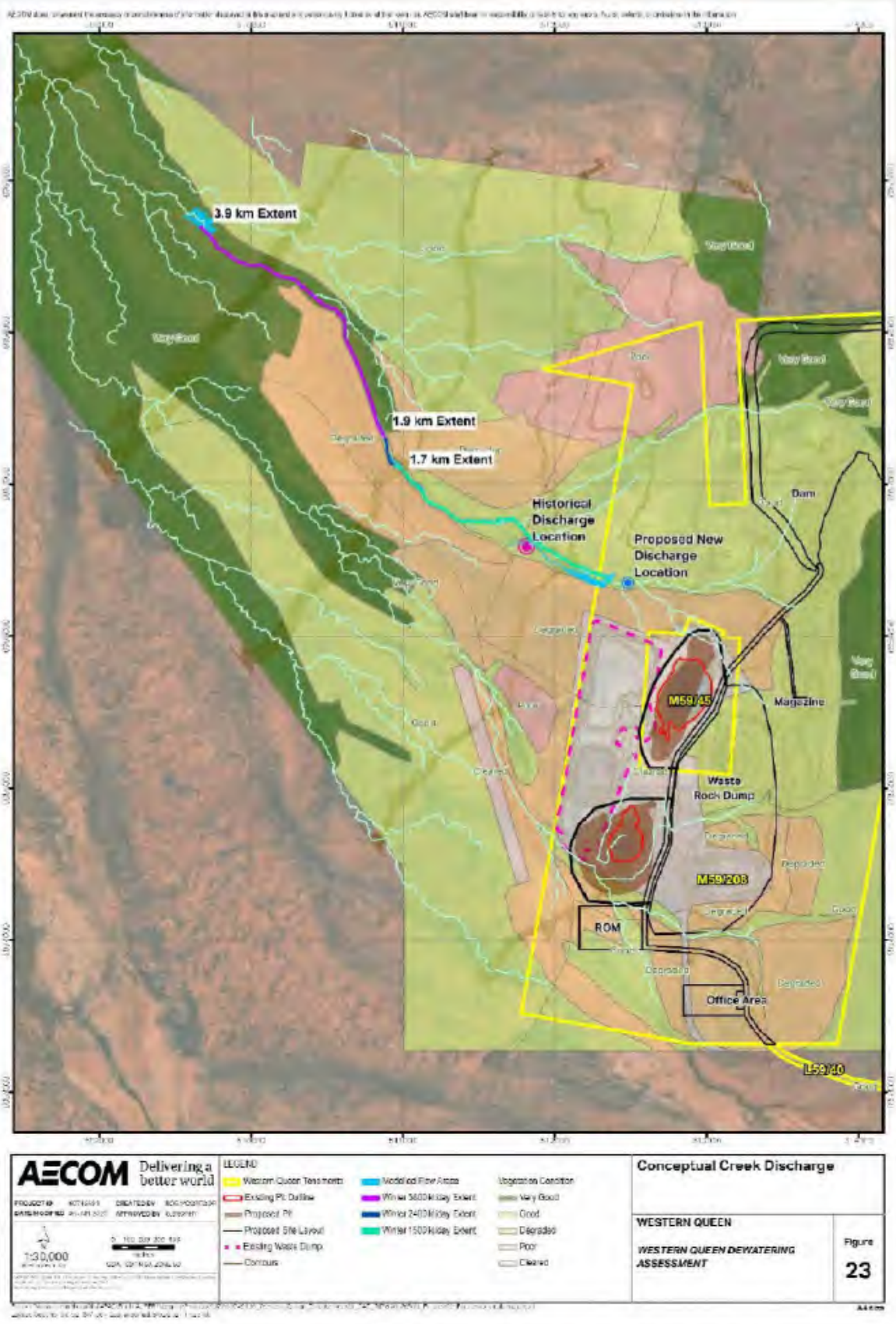


Figure 5 Conceptual Creek Discharge for the Western Queen Project

CATEGORY 89 - PUTRESCIBLE LANDFILL SITE

Premises (other than clean fill premises) on which waste of a type permitted for disposal for this category of prescribed premises, in accordance with the Landfill Waste Classification and Waste Definitions 1996, is accepted for burial.

Inert and Putrescible Waste

Putrescible and non-recyclable inert waste shall be disposed of in a Class II onsite landfill facility established within the footprint of the Western Queen Waste Rock Landform (WRL) (Attachment 2). It is anticipated that less than 500 tonnes per year will be disposed of in the landfill. Once operational, disposal of tyres may also be proposed within the WRL.

Inert and putrescible waste will be disposed of into a series of trenches (with only one trench open at any one time), excavated within the Western Queen WRL footprint. The trenches shall be approximately 50 m long x 10 m wide and a maximum of 5 m deep. This waste dump shall be located over 100m away from any surface water features, over 500 m from any residential development (homestead) and separated by at least 2 m from the highest level of the groundwater table. The active tipping face of the landfill shall always be physically restricted to a maximum length of 30 m and a maximum height of 2 m.

The landfill will be covered on a fortnightly basis with sufficient quantities of Type 1 inert waste (which is readily available from the WRL), clean fill or other appropriate cover material to prevent the spread of fire and harbouring of disease vectors.

Used tyres will be disposed of within the Western Queen WRL footprint in active areas of waste rock disposal, i.e. adjacent to the active tip face.

Tyres are to be disposed of in batches not exceeding 500 used tyres. The tyres will be covered at regular intervals such that no more than 500 used tyres are left exposed at any one time. Each batch will be separated by at least 100 mm of soil or another dense inert and incombustible material, and with a final cover not less than 500 mm.

The landfill will be inspected regularly and where any windblown waste is observed, this will be collected at least monthly.

It is expected that the operation will produce a total of up to 500 tonnes of inert waste (including tyres) and putrescible waste per annum.

Bioremediation Cell

A dedicated bioremediation cell will also be established within the landfill footprint to manage any hydrocarbon contaminated material.

Landfill will be managed in accordance with Rumble's Landfill Management Procedure.

PART 7: OTHER APPROVALS AND CONSULTATION

ATTACHMENT 5 OTHER APPROVALS AND CONSULTATION

Table 6 Other Approvals Required for the Western Queen Project

Requirement	Regulator	Permit	Reference and Status
Mining Act 1978	Department of Energy, Mines, Industry Regulation and Safety	New Project Mining Proposal	Reg ID Ref 500657 In application
Mining Act 1978	Department of Energy, Mines, Industry Regulation and Safety	Project Mine Closure Plan	As per MP above In application
Environmental Protection Act 1986	Department of Water and Environmental Regulation	Native Vegetation Clearing Permit	CPS 11147/1 In application
Rights in Water and Irrigation Act	Department of Water and Environmental Regulation	Groundwater Licence	App Ref 073538 In application

Table 7 Key Project Stakeholders

Stakeholder Group	Organisation	Interest
Federal Government Departments	Department of Climate Change, Energy, the Environment and Water	Part 7 (Referral) and Part 8 (Assessment) EPBC Act 1999 environmental impact assessments of Matters of National Environmental Significance (MNES). No MNES within Prescribed Premises – not considered a controlled action
State Government Authority	Department of Mines, Industry Regulation and Safety Mines Safety Inspectorate	Administers *Mining Act* 1978 and Regulations Tenement conditions Mining proposals, programs of work Mining rehabilitation fund Rehabilitation standards Safety in resource sector
State Government Authority	Environmental Protection Authority (supported by DWER)	Administers parts of *Environmental Protection Act* 1986 (EP Act) Part IV (EP Act) Environmental Impact Assessments
State Government Authority	Department of Biodiversity Conservation and Attractions (DBCA)	Administers *Biodiversity Conservation Act* 2016 Flora, fauna and habitat conservation. Interest in projects that are located on DBCA managed land Baseline surveys and authority to take flora and fauna

Stakeholder Group	Organisation	Interest
State Government Authority	Department of Fire and Emergency Services (DFES)	Fire breaks. Provision of emergency services
State Government Authority	Department of Health (DoH)	Environmental health, building and planning compliance
State Government Authority	Pastoral Lands Board (PLB)	Pastoral leases, stations
State Government Authority	Department of Water and Environmental Regulation (DWER)	Provision of licences to take water and permits to construct bore and divert watercourses Groundwater quality and quantity. Part V (EP Act), Control of Pollution Administers *Industry Regulation and Licensing and Contaminated Sites Act* 2003
State Government Authority	Department of Planning, Lands and Heritage	Administers *Aboriginal Heritage Act* 1972 Indigenous and Native Title requirements. Heritage, cultural, ethnographic and archaeological sites. Risk management on unallocated Crown Land
State Government Authority	Main Roads Western Australia (MRWA)	Use of public roads, including Restricted Access Vehicles (RAV) network
Local Government Authority	Shire of Dundas Shire of Esperance	Benefits to local economy and community. Safety of locals and passers-by. Use of public roads and infrastructure. Compliance with building, health, sewage and other local government regulation.
Indigenous Groups	Ngadju Native Title Aboriginal Corporation (NNTAC) e	Access to and use of Traditional Owner land. Cultural heritage values. Native Title rights.
Pastoral Stations	There are no pastoral or agricultural activities undertaken within the area.	N/A
Adjacent Tenement Owners	Karora, Mincor and Dynamic Metals.	Land access approvals/agreements use of minor infrastructure. Potential synergies in adjacent projects.

Stakeholder Engagement Process

Rumble and its predecessors have a history of engagement with stakeholders concerning the Western Queen Project. More recent engagement has focused on stakeholders with a direct interest in the Project and / or who are proximal to the Prescribed Premises or proposed activities, including government agencies, pastoral lease holders and other industry participants. A stakeholder register of engagement is maintained and provided in Table 8.

Table 8 Stakeholder Register

Date	RTR Contact	Group	Format	Subject	Details
12-Sep-23	Western Queen	Will Moore	Meka Station	Bob Grinham	Email, Introduction. Change in contact point for Rumble Resources. Inspected site in September 2023. Intend to take water samples from pits and offered to provide results. Informed that gates were shut and notified him there were six sheep within the fenced area. Rehab works were planned for later in 2023 at the Wardawarra further north of the Western Queen. Requested contact phone number.
19-Sep-23	Western Queen	Will Moore	Mt Magnet Youth Centre	Roy Geirge	Phone, Donation Request. Queried whether Rumble would be open to providing support to the Mt Magnet Youth Centre for provision of a dual cab ute for 12 months. Rumble thanked them for their sponsorship request. Declined the request on the basis that our focus is on Wiluna/Martu People/Earaheedy Project rather than Mt Magnet. It would also be a large outlay that we currently couldn't afford at this stage in the order of $50k. It was suggested to contact Westgold or Ramelius given their location relative to Mt Magnet.
2-Jan-24	Western Queen	Will Moore	Meka Station	Mayne Jenour	Phone, Introduction and PoW - Introduction of Rumble Resources. Offered to meet in person. Happy to do so. - Outlined Rumble were looking to undertake drilling north of Western Queen. - Mayne detailed Nigel is the contact point in general for mining related inquiries, whilst Mayne manages the agricultural aspects to the project
23-Jan-24	Western Queen	Will Moore	Meka Station	Nigel Brown	Phone, Introduction and PoW. - Introduction of Rumble Resources. Offered to meet in person. Happy to do so. -Detailed intentions of planned drilling activities at Tantalus project. In earlier phone conversation, introductions were made that a land access agreement was needed for compensation due to drilling impacts. No formal agreement made regarding land access agreement.
29-Feb-24	Western Queen	Will Moore	Meka Station	Nigel Brown	Email, Agreement. Request made to sign an agreement for the proposed scope of works by Meka Station which had, in Rumble's opinion had unreasonable compensation payments terms. The email outlines Sections of the Mining Act

Date	RTR Contact	Group	Format	Subject	Details
					that Rumble need to comply with Section 123(4). Rumble responded that we aren't accepting the terms based on our previous experiences and will be in contact once we are ready to start drilling. It was outlined that exploration geologists will be present on the E20/967 tenure in the coming week.
29-Apr-24	Western Queen	Will Moore	Meka Station	Nigel Brown	Email, Proposed Western Queen Activities. Provided details on the proposed Western Queen drilling and adjacent reconnaissance activities.
29-Apr-24	Western Queen	Will Moore	Coodardy Station	Les Price	Email, Proposed Western Queen Activities. Provided details on the proposed Western Queen drilling and adjacent reconnaissance activities.
20-May-24	Western Queen	Will Moore	DEMIRS	Kobie Hughes	Email, PoW. Responded to queries re Western Queen driving relating to drilling near open pits, geotechnical instability and waste dumps.
10-Jun-24	Western Queen	Will Moore	Meka Station	Nigel Brown	Email, Eastern Earaheedy. Requested locations to be provided for the drilling planned at Western Queen. Will provided the locations in a table. Will provided response to Meka with proposed drill coordinates.
21-Jun-24	Western Queen	Luke Timmermans	Meka Station	Nigel Brown	Email, Western Queen drilling. Thanked Luke for his response and asked if Rumbel could let them know when drilling commences.
1-Jul-24	Western Queen	Will Moore	Meka Station	Nigel Brown	Email, Wardawarra drilling. Informed Meka of the PoW application that has been submitted to DEMIRS at Wardawarra
8-Aug-24	Western Queen	Will Moore	DBCA	Beth Chapple	Email, Banded Iron Formations. Provided additional information regarding Western Queen BIFS and other environmental sensitivities in the Wardawarra and Munarra Gully.
2-Sep-24	Western Queen	Will Moore	Community	Ray Carbine	In Person, Wadjarri Yamatji PBC. Requested Ray if he knew of any Directors with Wajarru Yamtji PBC. He knew of them but did not deal with them.
20-Nov-24	Western Queen	Michelle Carey	Regulator (DEMIRS)	Lyndsey Bourkey and Amy Tran	In person, Mining Proposal and MCP. Initial scoping meeting to reintroduce WQ project and describe proposed activities and general schedule

Date	RTR Contact	Group	Format	Subject	Details
22-Nov-24	Western Queen	Michelle Carey	Regulator (DWER)	Fiona Westcott	Phone, Works Approval. Introduce the project and works approval scope (Cat 5, Cat 6, Cat 89). Talk about discharge options and arrange to meet once hydro investigations are underway
11-Dec-25	Western Queen	Michelle Carey	Regulator (DWER)	Fiona Westcott	Phone, Works Approval. Discuss additional options and works required to include evaporation pond in the scope
28-Jan-25	Western Queen	Mark Carder	Challa Station	Ashley Dowden	Email, Mt Magnet Shire. Requested who the best Mt Magnet Shire Person to make first contact with for Road Access for Haulage and discussing the restart of the Western Queen Mine Site
28-Jan-25	Western Queen	Mark Carder	Meka Station	Nigel Brown	Email Introduction to Mega Resource and the Mining JV. Requested an initial introduction meeting to meet Mega Resources and to discuss the restart of the Western Queen Mine. Requested a meeting either at the Pastoral Station or Perth Office at a preferred date and time for Nigel.
19-Feb-25	Western Queen	Michelle Carey	Regulator (DEMIRS)	Lyndsey Bourke	Phone, MDCP update. Mining Proposal and Mine Closure Plan can still be submitted in March and April using the DEMIRS 2020 guidelines. Use the MDCP standardised text with the risk assessment
20-Feb-25	Western Queen	Mark Carder	Meka Station	Nigel Brown	Phone, AECOM Hydrological Survey. Requested access along station tracks to the Sanford Southern Tributary to collect water samples and checked about a possible meeting in Perth with the Mega and Rumble Team
20-Feb-25	Western Queen	Mark Carder	Mt Magnet Shire	Tralee Cable	Email, Proposed Western Queen Mining. Requested a meeting to introduce Mega Resources and what we are looking to do over the next few years out at Western Queen
20-Feb-25	Western Queen	Mark Carder	Mt Magnet Shire	Tralee Cable	In Person, Proposed Western Queen Mining. Introduce Mega/Rumble JV and discussed potential mining operations at Western Queen; Discussed potential Toll treatment Locations in the Shire as it relates to road train Haulage; Tralee has concerns about more traffic around the Mt Magnet Town in regard to elderly residents

Date	RTR Contact	Group	Format	Subject	Details
27-Feb-25	Western Queen	Mark Carder	Meka Station	Nigel Brown	In Person, Proposed Western Queen Mining. Meeting with Meka Station, Rumble and Mega to discuss upcoming mining project and any potential issues with the pastoral station. Nigel has several stations that have operating mines and he was very familiar with the process and was happy for the mine to restart. He did have a template to use for access agreement plus was keen to help with his aerial survey company.
5-Mar-25	Western Queen	Michelle Carey	Regulator (DWER)	Tim Moran, Senior Environmental Officer, Resources Industries	In Person, Western Queen Works Approval. Meeting to present Western Queen project to DWER and discuss discharge options. Tim provided a hierarchy of options from most preferred (reuse). Direct creek discharge is possible if water quality is like for like between the discharge water and the receiving waters/environment

PART 9: EMISSIONS, DISCHARGES AND WASTES

ATTACHMENT 6A: EMISSIONS AND DISCHARGES

Environmental Impacts and Risk Assessment

A risk assessment for the Prescribed Premises activities was completed in accordance with the DWER Guidance Statement: Risk Assessments (2020). The risk assessment process identified the following:

- The sources of pollution and where available, quantification of emissions.
- The pathway which pollution follows from the source to the receptor.
- The environmental and health receptors.
- The potential Impacts on the receptors from this source of pollution.
- The project specific controls and mitigation measures which will be applied at the WGP.
- The likelihood, consequence and overall risk rating associated with this factor.
- The requirement for monitoring.

Likelihood and consequence categories (Table 9 and Table 10) were derived from the DWER Guidance Statement (DWER 2020), to generate a risk rating as defined in the matrix (Table 11).

Table 9 Risk Assessment Likelihood Definitions

Likelihood	Definition
Almost Certain	The risk event is expected to occur in most circumstances
Likely	The risk event will probably occur in most circumstances
Possible	The risk event could occur at some time
Unlikely	The risk event will probably not occur in most circumstances
Rare	The risk event may only occur in exceptional circumstances

Table 10 Risk Assessment Consequence Definitions

Factor	Slight	Minor	Moderate	Major	Severe
Environment	• Onsite impact: minimal • Specific Consequence Criteria (for environment) met	• Onsite impacts: low level • Offsite impacts local scale: minimal • Offsite impacts wider scale: not detectable • Specific Consequence Criteria (for environment) likely to be met	• Onsite impacts: mid level • Offsite impacts local scale: low level • Offsite impacts wider scale: minimal • Specific Consequence Criteria (for environment) are at risk of not being met	• Onsite impacts: high level • Offsite impacts local scale: mid level • Offsite impacts wider scale: low level • Short-term impact to an area of high conservation value or special significance^ • Specific Consequence Criteria (for environment) are exceeded	• Onsite impacts: catastrophic • Offsite impacts local scale: high level or above • Offsite impacts wider scale: mid level or above • Mid to long-term or permanent impact to an area of high conservation value or special significance^ • Specific Consequence Criteria (for environment) are significantly exceeded
Amenity (such as air and water quality, noise and odour)	• Local scale: minimal impacts to amenity	• Local scale impacts: low level impact to amenity	• Local scale impacts: mid level impact to amenity	• Local scale impacts: high level impact to amenity	• Local scale impacts: permanent loss of amenity

^ For areas of high conservation value or special significance, the Guideline: Environmental siting is used to inform the decision

'Onsite' means within the prescribed premises boundary.

Table 11 Risk rating matrix (Source: DWER 2020)

		Consequence				
		Slight	Minor	Moderate	Major	Severe
Likelihood	Almost certain	Medium	High	High	Extreme	Extreme
	Likely	Medium	Medium	High	High	Extreme
	Possible	Low	Medium	Medium	High	Extreme
	Unlikely	Low	Medium	Medium	Medium	High
	Rare	Low	Low	Medium	Medium	High

There are no residences or communities in close proximity to the Prescribed Premises. The closest residence is Meka Homestead which is located approximately 32 km north-west of the minesite.

Possible key receptors are limited to:

- Flora and vegetation surrounding the project infrastructure.
- Native fauna that inhabit the adjoining habitat
- Groundwater and surface water.

Risk ratings, their acceptability and regulatory control (treatment) are provided in Table 12 and Table 13.

Table 12 Risk Treatment (DWER 2020)

Rating of Risk Event	Acceptability	Treatment
Extreme	Unacceptable	Risk event will not be tolerated. We may refuse the application
High	May be acceptable subject to multiple regulatory controls	Risk event may be tolerated. We may apply multiple regulatory controls, including both outcome-based and management conditions.
Medium	Acceptable, generally subject to regulatory controls	Risk event is tolerable. We may apply some regulatory controls, including outcome-based conditions where practical and appropriate.
Low	Acceptable, generally not controlled	Risk event is acceptable. Generally, we will not apply regulatory controls.

Table 13 Regulatory Controls for Risk Events (DWER 2020)

Control	Description of Regulatory Control
Siting of infrastructure	Where we specify the location of infrastructure to avoid or minimise the impact of emissions on receptors
Infrastructure design or construction requirements	Where we specify an engineering or construction standard for the design and construction of infrastructure or equipment to prevent, control, abate or mitigate pollution or environmental harm.
Emissions limits	Where we state limits that cannot be exceeded for specific emissions to air, land, surface and groundwater.
Monitoring	Where we require monitoring to validate performance within limits or the effectiveness of other controls (e.g. infrastructure requirements), or to obtain baseline data to support our ongoing assessment of the risk.
Requirements for operation of infrastructure	Where we state how the applicant should operate and/or maintain infrastructure (e.g. freeboard, storage volumes, physical or chemical parameters of abatement equipment) to control emissions.
Specified actions	Where we ask the applicant to take specific, short term or one-off actions (e.g. collect data, install additional controls).
Volume/scale limits	Where we put constraints on production, throughput or acceptance.
Restriction on input	Where we specify the inputs (e.g. feedstock) for the activity (type or limit) for the premises or a specified process.
Specifications on product or materials	Where we give pathogen or contamination limits for products, or specifications for materials (e.g. dust extinguishment moisture levels for bulk commodities).

Risks and associated control measures are presented in Table 14, with further description provided in the proceeding sub sections.

Table 15 outlines the sources of emissions and discharges associated with the proposed construction activities and provides control measures to mitigate any associated risks.

Table 14 Environmental Risk Assessment

Ref	Phase	Risk Pathway	Impact	Inherent Risk			Risk Treatment and Relevant Regulators	Residual Risk		
				Likelihood	Consequence	Risk Rating		Likelihood	Consequence	Risk Rating
Biodiversity										
ER-01	Construction, Operation	Dust emissions discharged to surrounding environment from machinery (crushing, screening, conveying) vehicles, materials handling, construction of landfill trenches / cells	Decline in ecosystem function and vigour in natural areas in proximity to mine operations	Possible	Slight	Low	• Site induction will include information dust management. • Dust emissions are regulated by DWER under Part V of the EP Act. • Suppress dust on roads and mine areas via water carts and sprinklers. • Implement vehicle speed restrictions to reduce dust generation on roads. • Utilise dust suppression on product stockpiles and crushers/conveyers where applicable. • Use dust collection systems on crushers / conveyers where applicable. • A water cart will be deployed to wet the landfill area prior to trenching, if dust is deemed a problem during construction.	Unlikely	Slight	Low
ER-02	Construction, Operation	Excess noise associated with construction and operational activities (Excavation, blasting, crushing, screening, conveying, construction of landfill trenches / cells)	Disturbance or disruption to sensitive receptors, including fauna	Unlikely	Slight	Low	• Noise is regulated by DWER under Part V, Division 1 of the EP Act and through the Environmental Protection (Noise) Regulations 1997. • Equipment and machinery will comply with Australian standard noise limits. • Fixed and mobile equipment will be maintained and serviced to manufacturer's specifications to ensure efficient running with minimal noise or vibration emissions. • Apply best available technology to minimise noise emissions • Blasting controls	Unlikely	Slight	Low
Water Resources										
ER-03	Construction, Operation	Runoff from disturbed ground resulting in erosion and sedimentation	Construction and operation of the Project has the potential to result in the following impacts to surface water: • potential changes to hydrological regimes • alteration to surface water flows; • increased sediment run off and impact on surface water quality and flow; • modification of sediment transport, erosion and deposition patterns; • contamination due to spillages of materials; and • potential for damage to mining infrastructure including WRL, topsoil stockpiles and the ROM pad from sheet flow following significant rainfall events.	Likely	Minor	Medium	• Diversion of upstream drainage where practicable. • Containment of plant area runoff. • Appropriate design and rock armouring to ensure stable and non-polluting structures. • Installation and maintenance of WRL toe bunds and sedimentation basins/ponds. • Laydown and hardstand areas will be compacted and where possible, constructed away from waterways. • Borrow pits will be designed, constructed and rehabilitated to minimise surface water ponding. • The Project has been designed such that it is positioned well within the landscape with drainage lines avoided where possible, to minimise impact on natural surface water drainage patterns; • Mine site construction will only be carried out during dry periods; • The northern stream that runs through the Western Queen South Pit will be diverted around the pit using a drain and bund wall that has been designed to ensure it will not restrict the flow rate; • Dewatering will be via a pipeline direct from the Western Queen South Pit to the Western Queen pit ensuring no adverse impacts	Possible	Minor	Medium

Ref	Phase	Risk Pathway	Impact	Inherent Risk			Risk Treatment and Relevant Regulators	Residual Risk		
				Likelihood	Consequence	Risk Rating		Likelihood	Consequence	Risk Rating
							on the surrounding environment as a result of dewatering processes; • Flow meters and telemetry shall be installed on the discharge pipeline; • The discharge pipeline shall be inspected daily; • The discharge pipeline shall be within bunded open trenches to contain any spillage; • Records of dewatering abstraction will be kept, to monitor volumes being discharged into the Western Queen pit; • Inspections of mine site infrastructure and surrounding areas will be carried out after significant rainfall events to identify any pooling or damage resulting from surface flows; • Ongoing quarterly water monitoring will continue as per DoW licence requirements; • The use of discharge water for dust suppression will only be carried out in disturbed areas to avoid damage to surrounding vegetation; • Water truck staff will be fully trained in the proper use of water trucks for dust suppression; • During dewatering and discharge to the creek, a suitable structure shall be installed at the discharge point to reduce velocity and subsequent erosion and prevent sedimentation offsite. • All dust suppression water trucks to use dribble bars to limit impact on surrounding vegetation; • Vegetation corridors will be left between mining infrastructure areas where possible to provide soil stability and maintain existing surface water flows; • All newly constructed access and haul roads will be constructed with floodways, culverts and spur drains to direct surface flow; • Contaminated water run-off from the workshop areas will be contained by constructing the washdown area to relevant Australian standards and industry guidelines and directing all contaminated run off to a single washdown sump with an oily water separator.			
ER-04	Construction	Construction and development activities, including creek crossings, resulting in temporary obstruction of ephemeral watercourses	Water ponding upstream causing erosion and instability of creek beds and sedimentation/ siltation downstream. Decline in vegetation condition	Possible	Minor	Medium	• Avoid disturbance to drainage lines within the Prescribed Premises area where possible, to minimise impact on natural surface water drainage patterns. • Construction activities to occur only during dry periods. • The northern stream that runs through the Western Queen South Pit will be diverted around the pit using a drain and bund wall that has been designed to ensure it will not restrict the flow rate. • Dewatering will be via a pipeline situated in a bunded open trench direct from the Western Queen Pit. • Flow meters will be installed on the discharge pipeline, to monitor volumes and velocity. • Inspect dewatering pipeline daily. • Maintain records of dewatering volumes into the Western Queen pit;	Unlikely	Minor	Low

Ref	Phase	Risk Pathway	Impact	Inherent Risk			Risk Treatment and Relevant Regulators	Residual Risk		
				Likelihood	Consequence	Risk Rating		Likelihood	Consequence	Risk Rating
							• Inspect mine site infrastructure and surrounding areas after significant rainfall to identify any pooling or damage from surface water flows. • Undertake water and downstream vegetation condition monitoring. • All dust suppression water trucks to use dribble bars to limit impact on surrounding vegetation. • Vegetation corridors will be left between mining infrastructure areas where possible to provide soil stability and maintain existing surface water flows. • Where required, new access and haul roads will be constructed with floodways, culverts and spur drains to direct surface flow. • Contaminated water runoff from the workshop areas will be contained by constructing the washdown area to appropriate Australian standards and industry guidelines and directing all contaminated run off waste to a single washdown sump with an oily water separator. • All fuel storage tanks will be self-bunded and double skinned and all fuel and chemicals will be stored in accordance with dangerous goods and explosives legislation. • Drainage lines will be diverted around cleared areas and stockpiles before rejoining natural drainage lines downstream of mining activity. The northern drainage line has already been diverted around the Western Queen project area with no expected impact on current natural flow rates. The combination of alternative drainage channels and limited overland flow within and adjacent to the Prescribed Premises will help to minimise the amount of erosion, with most of the soil erosion being limited to localised areas. • The proposed clearing is unlikely to significantly increase infiltration, which may otherwise lead to a rise in groundwater or increase salinity levels within the Prescribed Premises.			
Land and Soils										
ER-05	Construction, Operation	Contamination to land resulting from hydrocarbon leaks and spills from machinery, equipment, pipelines and plant infrastructure during operations	Hydrocarbon or chemical leaks and spills contaminate land and soil resources	Likely	Minor	Medium	• Regulated by DWER, under Part V EP Act licence conditions. • The general provisions of the EP Act and Environmental Protection (Unauthorised Discharges) Regulations 2004 apply. • Site induction will include information about hydrocarbon handling and management. • Chemicals, hydrocarbons and other environmentally hazardous materials will be stored and handled in accordance with the Dangerous Goods Safety Act 2004 and associated regulations, including the use of a bunded and sealed assembly area for hazardous chemicals (containerised) prior to offsite treatment/disposal by a licenced and authorised waste contractor. • Bunding, containment and handling will be managed in accordance with the Australian Standard 1940-2004, Storage and Handling of Flammable and Combustible Liquids, with facilities containing hydrocarbons and/or chemicals have been	Unlikely	Minor	Low

Ref	Phase	Risk Pathway	Impact	Inherent Risk			Risk Treatment and Relevant Regulators	Residual Risk		
				Likelihood	Consequence	Risk Rating		Likelihood	Consequence	Risk Rating
							designed within bunds to contain 110% of the contents of the material stored. • Refuelling and fuel delivery inlets will be located on concrete or HDPE-lined pads to contain any drips and spills. The pads will drain to a sump to enable removal of collected material. • Regular inspections of storage areas (i.e. fuel storage and refuelling areas, as well as vehicles and workshops) will be undertaken to detect leaking hydrocarbon bunds, pipes, drums or containers. • Spill kits will be located at strategic locations throughout the Prescribed Premises and employees trained in their use. • Spills will be cleaned up and contaminated soils will either be remediated on site in a specific bioremediation cell within the WRD area or removed from site and disposed of appropriately by a licensed third party contractor. Incident investigation will be undertaken as required to determine the cause of environmentally harmful spills/leaks and control measures identified to prevent future incidents. As required, spills will be reported to the relevant authorities. • Surface water drainage from areas such as the workshop washdown facility with the potential to release contaminants will be directed to a single washdown sump with an oily water separator.			
ER-06	Construction	Poor geotechnical stability in WRL landforms or landform surfaces.	Erosion and increased sediment load to surface water	Possible	Moderate	Medium	• Design and construct WRL to meet appropriate geotechnical standards. • WRL design incorporates results of materials characterisation studies • Construct landforms outside the pit Zone of Instability. • Handling and construction of waste material shall be incorporated into mine plans • Design and construct adequate controls to manage surface water on and around WRL. • Annual review of all constructed landforms and compliance with design requirements. • Inspections of watercourses downstream of infrastructure, recording evidence of erosion and sediment discharge. • Inspection and maintenance of sediment basins/sumps.	Unlikely	Moderate	Medium
ER-07	Construction Operations	Poor waste handling and disposal	Contamination of land and soil Changes in animal foraging behaviour Decline in amenity values (litter, odour etc.)	Possible	Minor	Medium	• Site induction will include information about appropriate waste management procedures. • Implementation of hygiene practices including appropriate disposal of wastes via the putrescible landfill facility. • Landfill will be constructed and managed in accordance with the Code of Practice for Rural Landfill Management (Department of Environmental Protection 2000), including: • The construction of the landfill site will be at least 100 m from any residential receptor and at least 2 m above the highest groundwater table. Preferably at higher elevations on the WRD to prevent stormwater runoff entering a landfill trench. • The landfill will be covered with a minimum of 0.3 m of inert material on a fortnightly basis.	Unlikely	Minor	Low

Ref	Phase	Risk Pathway	Impact	Inherent Risk			Risk Treatment and Relevant Regulators	Residual Risk		
				Likelihood	Consequence	Risk Rating		Likelihood	Consequence	Risk Rating
							• Batteries will be sent to a registered facility for recycling. • Recycling and waste minimisation programs will be implemented • Signage shall be installed listing the type of waste facility and materials to be deposited. • A small bioremediation cell will be constructed within the landfill area for disposal of hydrocarbon contaminated waste. • Conduct routine inspections of construction areas and enforce appropriate handling and management of waste; • Ensure that any controlled wastes generated onsite are disposed of in a licensed facility, and only transported by a licensed controlled waste carrier; and • Report non-compliance with domestic and industrial waste disposal procedures to the Environment Manager.			

Table 15 Sources of Emissions and Discharges during Construction of the Western Queen Project

Source of emission or discharge	Emission or discharge type	Volume and frequency	Proposed controls	Location
Vehicle movements on unsealed access roads during construction/ commissioning	Noise	Temporary during construction/ commissioning	• All mining operations to comply with the Environmental Protection (Noise) Regulations 1997 • Equipment and machinery design will specify compliance with Australian Standard noise limits. • Apply best available technology to minimise noise emissions from construction.	Internal roads
	Dust	Temporary during construction/ commissioning	• Adhere to Dust Management Procedure to reduce dust emissions on nearby vegetation and fauna habitats. • Vehicle traffic will be confined to defined roads and tracks. • Active haul roads and access tracks are watered for dust suppression. • Vehicle speeds will be restricted on all access and haul roads.	Internal roads
Earthworks, construction of new buildings, plant and infrastructure	Noise	Temporary during construction	• All mining operations to comply with the Environmental Protection (Noise) Regulations 1997 • Equipment and machinery design will specify compliance with Australian Standard noise limits. • Apply best available technology to minimise noise emissions from construction.	M59/208 M59/45
	Dust	Temporary during construction	• Adhere to Dust Management Procedure to reduce dust emissions on nearby vegetation and fauna habitats. • All areas under construction to be watered for dust suppression as required.	M59/208 M59/45
Mobile Crushers / Screeners,	Noise	Testing	• All mining operations to comply with the Environmental Protection (Noise) Regulations 1997 • Equipment and machinery design will specify compliance with Australian Standard noise limits. • Apply best available technology to minimise noise emissions from construction.	M59/208
	Dust	Testing	• Adhere to Dust Management Procedure to reduce dust emissions on nearby vegetation and fauna habitats.	M59/208
Construction of Landfill trench/cell	Dust	Limited period during construction	• A water cart will be deployed to wet the landfill area, if dust is deemed a problem during construction.	M59/208
	Noise	Limited period during construction	• All mining operations to comply with the Environmental Protection (Noise) Regulations 1997 • Equipment and machinery design will specify compliance with Australian Standard noise limits	M59/208
Landfilling to active	Odour	Limited period	• All waste will be compacted and, then covered with a minimum of 0.3m of clean, inert, non-combustible fill. This will occur at least once a fortnight or as requested.	M59/208

Source of emission or discharge	Emission or discharge type	Volume and frequency	Proposed controls	Location
trench / cell		during construction	• Landfill site to be located at least 500m from any residential development.	
	Windblown rubbish	Limited period during construction	• Recovery of any windblown waste shall occur at least monthly	M59/208
Storage and use of hydrocarbons	Spills and breach of containment		• Adhere to Hydrocarbon Management Procedure and Hydrocarbon (and Chemical) Spill Management Procedure • All hydrocarbon storage areas will be designed and constructed in accordance with Australian Standards AS1940 and AS1692. • All hydrocarbons will be stored in bunded areas or containers with bunding (Two 100,000 L self bunded fuel tanks will be located on site). Containment and handling will be managed in accordance with the Australian Standard 1940-2004, 'The Storage and Handling of Flammable and Combustible Liquids'. • The bunded areas will incorporate a collection sump to recover spillage. • Fuel bowsers and fuel delivery inlets will be located on concrete or HDPE-lined pads to contain any drips and spills. • All substances will be permitted, stored, handled and disposed of in accordance with relevant licence conditions and requirements, and based on relevant regulations, guidelines and standards. • Vehicles and machinery will be serviced within designated workshop areas. • Movement of materials will be confined to defined roads and tracks and vehicle speeds will be restricted on all access and haul roads. • Spill kits will be fully stocked, located in strategic locations and personnel will be trained in their use. • Designated bins and drums will be provided to dispose of hydrocarbon materials which will either be transported off site for disposal at a licensed facility or disposed of in the bioremediation cell within the landfill facility. • Stormwater to be diverted around and away from the ROM pad, landfill and workshop infrastructure areas by diversion drains and bunding	M59/208 M59/45
Storage and use of Ammonium Nitrate Fuel Oils (ANFO)	Spills and breach of containme		• ANFO will be transported to site and stored onsite in accordance with Security Sensitive Ammonium Nitrate (SSAN) licences issued under the Dangerous Goods Safety (Explosives) Regulations 2007.	M59/208

Source of emission or discharge	Emission or discharge type	Volume and frequency	Proposed controls	Location
	nt			
Infrastructure drainage	Stormwater runoff	Construction and operation	• Installation of sediment control structures at locations where high sediment loads are anticipated; • Stormwater diverted around and away from the processing plant, landfill and workshop infrastructure areas by diversion drains and bunding	M59/208 M59/45
Landfilling to active trench/cell	Leachate	Limited period during construction	• Landfill site will be located over 100 m away from surface water features and located at least 2 m above the groundwater table • Bunding constructed around trench perimeter to prevent stormwater ingress	M59/208
Workshop and wash down facility	Hydrocarbons - spills, leaks and breach of containment		• Washdown bay located on impervious pad constructed such that solids and dirty washdown water will drain to a primary settlement sump and oily water will overflow to an oily water separator system. • Sediment from wash down pad will collect in a concrete sump. Contaminated soil shall be placed within a small bioremediation cell / facility located within the Waste Rock Dump area. • Hydrocarbon contaminated water will be directed to an oily-water separator system. Treated TPH concentration <15 mg/L, may be used onsite for dust suppression. TPH >15 mg/L, it will be recirculated through the system for further treatment or contained in a storage tank for removal off-site or disposed of in the bioremediation cell within the landfill facility. • Spill kits will be located at all hydrocarbon storage facilities and service trucks, and be clearly identified.	M59/208

Monitoring and Reporting

The main factors and infrastructure requiring monitoring comprise:

- Dust during construction and operations.
- Water pipelines and water storage facilities.
- Hydrocarbon and chemical storage facilities.
- Landfill facility
- Dewatering management

Monitoring for these factors and infrastructure is discussed below in Table 16.

Table 16 Monitoring Requirements

Factor or Infrastructure	Monitoring Requirement
Dust	• Conduct regular visual inspections of Prescribed Premises to ensure dust generation from exposed areas is not excessive. This is especially relevant during periods of strong winds and high temperatures • Sensitive vegetation (including any significant flora) adjacent to cleared areas shall be inspected regularly for dust impacts and remediation action shall be taken, as necessary.
Hydrocarbon and Chemical Storage Facilities	• Hydrocarbon and chemical storage facilities will be inspected daily to ensure compliance with storage requirements contained in Australian Standard 1940-2004.
Landfill Facility	• Conduct regular visual inspections of Landfill Facility to ensure no windblown litter
Dewater Pipelines Dewater Discharge Points	• Daily visual inspections of the dewater pipelines shall be undertaken to ensure integrity of the pipelines. • Discharge points into creek shall be inspected regularly during discharge to ensure no erosion occurring as a result of dewater release.

Monitoring results will be reported in the Annual Environmental Report submitted to DWER. Compliance with licence conditions will be reported in the Annual Audit of Compliance Report submitted to DWER.

PART 10: SITING AND LOCATION

ATTACHMENT 7 SITING AND LOCATION

Regional Setting

The Prescribed Premises lies within the Archaean Warda Warra Greenstone Belt, a north trending enclave within the Murchison Province of the Yilgarn Craton. The Greenstone belt is approximately 35 km in length, and at the southern end near the Western Queen deposit it is two kilometres wide. To the north, it is up to seven kilometres wide. The north striking and west dipping layered sequence has been metamorphosed to amphibolite grade and is enveloped by recrystallised granitoids (Hutchison 2012). The area is semi-arid and has been subject to land degradation through historical pastoral and mining activities (Hutchison 2012).

The closest sensitive receptors to the Prescribed Premises are Meka Station which is located approximately 30 km north-west and an Environmentally Sensitive Area (ESA) located 17 km south east. Neither of these sensitive receptors should be impacted by the proposed operations. Other sensitive receptors within 50 km of the Prescribed Premises are shown on Figure 6.

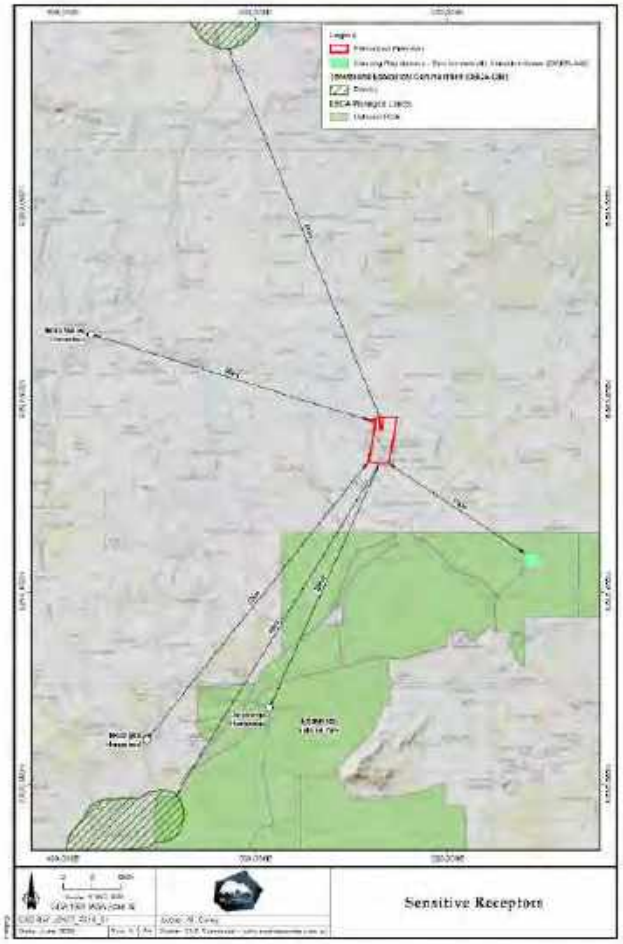


Figure 6 Sensitive Receptors within 50 km of the Prescribed Premises

Climate

Long term weather data is available for Mount Magnet Aero located approximately 90 km south-east of the Project. The area is classified as semi-desert Mediterranean which refers to a climate type characterized by hot, dry summers and mild, wet winters, with a precipitation pattern that is less than a true Mediterranean climate but more than a desert climate (BoM 2012).

The mean daily maximum temperatures range from 38.2 °C in January to 19.1 °C in July (Figure 7) (BoM, 2025). Mean daily minimum temperatures range from 7.1 °C in July to 23.7 °C in January (30 years of records) (BoM, 2025) (Figure 7).

Rainfall is highly variable and unreliable with an average annual rainfall of 244.7 mm (from 30 years of data) (BoM 2025). The wettest months occur between December and August with September to November being the driest months (Figure 7). Mean monthly rainfall ranges from 35.6 mm in March to 7.2 mm in October, with a mean annual rainfall of 244.7 mm.

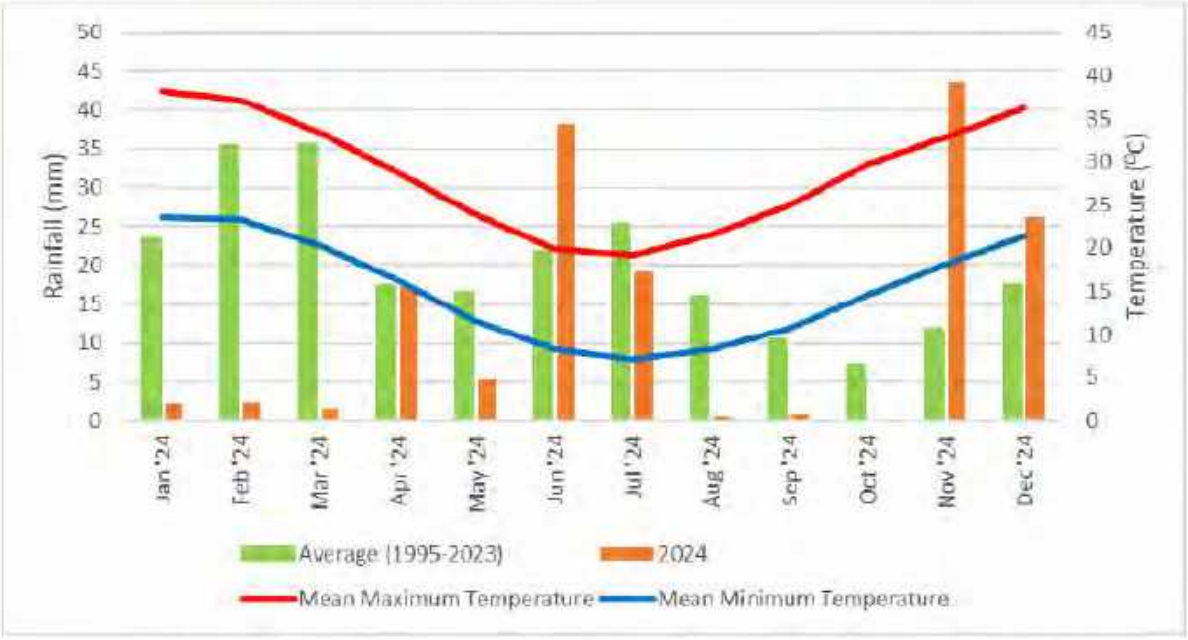


Figure 7 Rainfall and Temperature Data for Mount Magnet Aero (Stn. No. 007600) (BoM 2025)

Geology

The Western Queen deposit occurs in the Warda Warra greenstone belt and is hosted by a greenstone sequence comprising of interbedded schistose amphibolites of mafic to ultramafic composition with thin iron formation horizons, spinifex textured komatiitic basalt, dolerite sills, talc chlorite schist and other assorted ultramafics. Later dolerite dykes and pegmatoid felsic intrusives cut the amphibolites but form a relatively small proportion of the stratigraphy (Hutchison 2012). The ore consists of hydrothermally altered rock (main shoot), or is associated with a recrystallised quartz rock.

The mineralisation falls naturally into two types. At the southern end of the prospect the gold occurs in or near the "quartzite". This mineralisation is highly variable in grade and width but overall is of very low average grade. Several parallel sub-economic zones occur in the hanging wall of the main lode structure.

In the northern half of the prospect, including the main ore shoot, the lode is entirely within ultramafic rock, and the ore consists of hydrothermal altered ultramafic rock which may be of high gold grade. In general, the host rock is a rather homogeneous, grey-green, foliated amphibole-talc-chlorite structure.

Geomorphology

The WQP features erosional surfaces which are mainly low hills comprising unweathered granite with actively eroding slopes and extensive outcrops. Exfoliating granite tors with large batholiths up to 30m high also occur in this area. The area is characterised by sandy foot slopes as well as plains below the hills and tor fields. Narrow alluvial fans and tributaries and minor drainage tracts are present with an overall relief of 20-100m (Curry et al 1984).

JORC Resource Estimate

The current WQP Mineral Resource Estimate (MRE) as reported by Rumble on 15 October 2024 is provided in Table 17. The MRE includes Indicated and Inferred Resource classifications in accordance with the Australasian Code of Reporting of Identified Mineral Resources and Ore Reserves (JORC Code 2012), with all the resources located within granted Mining Leases. Indicated Resources are 2.39Mt @ 2.11g/t Au for 161,800 ounces, which is a 142% increase compared to the August 2021 MRE, and represents 56% of the total MRE.

Table 17 Mineral Resource Estimate for the Western Queen Project

Prospect	Indicated			Inferred			Total		
	Tonnage kt	Au g/t	Au Ounces	Tonnage kt	Au g/t	Au Ounces	Tonnage kt	Au g/t	Au Ounces
Cranes				70	1.39	3,300	**70**	**1.39**	**3,300**
Duke	50	4.23	7,000	70	2.70	5,700	**120**	**3.37**	**12,800**
WQC	590	3.11	59,300	630	2.54	51,700	**1,230**	**2.81**	**111,000**
Princess	180	0.92	5,200	680	1.35	29,300	**850**	**1.26**	**34,600**
WQS	1,560	1.79	90,300	580	1.86	34,600	**2,140**	**1.81**	**124,900**
Total	**2,390**	**2.11**	**161,800**	**2.030**	**1.91**	**124,700**	**4,420**	**2.02**	**286,600**

Soil Landscape Systems

The WQP lies within the Murchison Province, located in the inland Mid-west and northern Goldfields between Three Springs, the Gascoyne River, Wiluna, Cosmo Newberry and Menzies

The landscape consists of hardpan wash plains and sandplains (with some stony plains, hills, mesas and salt lakes) on the granitic rocks and greenstone of the Yilgarn Craton. Soils include red loamy earths, red sandy earths, red shallow loams, red deep sands and red-brown hardpan shallow loams (with some red shallow sands and red shallow sandy duplexes). Vegetation is typified by mulga shrublands with spinifex grasslands (and some bowgada shrublands, eucalypt woodlands and halophytic shrublands) (Tille, 2006).

The Murchison Province is further divided into soil-landscape zones, with the WQP located within the Yalgoo Plains Zone (273). The Yalgoo Plains Zone is comprised of hardpan wash plains (with some sandplains, stony plains, mesas and granite outcrops) on granitic rocks (with some greenstone) of the Yilgarn Craton (Murchison Domain). Soils consist of red loamy earths and red shallow loams (often with hardpans) with red deep sands

and red shallow sands and some red shallow sandy duplexes. Vegetation is typified by mulga shrublands with bowgada shrublands, with some halophytic shrublands. This zone is in the south-western Murchison from Paynes Find to Cue and Twin Peaks Station (Tille, 2006).

In accordance with soil landscape system mapping data (Government of Western Australia, 2019), the soil landscape zones are divided into soil landscape systems, with the WQP located within three soil landscape systems, as described in Table 18 and shown in Figure 8.

Table 18 Soil Landscape Systems within the Western Queen Project Prescribed Premises Area

Soil Landscape System	Description
Challenge System	Gently undulating gritty and sandy surfaced plains, occasional granite hills, tors and low breakaways, supporting acacia shrublands and occasional halophytic shrublands.
Gabanintha System	Greenstone ridges, hills and footslopes supporting sparse acacia and other mainly non-halophytic shrublands.
Jundee System	Hardpan plains with variable gravelly mantles and minor sandy banks supporting weakly groved mulga shrublands.

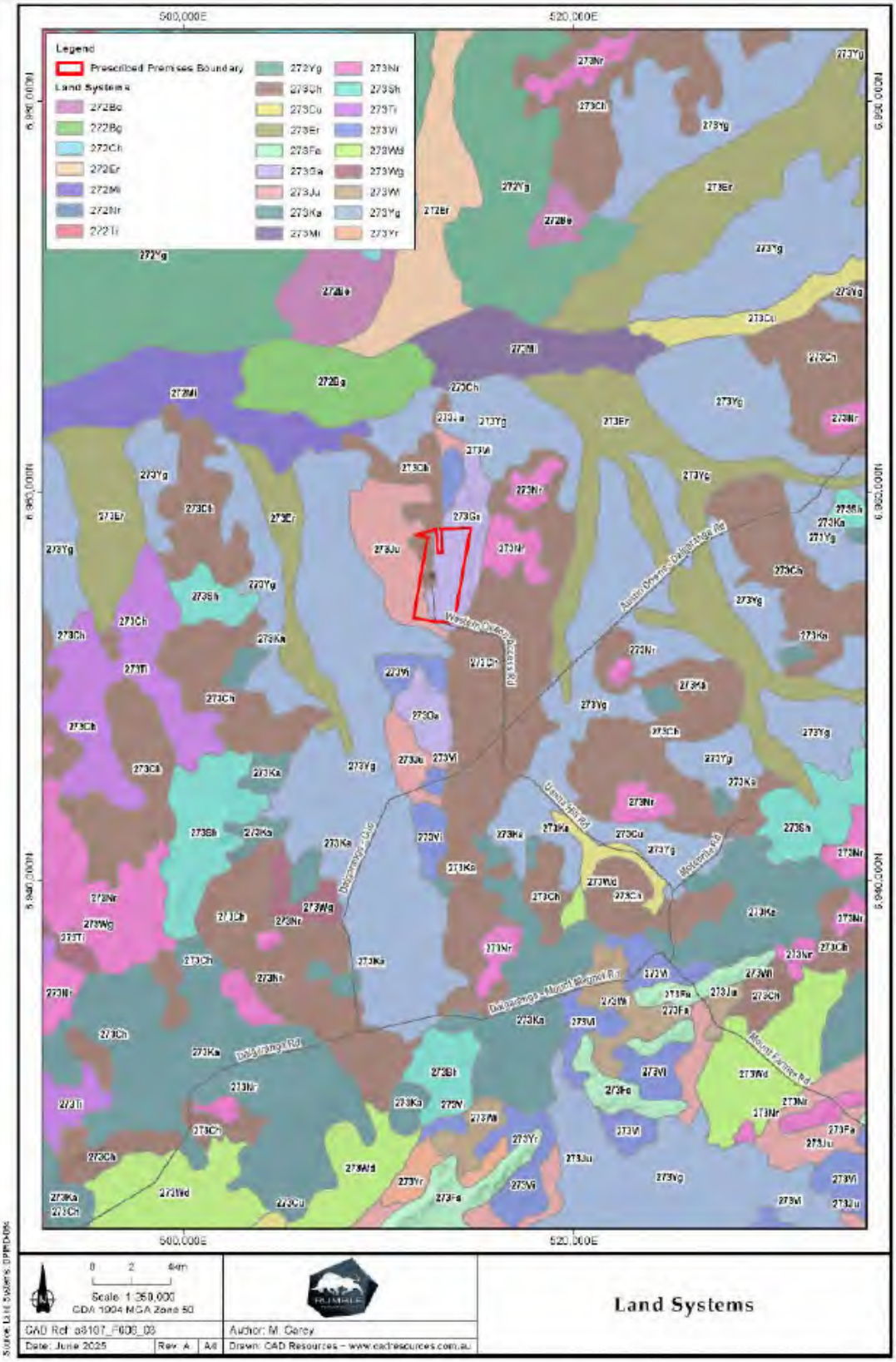


Figure 8 Land Systems within the Western Queen Prescribed Premises Area

Materials Characterisation

Local Soils

Physical and chemical characterisation of the soils within the Prescribed Premises was undertaken in July 2012 (Outback Ecology, 2012b). The surface soils identified were generally shallow loamy sands to sandy clay loams, with some small variation in particle size distribution and varying amounts of coarse fragments. The soils were predominantly single grained with some weak aggregates and coarse fragments; or massive in structure with coarse fragments.

The structure of the surface soils ranged from 'unstable' to 'stable' (Emerson Class 2, 3a, 3b, 5 and 6). The surface soils generally exhibited a tendency for clay dispersion upon disturbance of the <2 mm soil fraction. This indicates that these materials may be potentially problematic once disturbed and re-deposited, however the amount of coarse material present within all soils sampled is likely to mitigate against erosion of the soil surface, as it does in the undisturbed environment (Outback Ecology 2012b).

Measurements of soil strength, through modulus of rupture measurements, indicated that the surface soils within a small area of the disturbance footprint may hardset upon wetting and drying, however the remaining disturbance footprint area surface soils are non-hardsetting (Outback Ecology 2012b).

Hydraulic conductivity of the surface soils varied from 'moderately slow' to 'rapid' across the disturbance footprint area (Outback Ecology 2012b).

Soils sampled throughout the Prescribed Premises exhibited a range of pH values but with some consistency between soil pH and position within the landscape. The pH values of the WRL surface soils were strongly to moderately acidic and the ROM Pad surface soil pH values were slightly acidic to neutral, with the surface soils in these areas being classed as 'non-saline'. The existing WRL and Pit soils were 'slightly' to 'moderately saline' (Outback Ecology 2012b).

Soil nutrient analyses indicated generally low nutrient levels ('plant available' N, P K and S) in all surface soils, which is typical of the region. As is usual for analogue soils in the region, the organic carbon content was generally low (Outback Ecology 2012b).

Measurements of total element concentrations indicated levels of all the metals were above the limit of reporting. Total Ni for all surface soil samples and Mn for some samples recorded levels above the Ecological Investigation Level (EIL). However, metal concentrations of Ni and Mn above the EILs are common for surface soils in the region (Outback Ecology 2012b).

Waste Characterisation

The waste materials sampled were grouped into four waste material lithology groups:

- Transported lateritic clay and pisolites;
- Residual weathered saprolite;
- Fresh mafic greenschist; and
- Leucogranite/pegmatite dyke.

Geological and drill log information indicated that most of the waste material will consist of both friable and competent material with a relatively low soil sized fraction. The final particle size distribution and coarse fragment content will be influenced by blasting and mining activities.

However, given the competent nature of several of the waste materials, the medium generated is likely to include a high proportion of relatively large rock fragments (Outback Ecology 2012b).

The <2 mm fraction, produced by roughly crushing the waste drill core, resulted in a range of 'soil' textures from sand to silty loam (Outback Ecology 2012b).

The 'soil' fractions were structurally moderately stable to stable (Emerson Class 3b and 5), nevertheless, minimal handling of waste materials, particularly when wet, will reduce the likelihood of structural collapse and erosion of the soil component. The assessment of the strength of the waste materials (<2 mm fraction) upon wetting and drying, through modulus of rupture measurements, suggests that most waste materials are unlikely be problematic from a hard-setting perspective. However, the Group B (residual weathered saprolite) waste material is hardsetting and may be problematic the waste material is deposited at the surface (Outback Ecology 2012b).

Comparison of chemical properties between the <2 mm fraction of the waste materials, and the surface soils present, indicated some differences between the waste materials and surface soils (Outback Ecology 2012b).

The pH values for the waste materials were neutral for Group A (transported lateritic clay and pisolites) and Group B (residual weathered saprolite) waste materials, and alkaline for Group C (fresh mafic greenschist) and Group D (leucogranite/ pegmatite) waste materials, while the surface materials were pH neutral to acidic (Outback Ecology 2012b).

The range of electrical conductivity (EC) values in the waste material was also lower compared to the surface soils, with all waste materials classed as non-saline while the surface soils ranged from moderately saline to saline. Like the surface soils, the soil fraction of the waste materials recorded some sodic values (Outback Ecology 2012b).

Organic carbon content of the waste material was measured at low levels as was the case for the surface soils. Plant-available nutrient analyses indicated generally low nutrient levels ('plant available' N, P K and S) in all waste materials which is like the surface soils. Overall, low multi-element concentrations were measured for all waste materials sampled, except for total Ni and Mn which were measured at levels comparable to those measured for the surface soils in the Project area (Outback Ecology 2012b).

Acid Forming Potential

All waste materials sampled were classified as non-acid forming, with only three of the waste samples recording total sulfur values above the detection limit (maximum of 0.06%). The Net Acid Production Potential (NAPP) was negative for all waste samples (Outback Ecology 2012b).

Waste characterisation test work conducted by Amdel Labs are presented in Table 19 and Table 20.

Table 19 Waste characterisation samples

Pit	Rock Type	Sample No.
Western Queen	Pegmatoid rock (Fresh)	BH187327-BH187329
Western Queen	Amphibolite (Fresh)	BH187330-BH187332

Table 20 Waste characterisation description

Sample	Dispersion (Loveday/ Pyle Index 0-16)	pH	TSS
Pegmatoid rock (Fresh)	3-5	9.7-10.1	480-680
Amphibolite (Fresh)	3	9.9-10.2	760-1000

The waste rock for WQS pit does not appear to be potentially acid producing which is also evident in the existing waste dump. The multi element analysis has indicated that there is minimal, if any, sulfur present in the waste rocks of WQS Pit. The major compound analysis indicates that the main minerals are Al_2O_3 and SiO_2.

The waste rock has a pH ranging from 9.7-10.2 (strongly alkaline) and mostly low TTS values indicating non-saline soils. Due to ongoing issues at the Amdel Labs, the slaking results are not available. However, judging from the dispersion index and current stability of the existing Western Queen WRL, this should not be an area of concern.

The waste rocks of WQS Pit have a low moisture content and low sodium absorption ratio. Accordingly, to the Pyle/Lovedale dispersion index, all the waste rock is stable. This is evident in the existing WRL.

2025 Waste Characterisation Review and Assessment

Mine Earth (2025) (Appendix 3) conducted a desktop review of the drilling, geology, pit shell and geochemical data available for the Western Queen site. The data reviewed included the geological and assay database, which were used to identify lithological distributions and acid and metalliferous risks related to sulfur content.

Overall, the review found that the waste material to be extracted across the WQP site has a very low sulfur content and is unlikely to be acid generating, limiting the risk of acid and metalliferous drainage. Specifically, the review indicated that:

- The waste material to be extracted across the site has a low sulfur content (98% of the samples have a sulfur content less than 0.3%) and is unlikely to be acid generating (Table 21).
- The five major lithologies were regolith, mafic, ultramafic, felsic and schist, and all have median sulfur contents <0.1%S.
- Acid Base Accounting (ABA) data is available for 22 waste rock samples from various depths and lithologies close to the Western Queen South pit; all samples were classed as NAF.

While some outliers in the result identified higher sulfur content in the mafic lithology of the WQS pit, Mine Earth (2025) noted that the material is unlikely to be acid forming. Regardless, the review has initiated a sampling and analysis program to further understand the outlying results and ensure that proposed mitigation measures are sufficient.

Table 21 Sulfur distribution, sample count (Sulfur count)

Lithology	WQS		Princess		Duke		Cranes	
	S count	S % Median	S count	S % Median	S count	S % Median	S count	S % Median
Regolith	2,234	<0.01%	1,019	<0.01%	183	<0.01%	101	<0.01%
Mafic	341	<0.01%	6	0.04%	15	0.05%		
Schist	497	<0.01%	285	<0.01%	171	<0.01%		
Ultramafic	140	<0.01%	206	<0.01%	262	0.08%		
Detrital	24	<0.01%						
Felsic	140	<0.01%	271	<0.01%	110	0.09%		
Metamorphic	138	<0.01%	16	<0.01%				
Vein / Breccia			48	0.08%	16	0.10%		
Other	37	0.03%	29	<0.01%	8	0.09%		
Waste Rock Total	**3,551**	**<0.01%**	**1,858**	**<0.01%**	**765**	**0.06%**	**101**	**<0.01%**

Waste Rock Management

From the waste characterisation test results, the two waste rocks do not display great differences. The pH of the waste material could be lowered by amending the soil with organic matter or using acidifying fertilizers such as ammonium sulfate and the waste dump will be covered by topsoil of adequate quality for plant growth.

The previous formed waste dump showed no major areas of concern and poor growth is mainly attributed by grazing pressures.

Hydrology

There are no natural permanent surface water bodies in the Western Queen Prescribed Premises area. Ephemeral drainage channels flow only after heavy rainfall. Recharge occurs after large rainfall events when the surface water is present in low-lying areas for extended periods of time.

Several small surface water catchments drain from southeast to northwest across the Western Queen mine area. A main drainage channel runs west of the mining areas. A small natural drainage channel, with a catchment area of about 150ha, historically ran from east to west, through the WQS open pit area. As part of the previous mine development, surface water flows have been diverted around the pit (MWES, 2012). It is unknown if this drainage line is linked to sub-surface geological features (faults and/or shear zone) that may have been a contributing factor with historical pit wall instability.

Surface Water

The Western Queen Prescribed Premises is located within the Murchison River surface water catchment area which drains from east to west. The WQP area is located at the top of the local catchment just west of a major catchment divide running generally north-south. The area west of the major catchment divide drains to the northwest away from the project site. The area east of the divide, drains eastward. The surface water catchments and drainage lines are shown on Figure 9 (AECOM 2025b).

Within the local catchment, drainage across the proposed mine site follows a series of poorly defined flow paths that coalesce to the south of WQS into a northwest-draining creekline. Catchment areas upstream of the proposed infrastructure are relatively small, meaning surface water management infrastructure will have to manage flows from mainly within the WQP area (AECOM 2025b).

There are no wetlands, water reserves or proposed water catchment areas nearby or within the WQP area.

Given the WQP is located near the uppermost catchment divide, potential surface water receptors are more likely to be located downstream of the proposed project. These receptors may include riverine vegetation that is present in the creekline to the north (WQ) and south (WQS) of the Project. The source of the impact could be the presence of infrastructure that impedes runoff or re-directs it to other parts of the catchment that could change the availability of, or duration that surface water is present downstream. Disturbance of soils within the project footprint could initiate mobilisation of sediment from areas such as the WRL (AECOM 2025b).

AECOM (2025b) assessed the changes in surface water environmental characteristics (flow volumes) downstream and concluded that:

- The disturbed footprint area is small compared to the much larger drainage catchment that drains past the site to the west
- The only part of the proposed project that will not contribute to surface water runoff are the open pits. The small reduction in runoff is expected to be compensated by the increased runoff from existing and proposed hardstand areas
- The highly variable rainfall in the area results in a highly variable stream flow (seasonally and annually). The downstream receptors would therefore naturally be exposed to highly variable stream flows. The minimal change in stream flow volumes potentially caused by the proposed project would be indistinguishable downstream.

As the operational life of the project is approximately two years, this very short duration means operational impacts are likely to occur within a short two-season cycle.

Potential impact sources identified within the project footprint (AECOM 2025b) that could alter the quality of surface water include:

- Disturbed areas where the soil is exposed to channelled runoff due to high local flow velocities. To mitigate this risk, runoff from the mine site will need to be directed to shallow sediment basins, which will be designed following the International Erosion Control Association Australasia (IECA) - Best Practice Erosion and Sediment Control guidelines. These basins should be shallow enough to optimise sediment settling and facilitate maintenance, while also incorporating adequate storage for both runoff and sediment. Outlets should be designed to safely disperse treated runoff to downstream watercourses in a non-erosive manner.
- Water transferred between WQS and WQ contain salt at concentrations above natural surface water runoff. Similarly, surface water runoff from heavy vehicle refuelling areas may contain hydrocarbons. To minimise the risk to downstream surface water quality these water sources should not be released directly into the environment.

Figure 9 Regional surface water catchment areas for the Western Queen Project (AECOM 2025b)

Surface Water Modelling

AECOM (2025b) developed a two-dimensional hydraulic (TUFLOW) model of the site to assess its drainage characteristics. Full details are provided in the report in Appendix 2.

Key observations from the surface water model show:

Western Queen Pit (combined Duke, existing WQ Pit and Princess)

- There is a drainage line running west towards the pit from the east, through the proposed Duke deposit area.
- An existing flow diversion bund directs water in the drainage line around the north of the existing pit in a north-westerly direction before the diverted flow rejoins the original drainage line further east.
- Depths within the diverted section of the drainage line range from 0.1 m to 1.0 m, with an average depth of 0.4 m.
- Velocities within the diverted extent of the drainage line range from 0.3 ms^{-1} to 1.1 ms^{-1}, with an average velocity of 0.7 ms^{-1}.

Western Queen South Pit

- The pit is located near the confluence of three drainage lines.
- Flow in the northeastern drainage line is diverted south-west around the pit by an existing diversion bund, where it intersects the other two drainage lines. Depths within the diverted section of the drainage line range from 0.1 m to 0.9 m, with an average depth of 0.6 m. Velocities within the diverted extent of the drainage line range from 0.2 ms^{-1} to 1.2 ms^{-1}, with an average velocity of 0.6 ms^{-1}.
- Flow in the drainage line directly south of the pit is not contained within well-defined channels. Instead, water discharges northward toward the pit as broad (~550 m wide), shallow sheet flow, with an average depth of 0.1 m and velocity of 0.2 ms^{-1}.
- Runoff trapped within the diversion bund flows to a 'sag' located between the waste dump and the southwestern boundary of the pit.

Cranes Pit

- The pit is located in the top of the catchment with no apparent local drainage features.
- A drainage line located about 220 m south reports shallow sheet flow, with an average depth of 0.2 m and velocity of about 0.7 ms^{-1}.

Haul Road Access

- There is a drainage line running west towards the existing WQ pit from the east, cutting across the proposed haul road, near the northwest corner of the proposed eastern waste dump.
- Predicted flood depths range up to about 0.7 m with a predicted velocity up to about 1.1 ms^{-1}.
- To the south of WQS, the haul road crosses a mine drainage line with predicted flood depths of up to 0.4 m and a predicted velocity of up to 0.6 ms^{-1}.

Proposed Magazine Area

- The small drainage line running west towards the existing WQ pit from the east, runs just north of the proposed Magazine area.
- Predicted flood depths along the proposed access track range up to about 0.6 m with a predicted velocity up to about 1.3 ms^{-1}.
- An area in the north eastern corner of the proposed area reports predicted flood depths up to about 0.2 m with a predicted velocity of about of <0.5 ms^{-1}.

Proposed ROM Area

- A main westerly flowing broad drainage line, located south of the existing WQS pit, cuts across the proposed ROM area.
- Predicted flood depths range up to about 0.5 m with a predicted velocity up to about 0.6 ms^{-1}.

Proposed Office area

- No drainage lines are apparent in the proposed office area.

The baseline hydraulic modelling results (AECOM 2025a) for the proposed WQP extensions, highlights the need to extend the existing flow diversion bunds. Figure 10 illustrates the conceptual drainage design for the project during proposed extensions and operation of the pits.

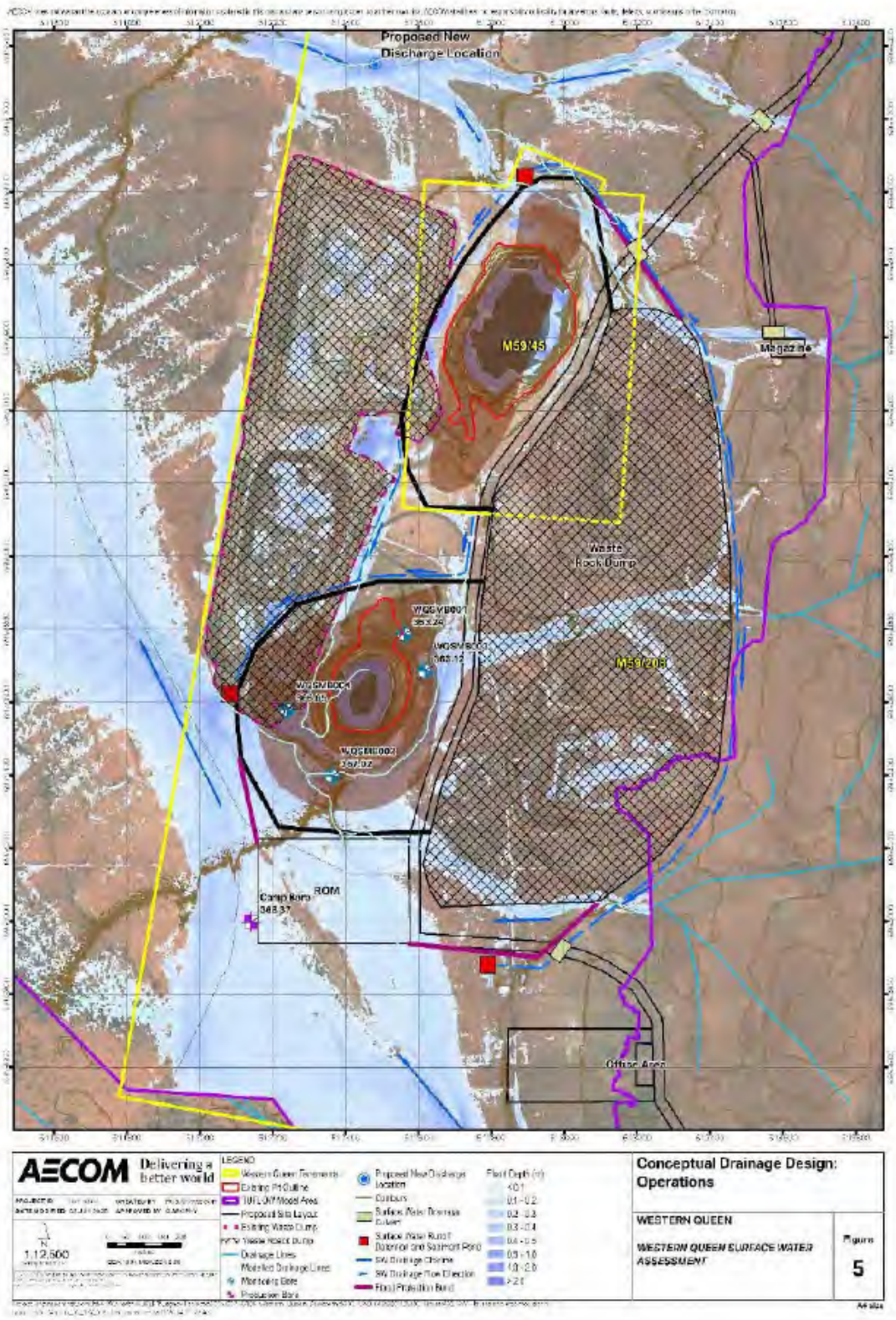


Figure 10 Conceptual Drainage Design for the Western Queen Project (AECOM 2025a)

Surface Water Management Infrastructure

Proposed surface water management measures during mining operations are shown on Figure 10. These measures include:

- drainage channels to capture runoff and safely disperse it downstream.
- sediment basins to temporarily intercept runoff to minimise the turbidity and release of suspended sediment.
- diversion bunds to redirect runoff around infrastructure such as the open pit and WRD.
- capture and removal of rainfall within the open pit.

Drainage Channels

To minimise runoff-related changes to the catchment hydrology, a network of drainage channels is recommended to capture runoff from hard stand areas.

Toe drains around the waste rock dumps and mine laydown and workshop areas are recommended to collect and divert runoff that may carry high sediment loads. These toe drains should redirect this runoff to sediment basins (Figure 10).

The open pit intersects a natural drainage line and will block the flow of this natural channel. To divert the flow in the natural creek a surface water runoff diversion bund and drain is required around the southern corner of the open pit. This diversion bund and channel would need to be designed to carry the natural flow of the creek for at least a 20yr or higher rainfall event. The location and natural ground profile along the diversion channel are shown on Figure 10.

The flood modelling for the 100yr AEP, 1-hour event simulated the maximum water depths and maximum flow velocities at the natural drainage channels intersecting with the surface water diversion drain around the south-eastern corner of the WRD.

The results show that even for a 100yr AEP, 1-hour event the maximum water depth is a maximum of 0.43 m. This means that a relatively shallow by wide diversion channel would be the appropriate design. The simulates stream flow velocities at these locations are less than 1m/s. this means that anticipated stream flow velocities in the diversion channel are likely to be the same. Streamflow velocities of less than 1m/s do not have enough stream power to be erosive, therefore the channel does not require to be lined to prevent erosion.

Sediment Basins

Recommended locations of the sediment basins are shown on Figure 10. These are located immediately downstream of disturbed areas and are intended to temporarily contain runoff that may contain elevated sediment.

Typically, the sediment basins are sized to contain the first flush component of a rainfall event with a retention time of about 3 days. This retention time will allow any sediment to settle in the pond before water can be released into the downstream environment.

The runoff from small runoff events would be retained in the sediment basins and evaporate.

Diversion bunds

A diversion bund is proposed around both the existing WQ and WQS open pits using the existing western WRL and the eastern WRL as shown on Figure 10. This bund should be constructed to minimise the risk of overtopping the pit crest for the safety of mine workers and geotechnical stability of the pit walls. Further details of the design of this structure are provided in AECOM (2025b).

Direct Rainfall on the Pit

Direct rainfall in the pit will runoff from the pit walls, ramps and floor and collect in a pit sump. The pit sump should be designed to be able to contain runoff to minimise delays to the mining schedule. The location of the sump should be carefully planned to allow access of a sump pump and discharge pipeline to a turkey's nest or dedicated tank. As the sump will be a temporary structure during the operational phase, temporary in-pit drains may be required to direct runoff across the pit floor.

Surface Water Quality

Rainfall and surface water runoff are infrequent and, depending on the season, highly variable. The primary mechanism to manage surface water quality is to temporarily intercept runoff with sediment basins. The intent of these basins is to minimise the transportation of sediment from disturbed areas (AECOM 2025b).

To minimise risks associated with leaks and spills of hydrocarbons, areas such as vehicle refuelling tanks, transfer areas and workshops should be bunded in line with current DMIRS regulations.

Leaks and spills of fuels or any other potentially contaminating substances should be minimised by implementing a hazardous materials management plan, which should be developed to comply with DMIRS and the DWER regulations.

Surface Water Monitoring

Given the key risks to surface water are erosion, sedimentation of creeklines and impacts to riverine vegetation downstream, the following monitoring programme has been recommended by AECOM (2025b):

- Undertake monthly visual observations of all drainage channels, diversion bunds and sediment basins to ensure they remain clear and are functioning as designed.
- Undertake monthly visual inspections of vegetation downstream to identify if it is being affected by runoff from the WQP. If this occurs, undertake an assessment of the affected vegetation to determine if the change is significant and whether the surface water infrastructure needs to be modified to minimise further impact.
- Undertake monitoring, sampling and analyses as specified in Table 22. This program should commence before construction starts to obtain data on the ambient quality of surface water in the area.

Table 22 Recommended Surface Water Monitoring Program (AECOM 2025b)

Sites	Parameter Type	Parameters to be Measured	Frequency
Surface Water Quality Monitoring Points	Quality (field)	pH, EC, TDS, temperature	Opportunistic
	Surface Water Quality (laboratory)	**Physicochemical:** pH, EC, TSS, TDS, total acidity, total alkalinity, hardness **Major ions:** Na, K, Ca, Mg, HCO_3, CO_3, Cl, SO_4, NO_3, total nitrogen **Total & dissolved trace metals/ metalloids:** Al, As, Cd, Cr, Cu, Fe, Hg, Pb, Mn, Ni, Se and Zn	Opportunistic

These results should be regularly reviewed given the short life of the project and reported in the annual environmental report submitted annually to DEMIRS.

Groundwater

Groundwater flow is controlled by regional geological structural features that are fractured and permeable, and local higher transmissive zones linked to moderate degrees of weathering, higher fracture frequency, and connectivity between local and regional geological structures (AECOM 2025a).

Historical groundwater quality testing from the local area near WQS (Morgan 2000) shows brackish water with average total dissolved solids (TDS) of 1,030 mg and a neutral to slightly alkaline pH ranging from 7.3-7.55 (Table 23). Groundwater in the WQS pit is currently at approximately 30 m below ground level and flows to the north-northeast (MWES, 2012). Given the current depth of the water table there are not likely to be any Groundwater Dependent Ecosystems (GDE) within or nearby the Prescribed Premises that will be directly or indirectly affected by any changes in hydrology.

Groundwater Quality

Generally, groundwater within the main transmission zone which occurs between 40 and 80 m depth reported electrical conductivity (EC) in the range 3,000 µS/cm to 4,000 µS/cm (Water Management Consultants, 1996). An increase in conductivity with depth was also identified and where permeable fractures occur below 80- m depth, the groundwater quality deteriorated up to 15,000 µS/cm or 9,800 mg/L Total Dissolved Solids (TDS).

Historical groundwater salinity at WQS was reported by Morgan (2000) as being of better-quality ranging between 1,800 – 1,900 µS/cm, equivalent to about 1,000 to 1,050mg/L TDS and neutral pH of about 7.6. Groundwater was collected from three exploration holes in WQS, as presented in Table 23.

MWES (2012) sampled groundwater from four groundwater monitoring bores at WQS in 2012. In context with measured groundwater inflows, local groundwater quality is summarised in Table 24. Results highlight lower salinity concentrations in the current WQS Pit compared to the current WQ Pit.

Morgan (2000) also reported heavy metals have historically been reported mostly below detection limits set by the laboratory, indicating that heavy metals are not of environmental concern. Nitrate was reported as being high (44 to 51 mg/L), however these levels are typical of natural groundwaters in the arid to semi-arid regions of Western Australia.

In 2025, AECOM conducted in-situ field water quality measurements in existing bores (Camp Bore, WQSMB001, WQSMB002, WQSMB003, and WQSMB004), measuring parameters such as temperature, salinity (TDS), pH, redox potential resistivity, dissolved oxygen, and turbidity. The local groundwater quality data shows:

- Camp Bore likely represents natural groundwater quality, outside the potential influence of the pit lakes.
- Camp Bore salinity averages approximately 1,300 mg/L TDS throughout the water column, with a slight increase in salinity up to 1,700 mg/L TDS from 75 mbgl. These concentrations are significantly lower than pit lake measurements (18,000 mg/L).
- The groundwater column reports a general neutral pH (a general pH 6 to pH 7).

Groundwater quality profiles for the different bores are provided in AECOM (2025a) (Appendix 1).

Table 23 Historical groundwater chemistry Western Queen South (Morgan 2000)

Component	M001 QWC 38900-4	M002 QWC 39975-1	M003 QWC 38950-3
pH	7.55	7.30	7.45
Conductivity (EC)	1900	1800	1800
TDS Gravimetric	1050	1050	1000
Sodium	340	345	335
Potassium	9	9	9
Calcium	22	20	20
Magnesium	20	20	19
Hardness (CaCO3)	135	130	130
Iron	<0.01	<0.01	<0.01
Silicon	40	33	34
Cadmium	<1	<1	<1
Lead	<1	<1	<1
Copper	<0.01	<0.01	<0.01
Manganese	<0.01	0.06	<0.01
Zinc	0.02	0.13	0.02
Selenium	<1	<1	<1
Arsenic	<1	<1	<1
Chromium	<0.01	<0.01	<0.01
Mercury	<0.1	<0.1	<0.1
Carbonate	<1	<1	<1
Bicarbonate	134	131	122
Hydroxide	<1	<1	<1
Ion Balance	0.3	3.7	3.3
Chloride	450	415	4.15
Sulphate	96	92	91
Fluoride	0.9	1.0	1.0
Nitrate (as NO3)	51	51	44
Nitrite (as NO2)	<0.01	<0.01	<0.01

Table 24 Historic Western Queen Groundwater Quality Analysis

Bore ID	Maximum Flow Rate During Drilling	EC @ 25 degrees	TDS	pH
	L/sec	µS/cm	mg/L	
Western Queen South Pit (MWES, 2012)				
WQSMB01	0.76	4,700	3,700	7.9
WQSMB02	0.44	2,100	1,300	8.1
WQSMB03	2.90	3,900	2,400	8.1
WQSMB04	0.31	1,900	1,200	8.2
		Min	*1,200*	
		Max	*3,700*	
		Ave	*2,150*	
Western Queen Pit (Morgan, 2000)				
WQG31-SW	30.1	3,500	2,275	-
WQG32-NW	2.0	4,000	2,600	-
WQG33-NE	4.6	16,400	10,660	-
WQG34-SE	2.5	3,800	2,470	-
		Min	*2,275*	
		Max	*10,660*	
		Ave	*4,500*	

Groundwater levels

Groundwater levels were also measured in selected open groundwater monitoring bores and exploration holes during the February 2025 site visit (Table 25).

Groundwater levels ranged between 356.96 m AHD (WQRC222) in the north and 380.14 m AHD (WQRC205) in the centre of the site. Levels for WQS monitoring bores ranged from 363.12 m AHD (WQSMB003) in the northeast and 367.02 m AHD (WQSMB002) in the south. The general groundwater flow regime is from south to north.

Table 25 Water quality data for groundwater bores and pit water for the Western Queen Project

Location Name	Type	Easting (mE MGA)	Northing (mN MGA)	2025 LiDAR Ground Elevation (m AHD)	Base (mbgl)	Screened Interval (mbgl)	Top of Casting (m)	Vertical Static Level (m AHD)	Static Water Level (m AHD)	Average in Situ Salinity (mg/L TDS)
Western Queen Pit	Pit Lake	-	-	392.00	-	-	-	32.00	360.00	18,800
Western Queen South Pit	Pit Lake	-	-	390.00	-	-	-	29.00	361.00	18,400
Camp Bore	Production Bore	512,141	6,953,998	390.70	89.30	unknown	0.38	23.25	367.45	1,300
Yalgoo - Belele Well	Station Well	505,647	6,957,658	385.00	8.80	open hole	0.12	3.16	381.84	-
Yalgoo Budgery Well	Station Well	501,847	6,963,279	365.00	2.60	open hole	0.00	2.50	362.50	-
Yalgoo Wanrey Well	Station Well	506,495	6,962,017	375.00	6.07	open hole	0.76	-0.80	375.80	-
WQ, Unknown bore	Monitoring Bore	512,645	6,995,628	390.92	20.00	open hole	0.00	15.02	375.90	-
WQSMB001	Monitoring Bore	512,560	6,954,786	394.19	78.20	30-78	0.30	30.46	363.73	12,500
WQSMB002	Monitoring Bore	512,363	6,954,398	389.72	28.30	30-90	0.60	22.20	367.52	-
WQSMB003	Monitoring Bore	512,617	6,954,686	391.40	74.00	30-72	0.30	28.10	363.30	-
WQSMB004	Monitoring Bore	512,239	6,954,579	389.33	90.40	30-90	0.00	22.70	366.63	2,000
WQRC205	Exploration hole	512,588	6,955,230	392.19	-	Open hole	-	12.44	379.75	-
WQRC201	Exploration hole	512,658	6,955,453	391.98	-	Open hole	-	29.08	362.90	-
WQRC198	Exploration hole	512,793	6,955,923	390.95	-	Open hole	-	23.83	367.12	-
WQRC222	Exploration hole	512,980	6,955,907	392.42	-	Open hole	-	33.25	359.17	-
WQRC-BK006	Exploration hole	513,096	6,956,203	391.76	-	Open hole	-	32.02	359.74	-
WQRC-BK005	Exploration hole	513,077	6,956,198	391.60	-	Open hole	-	31.95	359.65	-

Pit Lakes

Historic mining at the Western Queen site has resulted in two legacy mine pit lakes within the Prescribed Premises, WQS and WQ.

AECOM (2025a) has developed a conceptual hydrogeological model based on findings from the literature review and site observations.

During the 2025 site work, pit lake water samples were analysed. Key pit lake water quality observations included:

- Generally, a uniform salinity throughout the water column for both WQS and WQ pits and ranges between 18,400mg/L TDS at the surface (<10m depth) and 31,100 mg/L TDS at a depth of 75m.
- pH values reporting neutral (pH 7.6) to slightly alkaline (pH 8.3) water
- Sodium Chloride water type
- Elevated metals concentrations (iron, Manganese, Chromium) below 75m in WQN.
- Slight reduction in Nitrate, Nitrite below 75m depth in WQN.

In context to the above pit lake water quality, laboratory groundwater quality for WQS (Table 26) reported a salinity of 1,500 mg/L TDS, neutral pH (pH 7.5) and an elevated bicarbonate compared with the pit lake water.

Based on in-situ water quality sampling (AECOM 2025a), pit lake salinity is approximately 18,400mg/L TDS for WQS and 18,800mg/L TDS for the WQ pit.

To help inform dewatering options, pit lake laboratory results (AECOM 2025a) were screened against water standards for likely at-risk water resource users, including freshwater fish within the local creeks and Sanford River and local livestock. The two categories include:

- Criteria 1 - ANZG (2018) Freshwater Unknown Light organic solvent preservative (LOSP) Toxicant default guideline value (DGV)
- Criteria 2 - ANZECC 2000 Livestock DW Low Risk Trigger Values .

The results indicated exceedances mostly within WQ for metals and sulphate (Table 27). A single exceedance in WQS was noted due to cobalt.

Table 26 Summary of Pit Lake Laboratory Sample Results (February 2025) (AECOM 2025b)

Parameter	Units	Pit Water									
		WQN 2012	WQN1 02/25	WQN2 02/25	WQN3 02/25	WQN4 02/25	WQN5 02/25	WQS1 02/25	WQS2 02/25	WQS3 02/25	WQ4 02/25
			Sample Depth (m)								
			20	92	72	20	10	30	50	6	18
pH in water	pH units	8.3						7.9	8.1	8.1	8.2
Electrical conductivity in water	µS/cm	15,000	25,900	24,900	43,700	24,700	25,000	24,600	25,000	25,700	25,100
Total Dissolved Solids (grav)	mg/L	9,800						3,700	1,300	2,400	1,200
Total Suspended Solids	mg/L	<1						1,700	26,000	1,200	2,700
Sulphate	mg/L	710	984	940	1700	934	935	830	830	846	855
Nitrate as NO3	mg/L	55	8.19	8.35	6.54	8.27	8.29	1.28	0.98	1.17	1.17
Nitrite as NO2	mg/L	0.7	0.24	0.25	0.19	0.22	0.28	0.02	0.01	0.05	0.05
Arsenic	mg/L	<0.03	<0.002	<0.002	0.005	<0.002	<0.002	<0.002	<0.002	<0.002	0.008

Parameter	Units	Pit Water									
		WQN 2012	WQN1 02/25	WQN2 02/25	WQN3 02/25	WQN4 02/25	WQN5 02/25	WQS1 02/25	WQS2 02/25	WQS3 02/25	WQ4 02/25
			Sample Depth (m)								
			20	92	72	20	10	30	50	6	18
Copper	mg/L	<0.005	<0.002	<0.002	0.112	<0.002	<0.002	0.005	0.004	<0.002	0.006
Lead	mg/L	<0.02	<0.002	<0.002	0.01	<0.002	<0.002	<0.002	<0.002	<0.002	0.006
Selenium	mg/L	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Mercury	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Zinc	mg/L	<0.01	0.06	0.023	0.071	0.011	<0.010	<0.010	<0.010	0.016	0.011
Cadmium	mg/L	<0.002	<0.0002	<0.0002	0.004	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	0.0015

Table 27 Pit Lake Water Quality - Analyte Exceedances

Analyte	Criteria 1 Limit (mg/L)	Criteria 1 Exceedance Location	Criteria 1 Highest Exceedance %	Criteria 2 Limit (mg/L)	Criteria 2 Exceedance Location	Criteria 2 Highest Exceedance %
Aluminium	0.0008			5	WQN3	492
Antimony	0.009					
Arsenic				0.5		
Cobalt	0.0014	WQN3, WQS4	4,500	1		
Molybdenum	0.034	WQN1,2,5	112	0.15		
Uranium	0.0005	WQN1-5	1,800	0.2		
Vanadium	0.006	WQN1-5	1,833			
Zinc				20		
Sulfate as SO4 (Turbidimetric) (filtered)				1,000	WQN3	170
TDS				2,000	All	1,555

Flora and Vegetation

Vegetation assessment was initially undertaken by Outback Ecology (2012) and followed up with a reconnaissance survey undertaken by Botanica Consulting (2025) (Appendix 4).

Regional Vegetation

In accordance with Tille (2006), the vegetation of the Yalgoo Plains Zone is typified by 'acacia shrublands, sandplains and occasional dunes with grassy acacia shrublands and wash plains on hardpan with mulga shrublands'. More broadly, the vegetation of the Murchison Province is described by Tille (2006) as mulga (*Acacia aneura*) shrublands and woodlands with gidgee (*A. pruinocarpa*), curara (*A. tetragonophylla*), *A. linophylla*, bowgada (*A. ramulosa*), jam (*A. acuminata*), miniritchie (*A. grasbyi*), *Senna* spp. and *Eremophila* spp. dominating the hardpan wash plains.

Denser, taller mulga woodlands are found on groves while the sandy banks support mulga, bowgada and curara shrublands with an understorey of wanderrie grasses (*Eragrostis* and *Eriachne* spp. and *Monachather paradoxus*).

Snakewood (*A. xiphophylla),* bluebush (*Maireana* spp.) and saltbush (*Atriplex* spp.) grow on the saline drainage tracts.

The sandplains in the east support grasslands of hard spinifex (*Triodia basedowii*). These grasslands occur with an open tree and shrub steppe of mulga, marble gum (*Eucalyptus gongylocarpa*), mallees (*E. kingsmillii, E. trichopoda, E. brachycorys* and *E. youngiana*), bowgada and spinifex wattle (*A. coolgardiensis*). In places denser woodlands of mulga, spinifex wattle or mallee are found over the spinifex.

On western sandplains shrublands are dominated by bowgada with cypress pine (*Callitris columellaris*), mallees (e.g. *E. leptopoda and E. kingsmillii*), mulga and *Grevillea* spp. On the yellow sandplains in the south-west are closed mixed shrublands with *Melaleuca, Hakea, Calothamnus, Baeckea, Banksia prionotes, Allocasuarina*. and *Acacia* spp.

The mesas have bowgada, mulga and *A. linophylla* shrublands above the breakaways, while the footslopes support shrublands with saltbush (*Atriplex* spp.), *Frankenia* spp., *Ptilotus* spp. and *Eremophila pterocarpa*.

The hilly terrain has shrublands of mulga, miniritchie, *Eremophila* spp. and cotton bush (*Ptilotus obovatus*). Hills in the far west have woodlands of York gum (*Eucalyptus loxophleba*), salmon gum (*E. salmonophloia*) and jam.

The stony plains support shrublands of mulga, gidgee, granite wattle (Acacia quadrimarginea), miniritchie, prickly wattle, snakewood, jam and *Eremophila* spp.

On the valley floors there are shrublands of samphire (*Tecticornia* spp.), saltbush, sage (*Cratystylis subspinescens*) and *Frankenia* spp. surrounding salt lakes. Floodplains along the Murchison and its tributaries have shrublands of bluebush (*Maireana* spp.), saltbush and *Frankenia* spp., as well as mulga, prickly wattle and *Acacia distans*.

Pre-European Vegetation

The pre-European vegetation association spatial mapping dataset (DPIRD, 2018) identified two vegetation associations as occurring within the Prescribed Premises (Table 28). The association descriptions and their remaining extent, as specified in the 2018 Statewide Vegetation Statistics (DBCA, 2019b) are provided in Table 28. Areas retaining less than 30% of their pre-European vegetation extent generally experience exponentially accelerated species loss, while areas with less than 10% are considered "endangered" (EPA, 2000). Both vegetation associations retain >99% of their pre-European extent, and development within the Prescribed Premises will not significantly reduce the current extent of these vegetation associations.

Table 28 Pre-European vegetation within the Prescribed Premises

Vegetation Association	Current Extent	Protected for Conservation	Floristic Description	Extent within survey area*
39	398,395.6 ha (99.76%)	-	Shrublands; mulga scrub	1164.2 ha (40.2%)
18	1,635,841.8 ha (99.73%)	-	Low woodland; mulga (Acacia aneura)	1734 ha (59.8%)
Total				**2898.2 ha (100%)**

Local Vegetation

Vegetation mapping by Botanica Consulting (2025) recorded 11 vegetation units within the Prescribed Premises.

Vegetation community descriptions and extent are listed below in Table 29 and illustrated spatially in Figure 11. Vegetation community descriptions and extents were determined from field survey results, aerial imagery interpretation and extrapolation of the communities.

The survey found RP-AOW1 was the most widespread community in the Prescribed Premises, occupying 543.7 ha (18.7%), while DD-CS1 was the most restricted with 19.4 ha (0.7%). The most diverse vegetation types were CLP-AOW1, with 49 species (57.0%), while the least diverse was RH-AOW2 with seven species (8.1%).

Table 29 Vegetation Communities within the Prescribed Premises (Botanica 2025)

Vegetation Code	Vegetation Group (VG), Landform (LF)	Vegetation Type	Image
CLP-AFW1 268.8 ha (9.3%)	VG - Acacia Forests and Woodlands LF - Clay-loam plain	*Acacia incurvaneura* low open forest over *Acacia ramulosa* var *ramulosa* mid open shrubland over *Eremophila punicea* and *E. compacta* sparse low shrubland	

Vegetation Code	Vegetation Group (VG), Landform (LF)	Vegetation Type	Image
CLP-AOW1 197.6 ha (6.8%)	VG - Acacia Forests and Woodlands LF - Clay-loam plain	*Acacia aptaneura* and/or *Acacia incurvaneura* low open woodland over *Acacia acuminata* mid open shrubland over *Ptilotus obovatus* and *Eremophila compacta* low sparse shrubland	
DD-AFW1 532.3 ha (18.4%)	VG - Acacia Forests and Woodlands LF - Drainage depression	*Acacia incurvaneura, A. mulganeura, A. ramulosa* low open forest over *Acacia tetragonophylla, Eremophila punicea, Sida ectogama* mid open shrubland over *Atriplex bunburyana* and *Maireana pyramidata* low sparse chenopod shrubland	
DD-AFW2 137.8 ha (4.8%)	VG - Acacia Forests and Woodlands LF - Drainage depression	*Acacia incurvaneura* low open forest over *Acacia tetragonophylla* and *Eremophila oppositifolia* mid open shrubland over *Atriplex bunburyana* and *Rhagodia eremaea* low sparse chenopod shrubland	
DD-AOW1 384.3 ha (13.3%)	VG - Acacia Forests and Woodlands LF - Drainage depression	*Acacia aptaneura* low open woodland over *Eremophila exilifolia* and *Acacia tetragonophylla* low open shrubland over *Maireana triptera* and *M. pyramidata* low sparse chenopod shrubland	

Vegetation Code	Vegetation Group (VG), Landform (LF)	Vegetation Type	Image
DD-CS1 19.4 ha (0.7%)	VG - Chenopod shrubland LF - Drainage depression	*Maireana pyramidata, M. georgei* and *M. triptera* low sparse chenopod shrubland	
DD-CS2 105.2 ha (3.6%)	VG - Chenopod shrubland LF - Drainage depression	Low open shrubland of *Acacia tetragonophylla* over low sparse chenopod shrubland of *Maireana pyramidata, Enchylaena tomentosa* and *Maireana triptera*	
RH-AFW1 79.6 ha (2.7%)	VG - Acacia Forests and Woodlands LF - Rocky hillslope	*Acacia aptaneura* and/or *Acacia incurvaneura* low open forest over *Eremophila latrobei* low sparse shrubland	
RH-AOW1 299.7 ha (10.3%)	VG - Acacia Forests and Woodlands LF - Rocky hillslope	*Acacia aptaneura, A. grasbyi* and *A. tetragonophylla* low open woodland over *Eremophila fraseri* and *E. forrestii* subsp. *forrestii* low open shrubland over *Aristida contorta* low sparse tussock grassland	

Vegetation Code	Vegetation Group (VG), Landform (LF)	Vegetation Type	Image
RH-AOW2 132.9 ha (4.6%)	VG - Acacia Forests and Woodlands LF - Rocky hillslope	*Acacia aptoneura* and *Acacia ramulosa* var. *linophylla* low open woodland over *Eremophila fraseri* or *Eremophila exilifolia* open shrubland over *Aristida contorta* low tussock grassland	
RP-AOW1 543.7 ha (18.7%)	VG - Acacia Forests and Woodlands LF - Rocky plain	*Acacia pteraneura* and *Acacia grasbyi* low open woodland over *Senna artemisioides* subsp. *filifolia*, *Ptilotus rotundifolius* mid sparse shrubland over *Rhagodia drummondii*, *Maireana oppositifolia* low open chenopod shrubland	
Cleared 196.9 ha (6.8%)	N/A	Cleared	N/A

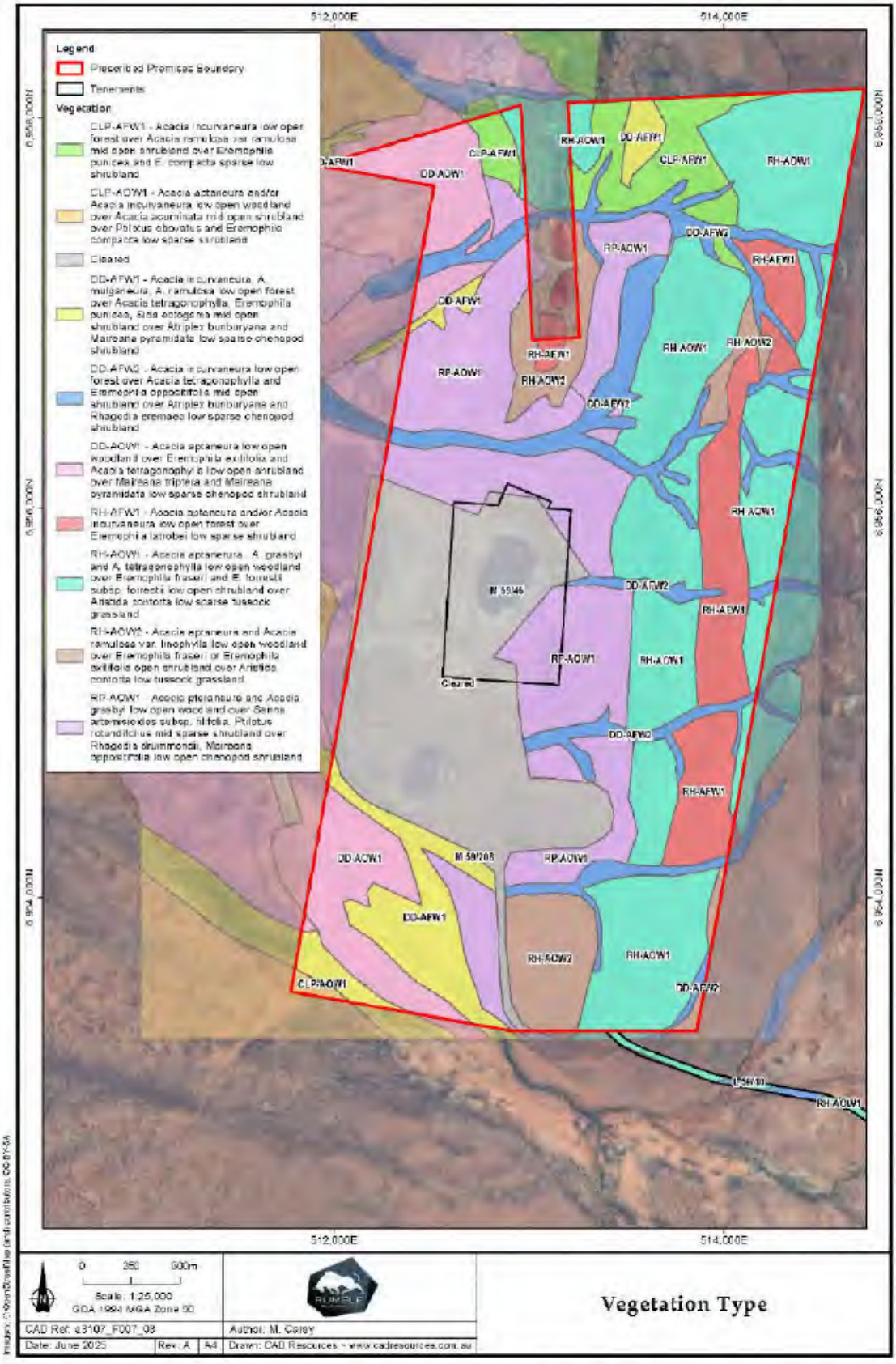


Figure 11 Vegetation Communities mapped within the Prescribed Premises

Conservation Significant Vegetation

The Protected Matters search (DCCEEW, 2024) did not identify any Threatened Ecological Communities (TECs) as occurring within 40 km of the Prescribed Premises.

The DBCA's Threatened Ecological Community List (State of Western Australia, 2023) does not list any TECs within the Shire of Yalgoo.

Analysis of the Priority Ecological Communities (PECs) within the Midwest region (DBCA, 2023) did not identify any significant vegetation assemblages as potentially occurring within the Prescribed Premises.

No vegetation of conservation significance was identified within the Prescribed Premises.

Flora

A flora assessment was initially undertaken by Outback Ecology (2012a) and followed up with a reconnaissance survey undertaken by Botanica Consulting (2025), (Appendix 4).

The desktop search identified 467 vascular flora species as occurring within 40 km of the Prescribed Premises, representing 195 genera from 63 families. The most diverse families were Fabaceae (70 species), Asteraceae (60 species) and Scrophulariaceae (36 species). The most dominant genera were *Acacia* (44 species), *Eremophila* (35 species) and *Ptilotus* (15 species).

The field survey identified 86 vascular flora taxa within the Prescribed Premises. These taxa represented 42 genera across 27 families, with the most diverse families being Fabaceae (19 species) Chenopodiaceae (12 species) and Scrophulariaceae (11 species). Dominant genera included *Acacia* (14 species), *Eremophila* (11 species), and *Maireana* and *Ptilotus* (five species each).

Conservation Significant Flora

The assessment of the DBCA Threatened and Priority flora database searches (DBCA, 2024a), ALA (ALA, 2024) and Protected Matters search (DCCEEW, 2020a) and previous relevant literature identified 22 significant flora species recorded within a 40 km radius of the Prescribed Premises. These consist of one Threatened, four Priority 1, two Priority 2, 11 Priority 3 and four Priority 4 taxa.

These taxa were assessed for distribution and known habitat to determine their likelihood of occurrence within the Prescribed Premises. The assessment did not identify any taxa as previously recorded in the Prescribed Premises. One Priority 4 taxa was identified as likely to occur and three taxa were identified as possibly occurring in the Prescribed Premises, consisting of one Priority 1, one Priority 3 and one Priority 4 taxa.

No Threatened, Priority or otherwise significant flora species were recorded within the Prescribed Premises.

Introduced Flora

Two introduced flora species, **Cucumis myriocarpus* and **Solanum nigrum*, were recorded within the Prescribed Premises (Outback Ecology, 2012a), however no introduced species were recorded by Botanica (2025). Weeds have the potential to alter the biodiversity of an area, competing with native vegetation for available resources and making areas more fire prone. This can in turn lead to greater rates of infestation and further loss of biodiversity if the area is subject to repeated fires. Neither of these species are listed as 'Declared Plant' species under the *Biosecurity and Agriculture Management Act* 2007. Potential impacts to biodiversity as a result of the proposed clearing may be minimised by the implementation of a weed management condition.

Fauna

Botanica (2025) identified five broad scale terrestrial fauna habitats based on vegetation and associated landforms within the Prescribed Premises. These habitats include:

- Acacia forest and woodland on clay-loam plain
- Acacia forest and woodland in drainage depression
- Acacia forest and woodland on rocky hillslopes
- Acacia forest and woodland on rocky plain
- Chenopod shrubland on clay-loam plain

The disturbed / cleared area was not considered a fauna habitat.

Descriptions of the five fauna habitats are provided in Table 30 and the spatial extents of these habitats within the Prescribed Premises are shown on Figure 12.

All the fauna habitats identified, except for the 'Acacia forest and woodland on rocky plain', were unsuitable for burrowing species.

Table 30 Fauna Habitats mapped within the Prescribed Premises (Botanica 2025)

Family	Taxon	DP	WONS
Acacia forest and woodland on clay-loam plain 466.4 ha	Ground not especially suited to burrowing species. Moderate diversity vegetation strata supporting avifauna assemblage. Low vegetation density and low leaf litter.	Grey Falcon, *Falco hypoleucos*	
Acacia forest and woodland in drainage depression 1,054.4 ha	Ground not suited to burrowing species. Moderate diversity vegetation strata supporting avifauna assemblage. Moderate vegetation density and moderate leaf litter.	Malleefowl, *Leipoa ocellata* Grey Falcon, *Falco hypoleucos* Southern Whiteface, *Aphelocephala leucopsis*	

Family	Taxon	DP	WONS
Acacia forest and woodland on rocky hillslopes 512.2 ha	Ground not suited to burrowing species. Low diversity vegetation strata Low vegetation density and low leaf litter	Grey Falcon, *Falco hypoleucos*	
Acacia forest and woodland on rocky plain 543.7 ha	Ground suited to burrowing species. Moderate diversity vegetation strata supporting avifauna assemblage Moderate vegetation density and low to moderate leaf litter	Malleefowl, *Leipoa ocellata* Grey Falcon, *Falco hypoleucos* Southern Whiteface *Aphelocephala leucopsis*	
Chenopod shrubland on clay-loam plain 124.6 ha	Ground not particularly suited to burrowing species. Low diversity vegetation strata Low vegetation density and low leaf litter	N/A	
Cleared 9.3 ha	N/A	N/A	N/A

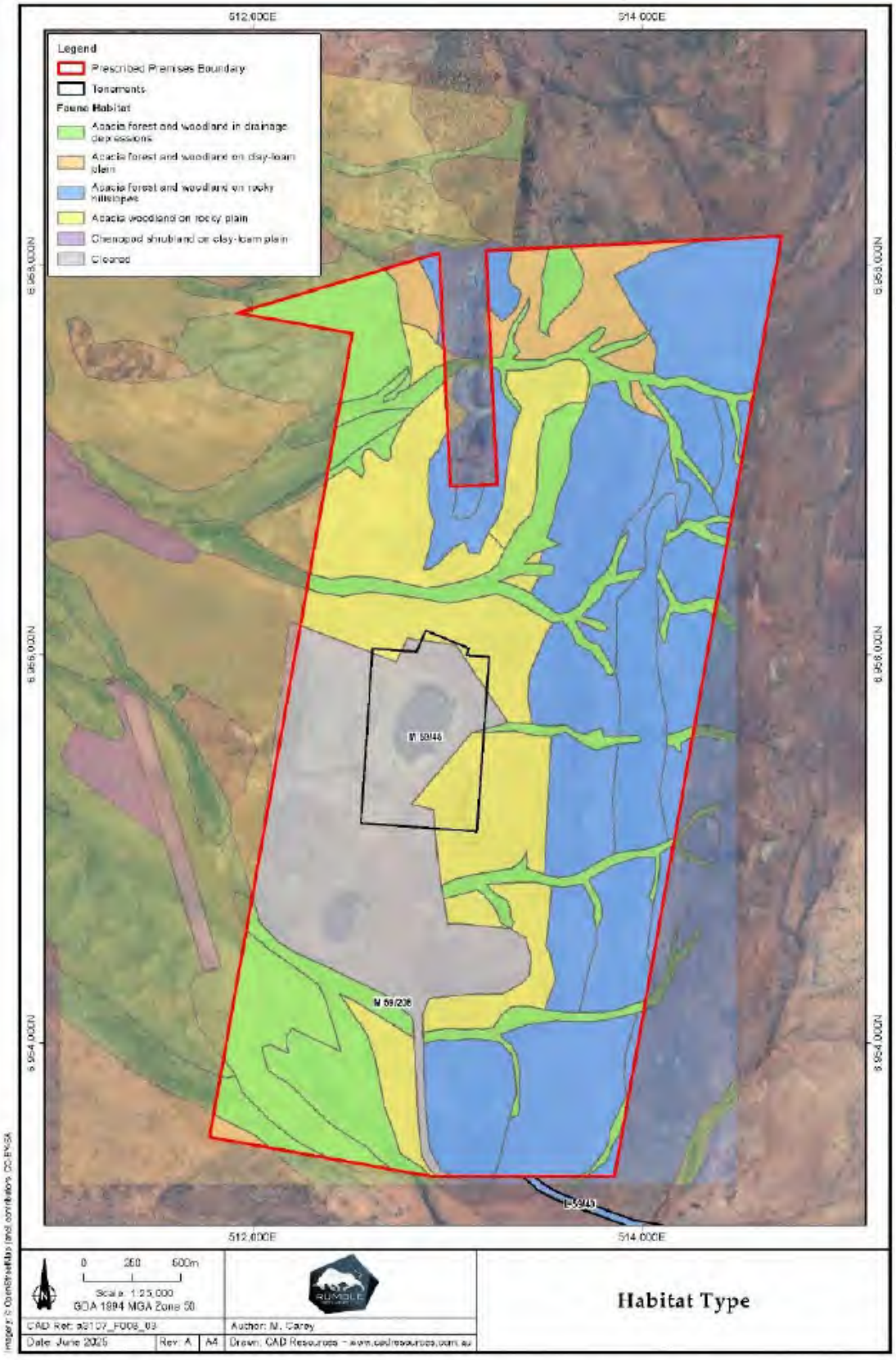


Figure 12 Fauna Habitat Types within the Prescribed Premises

Short Range Endemics

A review of relevant literature and database searches revealed that 12 terrestrial Short Range Endemic (SRE) invertebrate species including the conservation significant species Shield-backed trapdoor spider (*Idiosoma nigrum*) (Vulnerable and Schedule 1) have been recorded within the region surrounding the Project. Of these species, all have low potential to occur in the Project area except for the mygalomorph spider *Eucyrtops* 'MYG131'. The species *Eucyrtops* 'MYG131' is considered to have a medium potential to occur based on the proximity of the collection record to the Project area and the potential for similar habitats to occur within the Project area. The habitat where *Eucyrtops* 'MYG131' was collected is unlikely to be restricted in the landscape (Outback Ecology 2012c).

It is possible that additional SRE species also occur within the Project area however in the absence of a systematic study following substantial rainfall, any estimate of likelihood of occurrence is speculative. Potential terrestrial invertebrate SRE habitat within the Project area is limited to the Drainage Line and Stony Rise habitats (Outback Ecology 2012c).

Subterranean Fauna

Outback Ecology undertook a desktop assessment of the potential for subterranean fauna to occur in the vicinity of the Project (Outback Ecology 2012c). The main objectives of the desktop assessment were to:

- characterise the subterranean habitat within the Project area, in terms of geology and hydrogeology;
- review the potential influence of local geology and hydrogeology on the prospect of subterranean fauna existing within the Project area;
- determine the likelihood of subterranean fauna occurring within the Project area;
- assess the risk of the proposed Project to subterranean fauna; and
- recommend if additional work (eg. a pilot survey) is required (Outback Ecology 2012c).

In order to address the objectives, literature reviews and database searches were undertaken to characterise the subterranean fauna and potential habitat of the area (Outback Ecology 2012c).

The assessment identified that there is relatively limited subterranean fauna in the search region compared to other areas in the Murchison, although this is likely to be at least partly due to the lower survey effort in the northwestern Murchison region compared to the northeastern Murchison. The Murchison region's stygofauna assemblages are closely associated with calcrete habitats that coincide with ancient palaeodrainage systems. The Project area is in an elevated area more than ten kilometres away from the nearest identified palaeochannel and does not contain any calcrete habitats. Hydrogeological investigations indicate minimal fracturing of the bedrock, with a limited aquifer characterised by low hydraulic conductivity. It is considered unlikely that any unique stygofauna assemblage or species are restricted to the Project area, and no further assessment of stygofauna within the Project area is considered necessary (Outback Ecology 2012c).

The Murchison region's troglofauna assemblages are less well documented than for stygofauna. However, troglofauna species have been recorded from alluvial deposits and fractured and weathered rock habitats in the surrounding region. The limited geological information available for the Project area indicates that potentially suitable habitat could be hosted in the alluvial and weathered rock strata. However, this regolith type is extensive and appears contiguous with the Project area in the surrounding region. Therefore, it is unlikely that any discrete habitat suitable for troglofauna is restricted to only within the Project area. It is considered unlikely that any unique troglofaunal assemblage or species is restricted to the Project area, and no further assessment of troglofauna is considered necessary (Outback Ecology 2012c).

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APPENDIX 1

APPENDIX 2

APPENDIX 3

APPENDIX 4