FMR Investments Pty Ltd

Barbara Surprise Pit Dewatering Discharge Works Approval Application Supporting Information

Revision 1.0

16 December 2024

Prepared by:

BOTANICA CONSULTING

[redacted]

Document Information

Prepared For: FMR Investments Pty Ltd

Project Name: Barbara Surprise Pit Dewatering Discharge Works Approval Application (Revision 1.0)

Premises: Freehold Hampton Location Lot 103 (on Plan 40395)

Job Reference: 2024/130

Disclaimer

Table of Contents

1 Application Type 1
1.1 Scope and Purpose 1
1.2 Applicable Prescribed Premises Categories 1
2 Applicant Details 2
2.1 Occupier Status 2
3 Premises Details 3
4 Proposed Activities 7
4.1 Project Overview 7
4.2 Prescribed Premises Infrastructure 8
4.2.1 Category 6 8
4.2.1.1 Pit Dewatering Discharge 8
4.3 Emission / Discharge Points 12
4.4 Construction 12
4.5 Confirmation of Works 12
4.5.1 Environmental Compliance Report 12
4.6 Time Limited Operations 12
4.7 Licence Application 13
5 Approvals and Consultation 13
5.1 Environmental Legislation and Approvals 13
5.1.1 Environmental Protection Act 1986 (Part V) 15
5.1.1.1 Clearing Permit 15
5.1.1.2 Prescribed Premises Works Approvals and Licences 15
5.1.2 Rights in Water and Irrigation Act 1914 16
5.2 Stakeholder Engagement 16
5.2.1 Principles of Stakeholder Engagement 16
5.2.2 Targeted Stakeholder Engagement Strategy 17
5.2.3 Ongoing Community and Stakeholder Engagement 18
6 Emissions, Discharges and Waste 18
6.1 Emissions and Discharges 18
6.1.1 Waste and Leachate 19
6.1.1.1 Spills or Leaks from Dewatering Discharge Pipelines 19
6.1.1.2 Seepage or Overtopping of the Surprise Pit Lake 19
6.2 Risk Assessment 21
6.2.1 Risk Assessment Criteria 21
6.2.2 Risk Assessment Outcomes 23
7 Siting and Location 24
7.1 Sensitive Land Uses 24
7.2 Environmentally Sensitive Receptors 25
7.2.1 Environmentally Sensitive Areas 26
7.2.2 Biodiversity 27
7.2.2.1 Matters of National Environmental Significance 27

7.2.2.2 Threatened and Priority Ecological Communities 28
7.2.2.3 Groundwater Dependent Ecosystems 28
7.2.2.4 Threatened and Priority Flora 29
7.2.2.5 Threatened and Priority Fauna 30
7.2.2.6 Conservation Reserves or Other Specially Protected Areas 32
7.2.3 Heritage 33
7.2.3.1 Aboriginal Cultural Heritage 33
7.2.3.2 European Heritage Places 34
7.2.4 Water Management Areas 35
7.2.4.1 Surface Water 35
7.2.4.2 Groundwater 36
7.2.5 Acid Sulfate Soils 37
7.3 Existing Environment 37
7.3.1 Landscape and Ecosystem 37
7.3.2 Climate 40
7.3.2.1 Climate Zone 40
7.3.2.2 Temperature 41
7.3.2.3 Rainfall 43
7.3.2.4 Evaporation 45
7.3.2.5 Wind Speed and Direction 46
7.3.3 Geology 47
7.3.3.1 Regional Geology 47
7.3.3.2 Local Geology 48
7.3.4 Hydrology 48
7.3.4.1 Surface Water 48
7.3.4.2 Groundwater 48
8 Category Checklist 51
9 Cost of Works 51
9.1 Works Approval Fee 51
10 Glossary 52
11 Bibliography 58
12 Appendices 62
12.1 Pit Lake Hydrology Study 63
12.2 Stakeholder Engagement Register 64
12.3 Risk Assessment 66

List of Tables

Table 1-1: Applicable Prescribed Premises Categories 1
Table 2-1: Works Approval Applicant Details 2
Table 2-2 : Prescribed Premises Hampton Locations 2
Table 3-1: Prescribed Premises Boundary Coordinates 7
Table 4-1: Indicative Annual Discharge Volumes 10
Table 4-2: Pit Discharge Water Monitoring Parameters and Frequency 11
Table 4-3: Potential Emission and Discharge Points 12
Table 5-1: Prescribed Activity Environmental Legislation and Approvals 13
Table 5-2: Principles of Stakeholder Engagement 16
Table 5-3: Project Stakeholders and Communication Tools 18
Table 6-1: Identified Activities with Potential Emission and Discharges 19
Table 6-2: Risk Assessment Likelihood Definition 22
Table 6-3: Risk Assessment Consequence Definition 22
Table 6-4: Risk Matrix 23
Table 7-1: Nearby Environmentally Sensitive Receptors 25
Table 7-2: Project Soil Landscape Systems 38
Table 7-3: Project Pre-European Vegetation Associations 39
Table 7-4: Kalgoorlie-Boulder Airport Weather Station Monthly Temperature (1939-2024) 42
Table 7-5: Kalgoorlie-Boulder Airport Weather Station Monthly Rainfall (1939-2024) 44
Table 7-6: Project Calculated Rainfall Intensity-Frequency-Duration 45
Table 7-7: Barbara Surprise Pit Lake Major Component Analysis Results 2024 50
Table 9-1: Prescribed Premises Construction - Cost of Works 51

List of Figures

Figure 3-1: Project Regional Location 3
Figure 3-2: Prescribed Premises Boundary – Tenure 4
Figure 3-3: Prescribed Premises Boundary – Coordinates 5
Figure 3-4: Prescribed Premises Activities 6
Figure 7-1: Sensitive Land Uses and Receptors - Local Scale 24
Figure 7-2: Nearby Sensitive Land Uses and Receptors - Regional Scale 25
Figure 7-3: Brown Lake Catchment Area (CMW, 2024) 29
Figure 7-4: Regional Conservation Flora Records 30
Figure 7-5: Regional Conservation Fauna Records 31
Figure 7-6: Project Regional Conservation Areas 32
Figure 7-7: Project Aboriginal Cultural Heritage 33
Figure 7-8: Project European Heritage - National Places 34
Figure 7-9: Project European Heritage – State and Local Sites 35
Figure 7-10: Project Bioregion - IBRA Subregions 37
Figure 7-11: Project Soil Landscape Systems 38
Figure 7-12: Project Pre-European Vegetation Associations 39
Figure 7-13: Australian Climate Zones based on Temperature and Humidity (BoM, 2005) 40
Figure 7-14: Australian Climate Zones based on Vegetation (BoM, 2005) 41
Figure 7-15: Australian Climate Zones based on Rainfall (BoM, 2005) 41
Figure 7-16: Kalgoorlie-Boulder Airport Weather Station Maximum Temperature Long Term Trend (BoM, 2024a) 42
Figure 7-17: Kalgoorlie-Boulder Airport Weather Station Minimum Temperature Long Term Trend (BoM, 2024a) 43
Figure 7-18: Kalgoorlie-Boulder Airport Weather Station Rainfall Long Term Trend (BoM, 2024a) 44

Figure 7-19: Australian Annual Average Pan Evaporation (BoM, 2006) 46
Figure 7-20: Kalgoorlie-Boulder Airport Weather Station Wind Roses January 9am and 3pm (BoM, 2024a) 46
Figure 7-21: Kalgoorlie-Boulder Airport Weather Station Wind Roses July 9am and 3pm (BoM, 2024a) 47

1 Application Type

1.1 Scope and Purpose

This document has been prepared to provide supporting information for the Works Approval Application submitted to the Department of Water and Environmental Regulation (DWER) for the proposed Barbara Surprise Pit Dewatering Discharge. The DWER regulates emissions and discharges to the environment through a works approval and licensing process, under Part V of the *Environmental Protection Act 1986* (EP Act).

The EP Act requires a Works Approval to be obtained before constructing prescribed premises and makes it an offence to cause an emission or discharge unless a Licence or Registration is held for the premises. In effect, a Works Approval enables the construction and a Licence the operation, of a Prescribed Premises in accordance with set conditions.

This document has been submitted to the DWER with the completed DWER Application Form: Works Approval / Licence / Renewal / Amendment / Registration (Form IR-F09 - v16.0). Completion of the DWER Application Form is a statutory requirement under section 54(1)(a) of the EP Act for Works Approval Applications. FMR Investments Pty Ltd (FMR) has consolidated all supporting information and attachments for this application into this one (1) document and indicated which sections of the DWER Application Form the information relates to.

1.2 Applicable Prescribed Premises Categories

Premises with potential to cause emissions and discharges to air, land or water are known as 'Prescribed Premises' and trigger regulation under the EP Act. Prescribed Premises categories are outlined in Schedule 1 of the *Environmental Protection Regulations 1987* (EP Regulations). The Prescribed Premises categories applicable to this Works Approval Application are outlined in Table 1-1.

Table 1-1: Applicable Prescribed Premises Categories

Category Number	Description of Category	Prescribed Premises Production or Design Capacity	Project Production or Design Capacity
6	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	1,500,000 tonnes (or kL) per annual period (1 January to 31 December)

2 Applicant Details

The Applicant is FMR Investments Pty Ltd, and contact details are provided in Table 2-1.

Table 2-1: Works Approval Applicant Details

Applicant Details		
Applicant Name	FMR Investments Pty Ltd	
ACN	009 411 349	
Office Address	[redacted]	
Postal Address		
Authorised Company Representative	**Organisation**	FMR Investments Pty Ltd
	[redacted]	
Application Contact Person		

2.1 Occupier Status

The Prescribed Premises Boundary is located within Hampton Location Lot 103 on Plan 40395, owned by Northern Star (Hampton Gold Mining Areas) Limited (ABN 79 009 473 054) and Northern Star (HBJ) Pty Ltd (ABN 30 127 026 519) are the lessee, both companies are subsidiaries of Northern Star Resources Limited (NSR). Hampton Location Details are provided in Table 2-2.

Table 2-2 : Prescribed Premises Hampton Locations

Lot	Owner	Deposited Plan	Certificate of Title Volume	Folio
103	Northern Star (Hampton Gold Mining Areas) Limited	40395	2668	419

FMR have an existing Special Lease – Pipeline and Water Monitoring Bore Access Agreement (dated 1 August 2024) which authorises FMR to construct, operate and maintain the Barbara Surprise Pipelines to access the Barbara Surprise Pit water and provide the Greenfields Processing Site (Greenfields Site) with an alternative water source. An Access Agreement is currently being prepared for FMR to recommence mining at the Barbara Surprise Project.

The FMR / NSR Access Agreement is submitted in accordance with Section 2.8 of the DWER Application Form (*Attachment 1A: Proof of Occupier Status)*. It is provided separately as Attachment 11 – Confidential or Commercially Sensitive Information and should not be published as part of this application.

3 Premises Details

The Barbara Surprise Project is located within the Shire of Coolgardie in the Goldfields of Western Australia (WA). The Barbara Surprise Prescribed Premises is approximately seven (7) kilometres (km) east of Coolgardie, 17km south of Kurrawang and 24km south-west of the City of Kalgoorlie-Boulder (Figure 3-1) which are the nearest occupied townsites. The Prescribed Premises is not located within any Pastoral Stations (Figure 3-1).

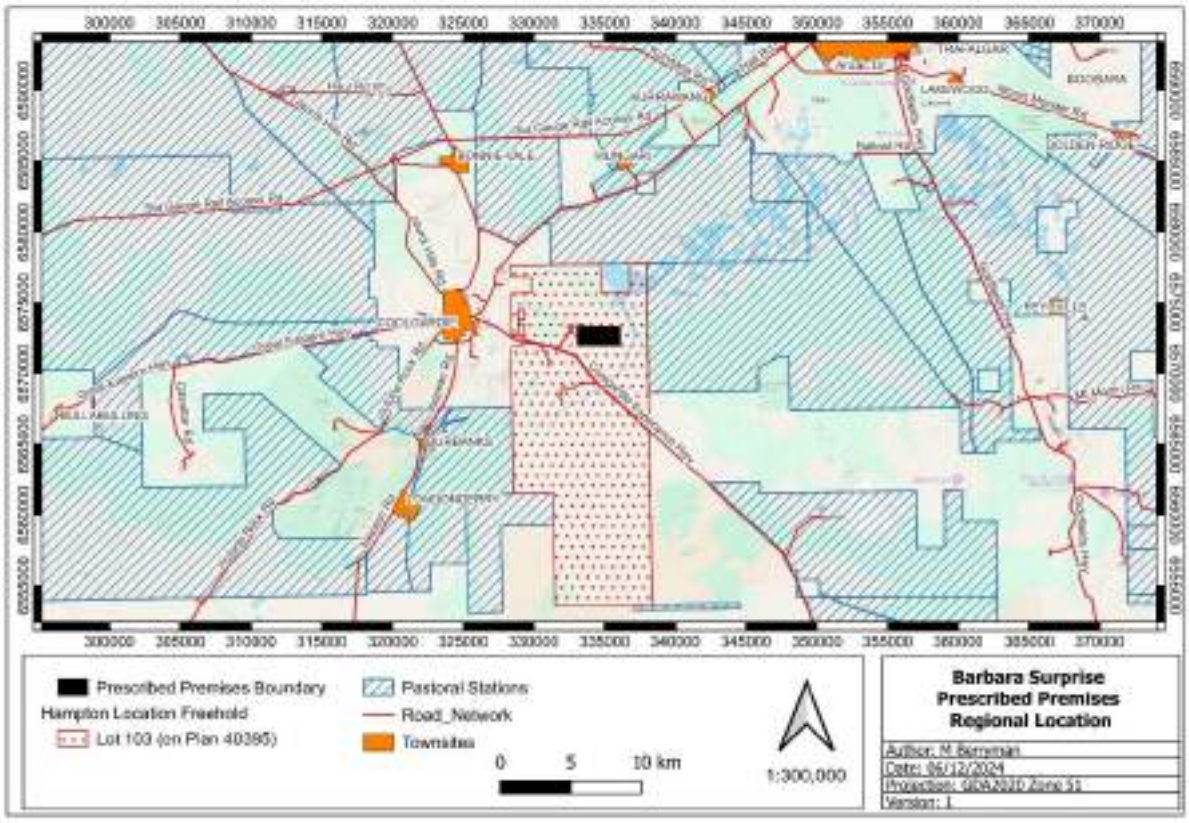


Figure 3-1: Project Regional Location

Prescribed Premises Maps (Figure 3-2, Figure 3-3, and Figure 3-4) show the prescribed premises boundary, layout of key infrastructure, and identified emission, discharge, and monitoring points and are submitted in accordance with Section 3.4 of the DWER Application Form (*Attachment 2: Premises Maps)*.

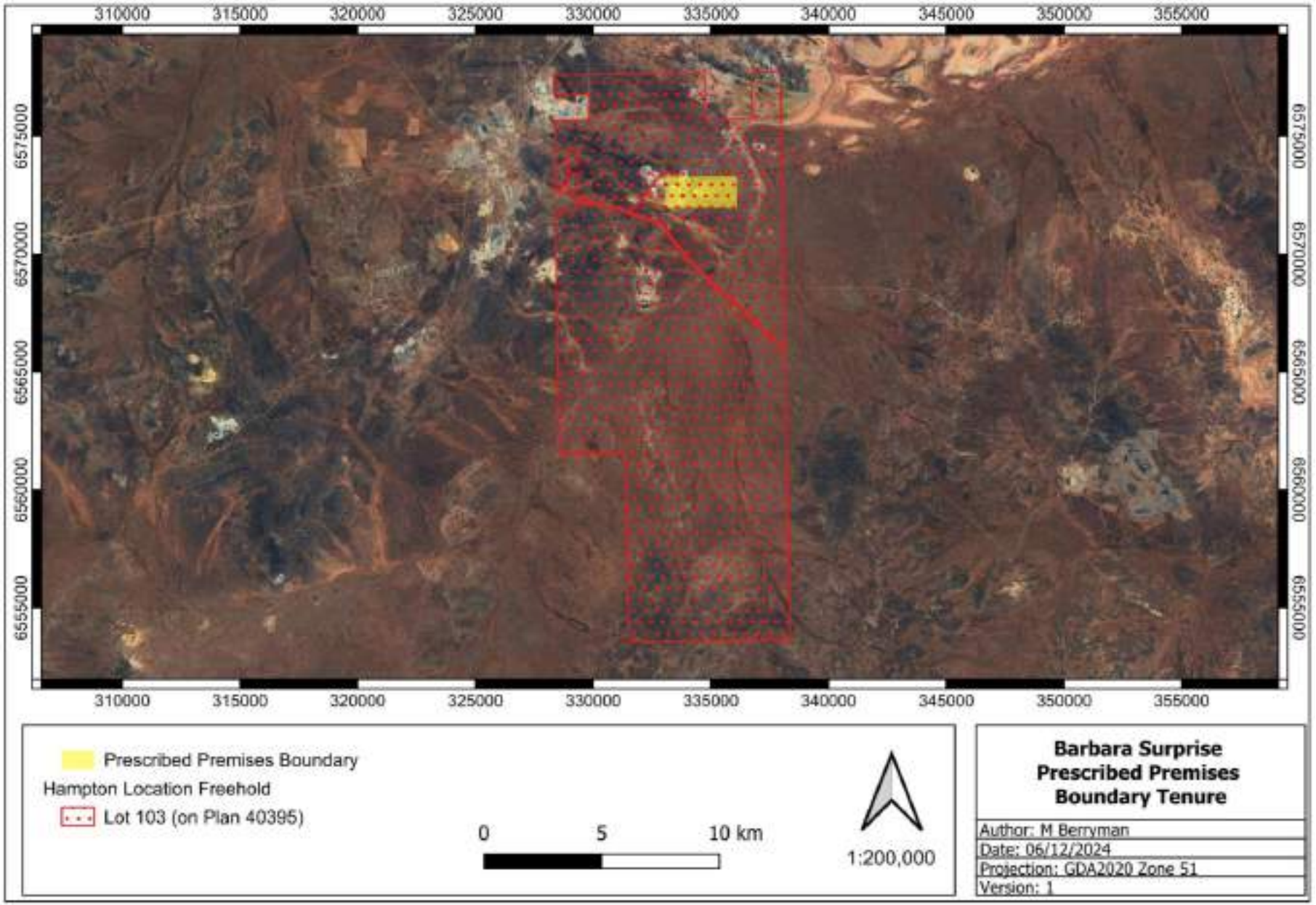


Figure 3-2: Prescribed Premises Boundary – Tenure

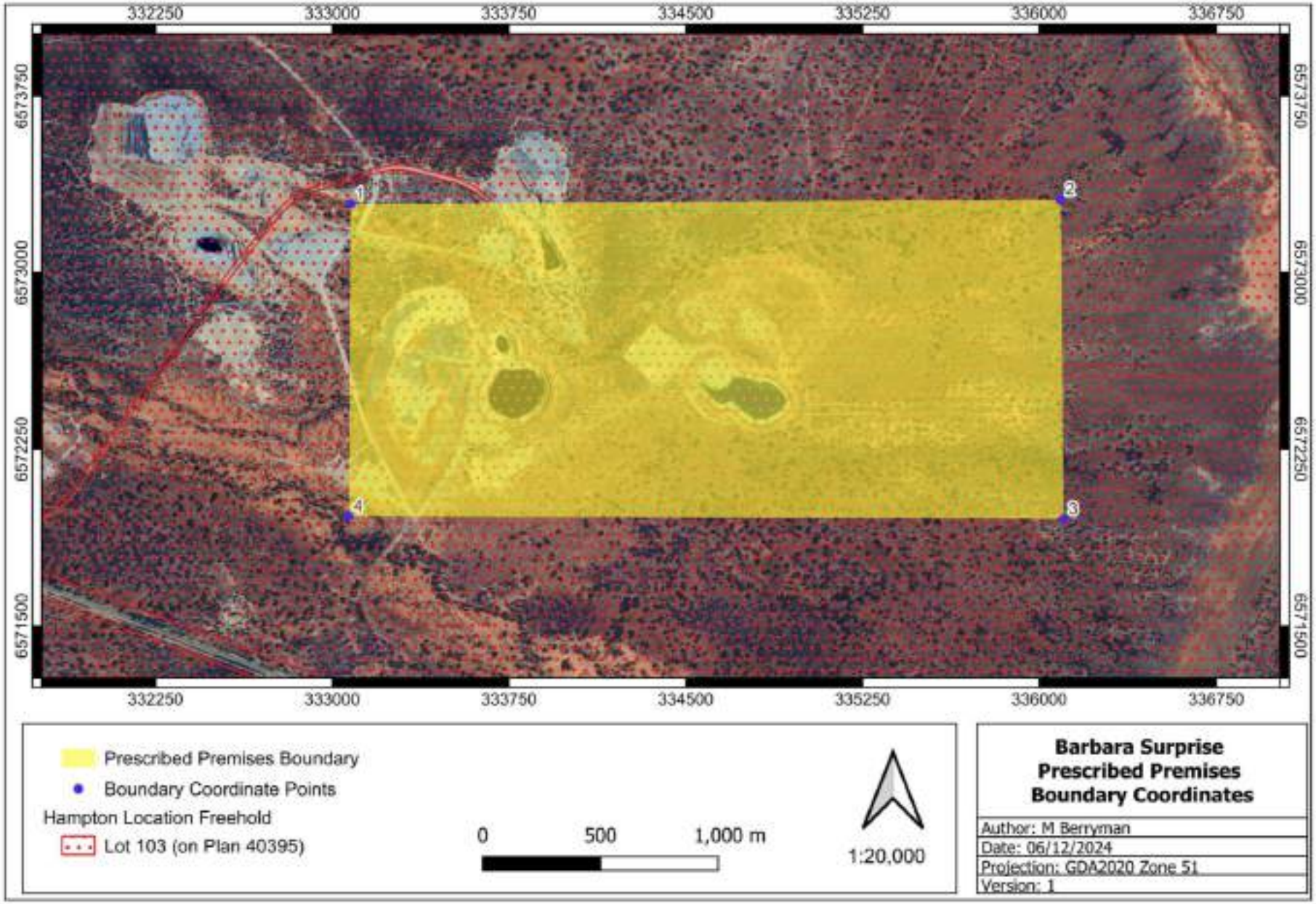


Figure 3-3: Prescribed Premises Boundary – Coordinates

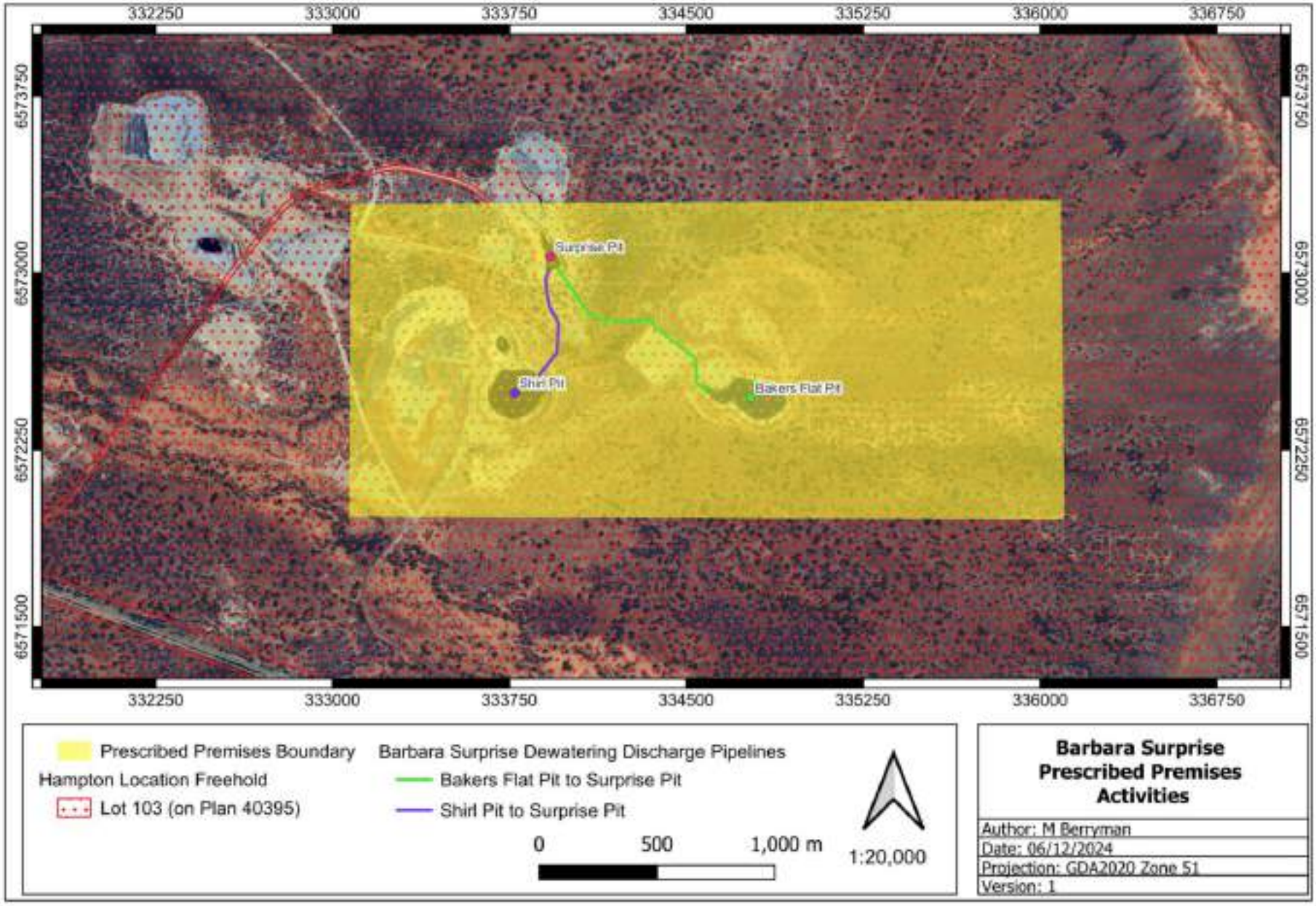


Figure 3-4: Prescribed Premises Activities

The latitude and longitude coordinates using GDA2020 MGA Zone 51 for all points around the proposed Prescribed Premises boundary are provided in Table 3-1 and shown in Figure 3-3.

Table 3-1: Prescribed Premises Boundary Coordinates

Point	Tenure	Latitude	Longitude
1	Lot 103	-30.96206	121.25232
2	Lot 103	-30.96232	121.28386
3	Lot 103	-30.97455	121.28378
4	Lot 103	-30.97402	121.25203

4 Proposed Activities

This Proposed Activity section outlines the scope and scale of the project, key infrastructure, processes, emissions, discharges and wastes and construction activities for which approval is being sought. This additional information is provided in accordance with Section 4.12 of the DWER Application Form (*Attachment 3B: Proposed Activities*).

4.1 Project Overview

The Greenfields Site is owned and operated by FMR and is a toll treatment facility that processes gold-bearing ore under contract from several clients within the Goldfields Region. The Greenfields Site is located approximately three (3) km north-east of Coolgardie in WA. The Greenfields Site is operated under the DWER granted Prescribed Premises Licence L4680/1988/13 and 5C Groundwater Licence GWL173070.

Process water for the Greenfields Site is currently recycled from the Tailings Storage Facility (TSF) decants, underdrainage and seepage recovery systems and supplemented by abstraction from the Noble Pit, located approximately 9km to the south-south-east. The Noble Pit is located within the Hannan Tributary Palaeochannel Aquifer in the Roe Sub Area of the Proclaimed Goldfields Groundwater Area. FMR has been issued GWL173070 by the DWER for the annual abstraction of up to 1,500,000kL of groundwater from the Noble Pit. GWL173070(5) is valid from 20 February 2020 to 19 February 2030.

In June 2024, FMR applied to the DWER to amend GWL173070 (Application 065002) to authorise the abstraction from additional water sources at the Barbara Surprise Project including the Bakers Flat, Shirl and Surprise Pits. The Barbara Surprise Pits are also located within the Hannan Tributary palaeochannel aquifer in the Roe Sub Area and Hampton Location Lot 103 (on Plan 40395), approximately 5.7km southeast of the Greenfields Site. FMR has been granted access to Barbara Surprise Pit water via an Access Agreement with NSR.

FMR are currently planning to re-commence mining at the Bakers Flat and Shirl Pits which will require the advanced dewatering of the existing pit lakes. It is planned to transfer excess dewater to the Surprise Pit for storage prior to use as a supplementary source of water for the Greenfields Site and for dust suppression during future mining operations.

4.2 Prescribed Premises Infrastructure

The Barbara Surprise Pit Dewatering Discharge is classified as a Prescribed Premises under Category 6 in Schedule 1 of the EP Regulations. Category 6 applies for Mine Dewatering where more than 50,000 tonnes per year of water is extracted and discharged into the environment to allow mining of ore. It is planned that the discharge of mine dewater will be up to 1,500,000kL per year for the advanced dewatering of existing pit lakes into the Surprise Pit and for dust suppression during mining operations.

Prescribed Premises Maps (Figure 3-2, Figure 3-3, and Figure 3-4) show the layout of key infrastructure and are submitted in accordance with Section 4.10 of the DWER Application Form (*Attachment 2: Premises Maps*).

4.2.1 Category 6

4.2.1.1 Pit Dewatering Discharge

FMR plans to initially transfer the existing Bakers Flat Pit lake into Surprise Pit to enable the recommencement of mining operations. During and following the initial transfer from the Bakers Flat Pit, water will be abstracted from the Surprise Pit for use at the Greenfields Site for mineral processing.

After the water transfer from the Surprise Pit to the Greenfields Site is complete, continued dewatering of Surprise Pit is planned to manage the groundwater inflows, keeping phreatic levels depressed and optimising storage capacity for the future dewatering of the Shirl Pit. Bakers Flat Pit will also require dewatering during mining, this dewater will primarily be used for mining / dust suppression with any shortfall sourced from the Shirl and/or Surprise Pits.

Progressive dewatering of the Shirl Pit lake will be undertaken into Surprise Pit to enable a smooth mining transition. During this transfer period, water will continue to be abstracted from the Surprise Pit for use at the Greenfields Site. Shirl Pit will also require dewatering during mining, this dewater will be used for mining / dust suppression with any shortfall sourced from the Bakers Flat and/or Surprise Pits.

4.2.1.1.1 Barbara Surprise Pits

The Barbara Surprise Mining Area has a long history of mining, including both underground and open pit operations. At open pits that are mined below the natural groundwater level and following the cessation of dewatering, pit lakes will form from a combination of groundwater inflow, rainfall and surface water runoff. The rate of pit lake formation and the volume is influenced by a range of factors such as rainfall, evaporation, hydrogeology, and pit geometry (CMW, 2024).

Pit lakes in semi-arid settings are usually classified as ‘flow-through’ or ‘terminal sinks’. Terminal sinks form in arid environments where the potential evaporation is higher than the mean precipitation, and the lake catchment is small, leading to a pit lake water elevation below the surrounding pre-mining groundwater level (CMW, 2024).

At the Barbara Surprise Mining Area, current pit lake levels are approximately 10.5m and 13.5m below pre-mining groundwater levels at Bakers Flat Pit and Surprise Pit respectively, and around 16.5m below the surrounding groundwater level at Shirl Pit. Based on available aerial imagery, it appears that the pit lakes reached full recovery by 2018 (CMW, 2024).

The Barbara Surprise pit lakes exhibit characteristics of terminal sinks, understood to be primarily controlled by evaporation rates, as evidenced by the Shirl Pit showing the greatest magnitude of drawdown due to its larger surface area. It is also noted that the combination of generally gentle slopes in conjunction with relatively low intensity rainfall is not expected to produce a surface run-off flow reporting to the Barbara Surprise Pits (CMW, 2024).

The Surprise deposit was mined via underground methods in the 1950's and open pit methods in the 1980's. The Surprise Pit has partially filled with water (groundwater inflow and incidental rainfall). In the early 2000's water was initially abstracted for dust suppression at the nearby Gala mining operation and later during mining of the Bakers Flat Pit excess water was discharged into the Surprise Pit.

A study completed in 2000 by Aquaterra indicates that there is little to no information on whether the Surprise Pit required dewatering or had significant inflows. However, it was believed that the pit does not intersect a major aquifer although there are some groundwater inflows occurring.

4.2.1.1.2 Water Balance

In 2024, CMW Geosciences (CMW) completed a Pit Lake Hydrology Study to determine whether the Surprise Pit has sufficient capacity to store the proposed dewatering volumes generated as part of the planned mining of the Bakers Flat and Shirl Pits. The current water volume in the Surprise Pit (325mAHD) is 34,434kL and at a nominal 6m below the pit crest (350mAHD) the Surprise Pit can contain 440,819kL. Water balance modelling indicates that the Surprise Pit has sufficient capacity to accommodate the planned staged water transfers from the Bakers Flat and Shirl Pits when combined with water abstraction from the Surprise Pit for use at the Greenfields Site (CMW, 2024).

The recommencement of mining is proposed to start at the Bakers Flat Pit which currently contains 389,000kL of water requiring dewatering into the Surprise Pit prior to operations. Water balance modelling indicates that this can be undertaken over two (2) months and the Surprise Pit lake level following Bakers Flat Pit dewatering is modelled to be 340mAHD which provides a substantial freeboard of 16m.

During and following the initial transfer, water will be abstracted as required from the Surprise Pit for use at the Greenfields Site. Bakers Flat Pit will also require dewatering during mining of approximately 10,160kL/month. This dewater will primarily be used for mining / dust suppression with any shortfall sourced from the Shirl and/or Surprise Pits.

The Shirl Pit currently contains the largest volume of water at 2,025,200kL and advanced dewatering is required to enable a smooth mining transition. Water balance modelling indicates that the dewatering may take two (2) years, and the Surprise Pit lake level following Shirl Pit dewatering is modelled to be 333mAHD which provides a substantial freeboard of 23m.

During this transfer period, water will continue to be abstracted from the Surprise Pit for use at the Greenfields Site. Following the initial pit lake transfer to Surprise Pit, Shirl Pit will require dewatering during mining of approximately 2,200kL/month. This dewater will be used for mining / dust suppression with any shortfall sourced from the Bakers Flat and/or Surprise Pits.

Indicative annual discharge volumes are provided in Table 4-1. It is noted that at this stage these are indicative only and may change based on operational requirements and the mining schedule.

Table 4-1: Indicative Annual Discharge Volumes

Year	Draw Point	Mine Use Dewatering / Dust Suppression (kL) (Months)	Pit Lake Transfer (kL) (Months)
2025	Bakers Flat Pit	~102,000 (10)	~389,000 (2)
	Shirl Pit	~18,000 (10)	0
	Surprise Pit	~12,000 (7)	(+389,000) (2)
	Total	**~132,000**	**(~389,000)**
2026	Bakers Flat Pit	~122,000 (12)	0
	Shirl Pit	~15,000 (12)	0
	Surprise Pit	~21,000 (12)	0
	Total	**~158,000**	**0**
2027	Bakers Flat Pit	~40,000 (4)	0
	Shirl Pit	~5,000 (4)	0
	Surprise Pit	~7,000 (4)	0
	Total	**~52,000**	**0**
2028	Bakers Flat Pit	0	0
	Shirl Pit	0	~1,037,000 (12)
	Surprise Pit	0	(+1,037,000) (12)
	Total	**0**	**(~1,037,000)**
2029	Bakers Flat Pit	0	0
	Shirl Pit	0	~988,000 (12)
	Surprise Pit	0	(+988,000) (12)
	Total	**0**	**(~988,000)**
2030	Bakers Flat Pit	~131,000 (12)	0
	Shirl Pit	~26,000 (12)	0
	Surprise Pit	0	0
	Total	**~157,000**	**0**

4.2.1.1.3 Dewatering Infrastructure

Based on the water balance assessment, the Barbara Surprise Dewatering Discharge infrastructure is planned to be constructed in two (2) stages. Initially the Bakers Flat Pit to Surprise Pit pipelines will be established (Figure 3-4), followed by the Shirl Pit to Surprise Pit pipelines (Figure 3-4).

The Bakers Flat to Surprise Pit pipeline is approximately 1km, and the Shirl to Surprise Pit pipeline is approximately 0.5km. Both pipelines will be 250mm diameter PN16 high-density polyethylene (HDPE). Pipelines will be constructed using poly welding to join individual sections, with flanged control valves to direct flow between discharge points.

Key controls for the management of dewatering pipelines include:

- Constructed using materials that meet applicable Australian/New Zealand Standards including:
    - AS/NZS 4129:2008 Fittings for polyethylene pipes for pressure applications;
    - AS/NZS 4130:2009 Polyethylene pipes for pressure applications; and
    - AS/NZS 4131:2010 Polyethylene compounds for pressure pipes and fittings.
- Locate the dewatering discharge pipelines within earthen bunded corridors to ensure leaks or spills are contained;
- Ensure that the discharge pipeline is located far enough over the Surprise Pit crest or down the pit ramp to reduce exposure to wind and prevent scouring of pit walls;
- Fit dewatering pipelines with isolation valves or automatic leak detection sensors;
- Undertake daily inspections (when in use) of the dewatering pipelines; and
- Shutdown the required section of the pipeline system, if any leaks or spills from pumps or pipelines are detected, until the leak has been verified and/or repaired.

4.2.1.1.4 Monitoring

Following the installation of the Dewatering Discharge Pipelines, water sampling will commence to monitoring the volume and quality of the water discharged into Surprise Pit. The planned discharge monitoring parameters and frequency are provided in Table 4-2.

Table 4-2: Pit Discharge Water Monitoring Parameters and Frequency

Discharge Point	Frequency	Parameter	Units	Limit	Averaging Period
Surprise Pit	Monthly[1] (when discharging)	Discharge Water Volume	kL	-	Continuous
		Standing Water Level	m AHD	350m AHD	Spot Sample
		pH [2]	pH Units	-	
		Electrical Conductivity (EC)[2]	µS/cm	-	
Note [1]: Monthly monitoring undertaken at least 15 days apart. Note [2]: In-field not-NATA accredited analysis.					

4.3 Emission / Discharge Points

The potential emission and discharge points identified for the proposed activities at the Prescribed Premises are listed in Table 4-3. The Prescribed Premises Activities Map (Figure 3-4) include the identified emission and discharge points and are submitted in accordance with Section 4.10 of the DWER Application Form (*Attachment 2: Premises Maps)*.

Table 4-3: Potential Emission and Discharge Points

Source	Emission or Discharge Type	Map Reference
Dewatering Discharge Pipelines	Waste and Leachate (Saline Water)	Figure 3-4 Barbara Surprise Dewatering Discharge Pipelines
Surprise Pit Lake	Waste and Leachate (Saline Water)	Figure 3-4 Surprise Pit

4.4 Construction

Construction of the Barbara Surprise Dewatering Discharge pipeline infrastructure is planned to be constructed in two (2) stages. Initially the Bakers Flat Pit to Surprise Pit pipelines will be established, followed by the Shirl Pit to Surprise Pit pipelines. Subject to approval timelines, it is currently planned that the Bakers Flat Pit to Surprise Pit pipeline infrastructure will be constructed in March 2025 with pit discharge to commence in March 2025. The Shirl Pit to Surprise Pit pipeline infrastructure will be constructed in December 2027 with pit discharge to commence in January 2028.

4.5 Confirmation of Works

4.5.1 Environmental Compliance Report

Following construction of the Barbara Surprise Dewatering Discharge pipeline infrastructure, FMR will submit an Environmental Compliance Report in accordance with Works Approval conditions. The Environmental Compliance Report will be prepared by a suitably qualified or experienced professional, to confirm that infrastructure has been constructed with no material defects, and that all Works Approval conditions relating to the construction and installation of the infrastructure have been complied with.

4.6 Time Limited Operations

To streamline the approvals process and enable the proposed activities to commence following construction, FMR requests that the prescribed activities are authorised as Time Limited Operations. The Time Limited Operations period is requested to be set at 180 calendar days to allow for the assessment of the Licence Application. It is noted that the planned Time Limited Operations activities will not be different from future licensed operations.

4.7 Licence Application

FMR will submit a Licence Application following the completion of works in accordance with the conditions of the amended Works Approval. This Licence Application will be submitted once the Environmental Compliance Report is provided to the DWER and Time Limited Operations begin. Operation under Licence conditions will commence when the Licence Amendment is granted (prior to the expiry of the Works Approval).

5 Approvals and Consultation

This Approvals and Consultation Section is provided in accordance with Section 7.9 of the DWER Application Form (*Attachment 5: Other Approvals and Consultation Documentation*).

5.1 Environmental Legislation and Approvals

FMR is committed to compliance with statutory requirements, continuous improvement, and minimising environmental and social impacts. A review of applicable environmental legislation, environmental approvals and statutory requirements that apply to the environmental management of the Barbara Surprise Dewatering Discharge has been completed. A list of relevant environmental approvals including those that have been sought or are required for the prescribed activities is provided in Table 5-1.

Table 5-1: Prescribed Activity Environmental Legislation and Approvals

Relevant Legislation	Environmental Factor Regulated / Affected	Relevant Approval / Requirement	Status
Aboriginal Heritage Act 1972	Aboriginal Heritage	Section 18 Consent	Not Required
Biodiversity Conservation Act 2016	Flora and Fauna	Flora Licences	Not Required
		Fauna Licences	Not Required
		Sandalwood Licences	Not Required
		Modify a TEC Authorisation	Not Required
		Disturb Threatened Plants Authorisation	Not Required
Conservation and Land Management Act 1984	State Forrest National Parks Timber Reserves	Section 89 Permit	Not Required
		Section 90 Licence	
Contaminated Sites Act 2003	Land and Water Contamination	Report Known or Suspected Contaminated Sites	Not Required
Country Areas Water Supply (CAWS) Act 1947	Catchment Clearing	Licence (not required for clearing approved under Part V of the *EP Act*)	Not Required

Relevant Legislation	Environmental Factor Regulated / Affected	Relevant Approval / Requirement	Status
Dangerous Goods Safety Act 2004	Dangerous Goods Transport, Storage and Handling	Dangerous Goods Site Licence Explosives Licence	Not Required
Environment Protection and Biodiversity Conservation Act 1999	Biodiversity Flora / Fauna Ecosystem	Controlled Action Referral / Determination / Approval	Not Required
Environmental Protection Act 1986 (Part IV)	Flora / Vegetation Terrestrial Fauna Hydrological Processes Terrestrial and Inland Waters Environmental Quality Rehabilitation and Closure	Project Referral / Environmental Impact Assessment / Ministerial Approval and Conditions (if required)	Not Required
Environmental Protection Act 1986 (Part V)	Clearing Emissions and Discharges Water Resources (Pollution) Landforms	Clearing Permit	Granted CPS 3391/2 (Amendment Planned)
		Prescribed Premise Works Approval (Construction / Commissioning)	Submitted (This Document)
		Prescribed Premise Licence (Operation)	Planned
Health (Miscellaneous Provisions) Act 1911	Water Resources	Wastewater Primary Treatment Systems (i.e. Septic Tanks)	Not Required
Heritage Act 2018	Heritage Places	Development Approval	Not Required
Main Roads Act 1930	Road Reserves	Approval of Proposed Work within a Road Reserve	Not Required
Metropolitan Water Supply Sewerage and Drainage Act 1909	Water Resources	Permit for Designated Activities in Public Drinking Water Source Areas	Not Required
Mining Act 1978	Landforms Rehabilitation Mine Closure Water Resources Clearing Aboriginal Heritage Land Use Buffers	Appropriate Mineral Title	Not Required
		Written Consent of Occupier (s20)	Not Required
		Mining Proposal	Not Required
		Mine Closure Plan	Not Required

Relevant Legislation	Environmental Factor Regulated / Affected	Relevant Approval / Requirement	Status
Planning and Development Act 2005	Infrastructure	Local Government Development Approvals	Not Required
Rights in Water and Irrigation Act 1914	Water Resources	5C Licence	Granted GWL173070 (Amendment Submitted)
		26D Licence	Not Required
		Section 11 Permit	Not Required
		Section 17 Permit	Not Required
		Section 21A Permit	Not Required
Waterways Conservation Act 1976	Water Resources	Disposal Licence	Not Required

5.1.1 Environmental Protection Act 1986 (Part V)

5.1.1.1 Clearing Permit

Under the *Environmental Protection Act 1986*, clearing of native vegetation is an offence unless it is done under the authority of a Clearing Permit or an exemption applies. Clearing Permits either allow the clearing of a specific area (Area Permit) or for a specific purpose (Purpose Permit).

For the Barbara Surprise Dewatering Discharge infrastructure, FMR will utilise existing disturbance areas, where possible, to reduce the need for additional clearing. NSR have advised that CPS3391/2 has been issued for clearing for the purpose of mineral exploration, drilling and production and includes Lot 103. If required any additional clearing would be undertaken in accordance with this Clearing Permit. It is noted that NSR are planning to submit an Amendment Application for CPS3391/2 as clearing is currently authorised under Condition 5 until 7 February 2025.

5.1.1.2 Prescribed Premises Works Approvals and Licences

The DWER regulates industrial emissions and discharges to the environment through a works approval and licensing process, under Part V of the EP Act. Industrial premises with potential to cause emissions and discharges to air, land or water are known as 'Prescribed Premises' and trigger regulation under the Act. Prescribed premises categories are outlined in Schedule 1 of the EP Regulations.

FMR has submitted this Works Approval Application for the construction of the required infrastructure for the Barbara Surprise Dewatering Discharge (Category 6). Following approval and construction a Licence Application will also be submitted in accordance with the DWER processes.

5.1.2 Rights in Water and Irrigation Act 1914

The *Rights in Water and Irrigation Act 1914* provides a licensing system for taking water; and a permitting system for activities in proclaimed water areas. A 5C licence allows the holder to take water from a watercourse, well, or underground source. A 26D licence is required to construct or alter an artesian well or any non-artesian well in a proclaimed groundwater area. The Barbara Surprise Project is located within the Proclaimed Goldfields Groundwater Area.

Process water for the Greenfields Site is currently abstracted from the Noble 5 Pit which is located on Hampton Location Lot 103 (on Plan 40395) within the Roe Sub Area of the Proclaimed Goldfields Groundwater Area. FMR have been issued GWL173070(5) by the DWER for the annual abstraction of 1,500,000kL of groundwater from the Noble 5 Pit. GWL173070(5) is valid from 20 February 2020 to 19 February 2030.

In June 2024, FMR applied to the DWER to amend GWL173070 (Application 065002) to authorise the abstraction from additional water sources at the Barbara Surprise Mining Area including the Bakers Flat, Shirl and Surprise Pits. This GWL Amendment Application is currently being assessed by the DWER.

5.2 Stakeholder Engagement

5.2.1 Principles of Stakeholder Engagement

Consultation with stakeholders regarding proposed activities is important at all operational stages from exploration to mining to mine closure. FMR is focused on developing relationships and maintaining regular communication with stakeholders in accordance with the Stakeholder Engagement Principles outlined in Table 5-2. These principles are outlined in the DEMIRS *Mining Proposal Guidance* (DMIRS, 2020b) and have been adapted from the Ministerial Council on Mineral and Petroleum Resources (MCMPR) Principles for Engagement with Communities and Stakeholders 2005.

Table 5-2: Principles of Stakeholder Engagement

Principle	Requirement
Communication	Communication must be open, accessible, clearly defined, two-way and appropriate.
Transparency	The process and outcomes of community and stakeholder engagement should, wherever possible, be made open and transparent, agreed upon and documented.
Collaboration	A cooperative and collaborative approach to seek mutually beneficial outcomes is considered key to effective engagement.
Inclusiveness	Inclusiveness involves identifying and involving communities and stakeholders early and throughout the process, in an appropriate manner.
Integrity	Community and stakeholder engagement should establish and foster mutual trust and respect.

In addition, FMR has also considered and incorporated the Stakeholder Involvement Principles from the Strategic Framework for Mine Closure (ANZMEC/MCA, 2000) into its Stakeholder Engagement Strategy. These Principles require that:

1. Stakeholders and interested parties are identified;
2. Effective consultation occurs regularly and throughout the life of the mine;
3. A targeted communication strategy reflects the needs of the stakeholders and interested parties;
4. Adequate resources have been allocated to ensure the effectiveness of the consultation process; and
5. Wherever practical, the company will work with communities to manage the potential impacts of mine operations and closure.

5.2.2 Targeted Stakeholder Engagement Strategy

The purpose of the FMR Stakeholder Engagement Strategy is to ensure the effective involvement of stakeholders throughout the proposed life of the Barbara Surprise Project. This involvement is required for all phases of the operation from exploration, planning, and approvals; to construction, commissioning, and operation; to final decommissioning and closure.

The Stakeholder Engagement Strategy is used to:

- Identify the full range of stakeholders with an interest in the Project;
- Establish and maintain a consistent and coordinated approach for communication with the local community, government agencies, special interest groups and industry;
- Identify known and emerging environmental, social, and cultural heritage aspects of the Project which might be of interest or concern to stakeholders;
- Inform stakeholders about key environmental, social, and cultural heritage factors associated with the Project, the potential impacts and management strategies to minimise or mitigate the potential impacts;
- Consider stakeholder concerns during all phases of the Project decision making process; and
- Ensure that there is timely and accurate feedback and provision of information on how any impacts and issues will be managed.

A summary of identified Barbara Surprise Project stakeholders, communication tools and key interests is provided in Table 5-3. FMR will continue to engage with relevant stakeholders (in conjunction with NSR as required) regarding the Barbara Surprise Project to ensure concerns are addressed and potential impacts are managed throughout the LoM. The Stakeholder Consultation Register is provided in Appendix 12.2.

Table 5-3: Project Stakeholders and Communication Tools

Group	Stakeholder	Communication Tools	Key Interests
WA Government Agency	Department of Water, and Environmental Regulation (DWER)	Meeting / Email / Phone / Applications / Reports	• Native Vegetation Clearing • Prescribed Premises Activities • Groundwater Abstraction
Local Government	Shire of Coolgardie	Meeting / Letter / Applications	• Prescribed Premises Activities • Planning Development • Mining Activities • Mine Closure
Traditional Owners	Marlinyu Ghoorlie Native Title Claimants	Meeting / Email / Phone / Letter / Agreements / Surveys	• Heritage and Cultural Sites • Heritage Protection Agreements • Exploration Activities • Mining Activities • Mine Closure
Industry	Northern Star Resources Ltd (NSR)	Meeting / Email / Phone / Letter / Agreement	• Access Agreements • Prescribed Premises Activities • Groundwater Abstraction • Mining Activities • Mine Closure

5.2.3 Ongoing Community and Stakeholder Engagement

FMR understands that expectations regarding the types and level of stakeholder engagement are not static and will shift according to the Project phase and the social, economic, and environmental conditions of the day. To maintain an effective Stakeholder Engagement Strategy and its relevance over the long term, FMR maintains a Stakeholder Consultation Database and undertakes regular review of the strategy as part of its Environmental Management System (EMS). FMR aims to remain alert and sensitive to any changes in public perception of the Barbara Surprise Project and will continue to investigate, define, and discuss any issues with relevant stakeholders.

6 Emissions, Discharges and Waste

This Emissions, Discharges and Waste Section is provided in accordance with Section 9.3 of the DWER Application Form (*Attachment 6A: Emissions and Discharges)*.

6.1 Emissions and Discharges

The Prescribed Premises activities with the potential for emissions or discharges are provided in Table 6-1 and further information and the proposed controls is provided in the following sections.

Table 6-1: Identified Activities with Potential Emission and Discharges

Potential Emissions and Discharges	Source	Activity
Waste and Leachate (Saline Water)	Dewatering Discharge Pipelines Surprise Pit Lake	Spills and Leaks from Pipelines Seepage or overtopping from Surprise Pit Lake

6.1.1 Waste and Leachate

6.1.1.1 Spills or Leaks from Dewatering Discharge Pipelines

There is the potential that spills and leaks of saline water from the dewatering discharge pipelines can have localised impacts on the soil or vegetation. To prevent and minimise the impacts of spills and leaks from the dewatering discharge pipelines from the Bakers Flat and Shirl Pits to the Surprise Pit, FMR will:

- Locate the dewatering discharge pipelines within earthen bunded corridors to ensure leaks or spills are contained;
- Ensure that the discharge pipeline is located far enough over the Surprise Pit crest or down the pit ramp to reduce exposure to wind and prevent scouring of pit walls;
- Fit dewatering pipelines with isolation valves or automatic leak detection sensors;
- Undertake daily inspections (when in use) of the dewatering pipelines; and
- Shutdown the required section of the pipeline system, if any leaks or spills from pumps or pipelines are detected, until the leak has been verified and/or repaired.

6.1.1.2 Seepage or Overtopping of the Surprise Pit Lake

Groundwater outflow (seepage) from an open pit receiving mine dewater can occur when pit lake water levels are higher than the regional groundwater levels. Overtopping may also occur if the pit lakes are higher than the crest of the receiving open pit. The changes in groundwater depth can lead to impacts on surrounding vegetation and changes in groundwater quality may impact on the aquifer. The Surprise Pit is the only pit proposed to receive mine dewater and the following scenarios have been considered:

- If the Surprise Pit is filled with mine dewater, but the pit lake level remains below the pre-mining groundwater levels (338.5mAHD), groundwater will continue to flow into the pit with no discernible environmental impact.
- If the Surprise Pit is filled with mine dewater and the pit lake level is above the pre-mining groundwater level (338.5mAHD), groundwater will flow out of the pit into surrounding groundwater.
- If the Surprise Pit is filled with mine dewater and the pit lake level is close to the pit crest (356mAHD), groundwater mounding could occur in the surrounding region with groundwater levels rising into the vegetation root zone, potentially affecting nearby vegetation health.

Water balance modelling undertaken by CMW indicates that:

- The current water volume in the Surprise Pit (325mAHD) is 34,434kL and at a nominal 6m below the pit crest (350mAHD) the Surprise Pit can contain 440,819kL.
- If the dewatering of the Bakers Flat Pit is undertaken over two (2) months, the Surprise Pit lake level will be 340mAHD which provides a substantial freeboard of 16m.
- Some outflow of Surprise Pit lake water to the surrounding groundwater is expected (~75,000kL over four (4) months) prior to pit lake levels being reduced via pumping to the Greenfields Site. This water will flow back into the pit lake once levels are below the pre-mining groundwater level.
- If the dewatering of the Shirl Pit is undertaken over two (2) years, the Surprise Pit lake level will be 333mAHD which provides a substantial freeboard of 23m.
- Some outflow of Surprise Pit lake water to the surrounding groundwater is expected (~217,000kL over 32 months) prior to pit lake levels being reduced via pumping to the Greenfields Site. This water will flow back into the pit lake once levels are below the pre-mining groundwater level.
- The Surprise Pit has sufficient capacity to accommodate the planned staged water transfers from the Bakers Flat and Shirl Pits when combined with water abstraction from the Surprise Pit for use at the Greenfields Site.

The protection of vegetation requires the depth to groundwater to be maintained so as not to impact on the soils from which plants source water (i.e. the root zone). Studies indicate that whilst native vegetation species may be relatively tolerant of high saline soils, many are poorly adapted to water logging. It is generally accepted that a standing water level (SWL) limit of four (4) mBGL will prevent impacts to native vegetation.

To allow for operational changes during dewatering activities and to ensure that surrounding vegetation is protected, FMR will adopt a maximum Surprise Pit lake water level of 350mAHD, which is about 6m below the surrounding ground surface. This will avoid impacts on the surrounding vegetation related to mounding of pit lake water into the vegetation root zone. No significant changes to groundwater quality are anticipated as water quality characteristics are similar across all three (3) pit lakes (Section 7.3.4.2.1).

To prevent and minimise the impacts of seepage and overtopping, FMR will:

- Ensure that the Surprise Pit lake is below the maximum water level of 350m AHD (i.e. 6m below the surrounding ground surface);
- Install flow meters and record the volume of water discharged each month:
- Monthly monitoring of pit lake water level (freeboard capacity) and quality; and
- If required, reduce discharge volumes into Surprise Pit and/or prioritise abstraction from Surprise Pit.

6.2 Risk Assessment

FMR has a risk assessment process to identify significant risks and ensure that appropriate management strategies are implemented to reduce potential impacts to people, the environment or community. The risk assessment identifies the hazards associated with planned activities, the likelihood of it happening and the consequence of the potential impact. Risk assessments are utilised by FMR to:

1. Identify activities that could result in safety, environmental or community impacts;
2. Quantify the level of inherent risk (pre-treatment) of the activity i.e. no control measures applied;
3. Develop appropriate control measures to reduce the residual risk (post-treatment);
4. Document these processes so they form part of the EMS; and
5. Routinely monitor and review the effectiveness of these processes and control measures aiming for continuous improvement.

A key outcome of risk management is to rank potential impacts, so that specific management measures (controls or treatments) can be developed. The aim of the process is to reduce the residual risk to 'As Low as Reasonably Practicable' (ALARP).

The best way to control a risk is to eliminate the hazard altogether, however this is not always reasonably practicable. FMR uses the Hierarchy of Control which is widely used as a systematic approach to managing risks. It provides a structure to select the most effective control measures to eliminate or reduce the risk of identified hazards.

The Hierarchy of Control ranks risk control measures from the highest level of protection and reliability to the lowest level of protection and reliability. Eliminating the hazard is the most effective, followed by substituting the hazard with something safer, isolating the hazard or reducing risk using engineering controls. Administrative actions (and Personal Protective Equipment) sit as the last line of defence and are only used after all other controls have been assessed or as a supplementary control. A combination of controls is used whenever a single control measure is not sufficient.

6.2.1 Risk Assessment Criteria

Risk levels for identified impacts are evaluated based on the maximum reasonable consequence and the likelihood of that consequence occurring. For this Works Approval Application, FMR has used the risk assessment criteria outlined in the DWER Guideline – Risk Assessments (DWER, 2017). The likelihood and consequence definition tables are provided in Table 6-2 and Table 6-3 respectively.

Table 6-2: Risk Assessment Likelihood Definition

Level	Likelihood	Description
a	**Almost Certain**	The risk event is expected to occur in most circumstances.
b	**Likely**	The risk event will probably occur in most circumstances.
c	**Possible**	The risk event could occur at some time.
d	**Unlikely**	The risk event will probably not occur in most circumstances.
e	**Rare**	The risk event may only occur in exceptional circumstances.

Table 6-3: Risk Assessment Consequence Definition

Environmental Factor	Environment	Public Health and Amenity
Severe (5)	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): **significantly exceeded**	Loss of life Adverse health effects: high level or ongoing medical treatment Specific Consequence Criteria (for public health): **significantly exceeded** Local scale impacts: permanent loss of amenity
Major (4)	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): **exceeded**	Adverse health effects: mid-level or frequent medical treatment Specific Consequence Criteria (for public health): **exceeded** Local scale impacts: high level impact to amenity
Moderate (3)	Onsite impacts: **mid-level** Offsite impacts local scale: **low level** Offsite impacts wider scale: **minimal** Specific Consequence Criteria (for environment): **at risk of not being met**	Adverse health effects: low level or occasional medical treatment Specific Consequence Criteria (for public health): **at risk of not being met** Local scale impacts: mid-level impact to amenity
Minor (2)	Onsite impacts: **low level** Offsite impacts local scale: **minimal** Offsite impacts wider scale: **not detectable** Specific Consequence Criteria (for environment): **likely to be met**	Specific Consequence Criteria (for public health): **likely to be met** Local scale impacts: low level impact to amenity

Environmental Factor	Environment	Public Health and Amenity
Slight (1)	Onsite impacts: **minimal** Specific Consequence Criteria (for environment): **met**	Specific Consequence Criteria (for public health): **met** Local scale impacts: minimal impacts to amenity

The risk matrix detailed in Table 6-4 combines the level of likelihood and consequence to determine the associated risk level. A risk priority is assigned to each of the 25 possible outcomes and risks are categorised as Extreme (Red), High (Orange), Medium (Yellow) and Low (Green). As different activities differ in scale and nature of impact, control measures are tailored to ensure they are relevant and effective in mitigating the identified risk.

Table 6-4: Risk Matrix

Risk Matrix		Consequence				
		Slight (1)	Minor (2)	Moderate (3)	Major (4)	Severe (5)
Likelihood	Almost Certain (a)	Medium (15)	High (19)	High (22)	Extreme (24)	Extreme (25)
	Likely (b)	Medium (10)	Medium (14)	High (18)	High (21)	Extreme (23)
	Possible (c)	Low (6)	Medium (9)	Medium (13)	High (17)	Extreme (20)
	Unlikely (d)	Low (3)	Medium (5)	Medium (8)	Medium (12)	High (10)
	Rare (e)	Low (1)	Low (2)	Medium (4)	Medium (7)	High (11)

Extreme risk; not tolerated, may refuse application.
High risk; may be tolerated, multiple regulatory controls.
Medium risk; tolerable, may apply regulatory controls.
Low risk; acceptable, generally no regulatory controls.

6.2.2 Risk Assessment Outcomes

An environmental risk assessment has been developed to identify and manage potential environmental risks associated with the proposed dewatering discharge activities at the Prescribed Premises. The risk assessment was based on an understanding of the existing environment through desktop assessments, and technical reports. The full risk assessment is provided in Appendix 12.3.

7 Siting and Location

This Siting and Location Section is provided in accordance with Section 10.4 of the DWER Application Form (*Attachment 7: Siting and Location)*.

7.1 Sensitive Land Uses

A sensitive land use is a residence or other land use which may be affected by an emission or discharge associated with the proposed activities. The WA Environmental Protection Authority (EPA) *Guidance No.3 – Separation Distances between Industrial and Sensitive Land Uses* indicates that mine dewatering (Category 6) Prescribed Premises buffer distances are determined on a case-by-case basis.

The Barbara Surprise Prescribed Premises is approximately seven (7) km east of Coolgardie, 17km south of Kurrawang and 24km south-west of the City of Kalgoorlie-Boulder which are the nearest occupied townsites. Sensitive Land Uses relative to the Prescribed Premises boundary at a local scale are shown in Figure 7-1 and at a regional scale in Figure 7-2.

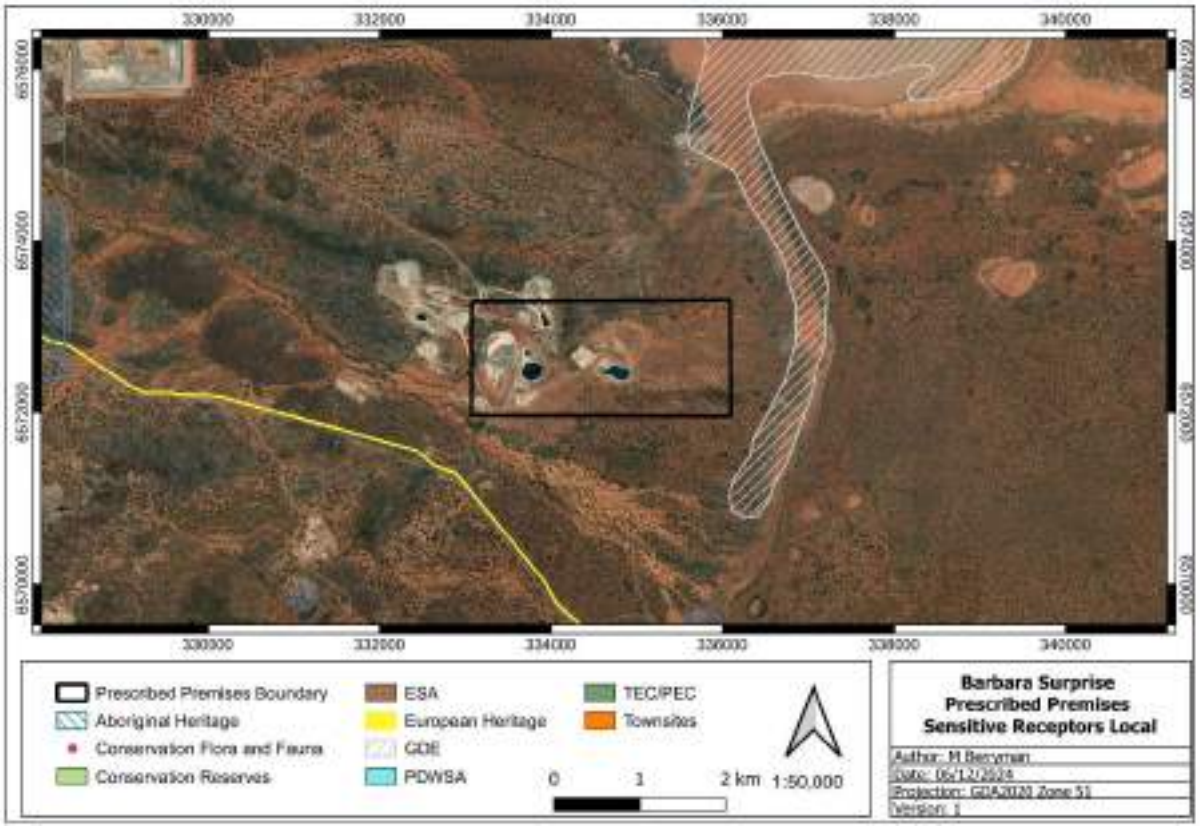


Figure 7-1: Sensitive Land Uses and Receptors - Local Scale

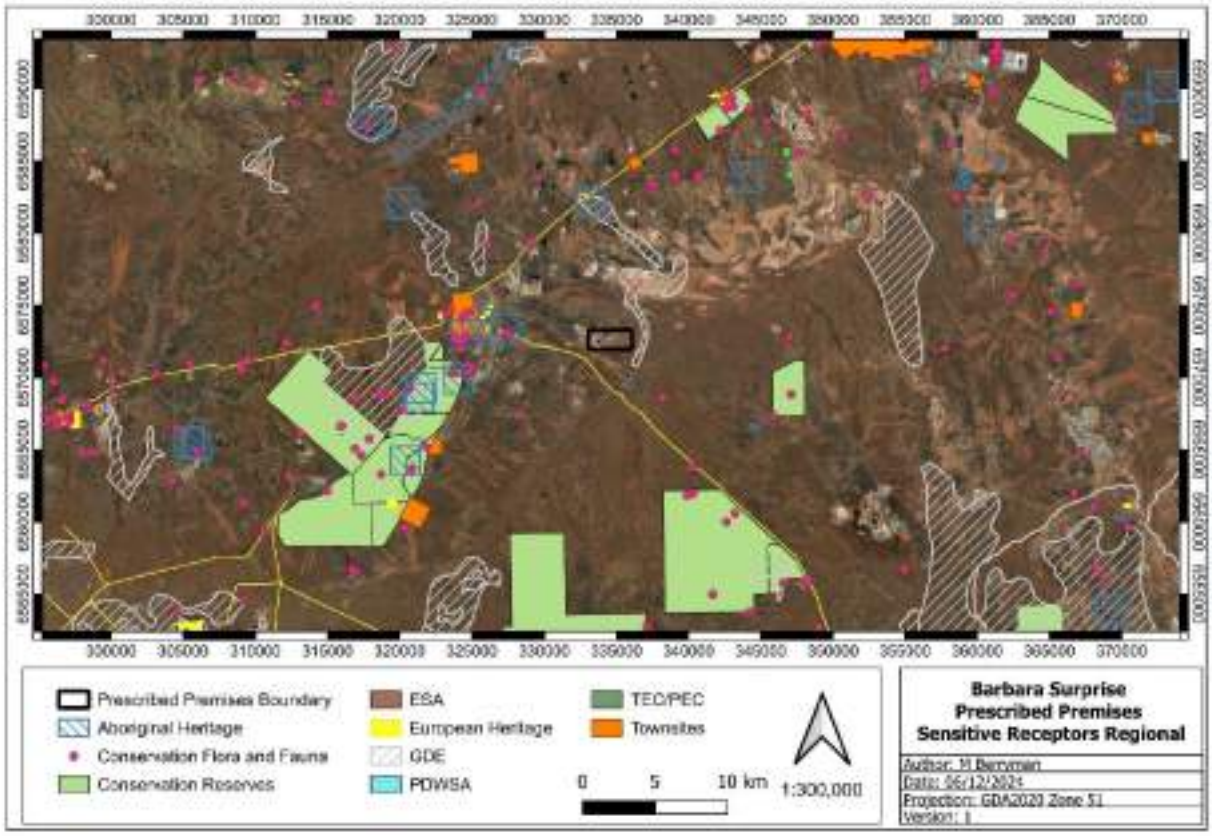


Figure 7-2: Nearby Sensitive Land Uses and Receptors - Regional Scale

7.2 Environmentally Sensitive Receptors

The proximity of Environmentally Sensitive Receptors to the proposed Prescribed Premises boundary is provided in Table 7-1. This includes any proposed measures (if applicable) to ensure that the sensitive receptors are not adversely impacted by any emissions or discharges from the Prescribed Premises. The location of the Environmentally Sensitive Receptors relative to the Prescribed Premises boundary is shown in Figure 7-1 and Figure 7-2. Further information regarding the identification of receptors is provided in the following sub-sections.

Table 7-1: Nearby Environmentally Sensitive Receptors

Type / Classification	Description	Distance and Direction to Premises Boundary	Proposed Controls to Prevent or Mitigate Adverse Impacts (if applicable)
Environmentally Sensitive Areas	Clearing Regs Enviro Sensitive Areas (DWER 046)	>90km NE	Not Applicable.
Threatened Ecological Communities	Threatened Ecological Communities (DBCA-038)	>80km W	Not Applicable.
Threatened and/or Priority Flora	Threatened and Priority Flora (DBCA-036)	>8km E	Not Required.

Type / Classification	Description	Distance and Direction to Premises Boundary	Proposed Controls to Prevent or Mitigate Adverse Impacts (if applicable)
Threatened and/or Priority Fauna	Threatened and Priority Fauna (DBCA-037)	4km NW	Malleefowl mound inspection. Avoid disturbance of identified mounds (50m buffer applied) and removal of mature Eucalyptus trees.
Aboriginal Heritage Sites	Aboriginal Cultural Heritage Register (DPLH 099)	>2km N	Not Required.
Other Heritage Sites	Local Heritage – Coolgardie-Norseman Track (10125)	700m N	Not Required.
Public Drinking Water Source Areas	Public Drinking Water Source Areas (DWER-033)	>50km S	Not Applicable.
Conservation Reserves	Legislated Lands and Waters (DBCA 011)	>8km NE	Not Applicable
Rivers, Lakes, Oceans and Other Surface Water Bodies	Brown Lake (Salt Lake)	~2km S	Abstraction undertaken in accordance with GWL173070 Groundwater Licence Operating Strategy (GLOS).
Acid Sulfate Soils	DWER Acid Sulfate Risk Datasets	>400km NE	Not Applicable

7.2.1 Environmentally Sensitive Areas

Environmentally Sensitive Areas (ESAs) have been declared in the *Environmental Protection (Environmentally Sensitive Areas) Notice 2005*, which was gazetted on 8 April 2005. The exemptions under the Clearing Regulations do not apply within ESAs, so a clearing permit is required.

A desktop regional search of ESAs was undertaken using the Clearing Regulations – Environmentally Sensitive Areas (DWER-046) dataset. There are currently no listed ESAs are located within the Barbara Surprise Project area. The nearest ESAs are >90km southwest of the Prescribed Premises.

7.2.2 Biodiversity

The WA *Biodiversity Conservation Act 2016* provides for the listing of threatened native flora, native fauna and ecological communities that need protection because they are under identifiable threat of extinction (species) or collapse (ecological communities). An ecological community is a naturally occurring group of flora, fauna and other organisms interacting in a unique habitat. The complex range of interactions between the species provides an important level of biological diversity.

Threatened, Extinct and Specially Protected flora or fauna are species which have been adequately searched for and are deemed to be, in the wild, threatened, extinct or in need of special protection, and have been gazetted under the *Biodiversity Conservation Act 2016*. Species and ecological communities may also be listed under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). The EPBC Act provides a legal framework to protect and manage nationally and internationally important flora, fauna, ecological communities, and heritage places - defined as Matters of National Environmental Significance (MNES).

7.2.2.1 Matters of National Environmental Significance

Australia's national environmental law, the EPBC Act, requires that a person must not take an action that has, will have, or is likely to have a significant impact on a MNES unless the action is taken with Commonwealth Government approval. A desktop regional search of MNES was undertaken using the Protected Matters Search Tool (PMST) using the Barbara Surprise Prescribed Premises boundary with a 10km buffer. The PMST indicates that there are:

- No World Heritage Properties, Wetlands of International Significance, or Threatened Ecological Communities.
- One (1) National Heritage Place:
    - Goldfields Water Supply Scheme WA, Mundaring to Kalgoorlie (Place ID 106007);
- Seven (7) Threatened Bird Species;
    - *Aphelocephala leucopsis* (Southern Whiteface) – Vulnerable;
    - *Calidris acuminata* (Sharp-tailed Sandpiper) – Vulnerable;
    - *Calidris ferruginea* (Curlew Sandpiper) – Critically Endangered;
    - *Falco hypoleucos* (Grey Falcon) – Vulnerable;
    - *Leipoa ocellata* (Malleefowl) – Vulnerable;
    - *Pezoporus occidentalis* (Night Parrot) – Endangered; and
    - *Tringa nebularia* (Common Greenshank) – Endangered.
- One (1) Threatened Insect Species;
    - *Ogyris subterrestris* (Arid Bronze Azure Butterfly) – Critically Endangered.
- One (1) Threatened Mammal Species;
    - *Dasyurus geoffroii* (Chuditch, Western Quoll) – Vulnerable.

The listed threatened species are indicative only and may not occur in the Barbara Surprise Project area, further information is provided in the following sections (as applicable).

7.2.2.2 Threatened and Priority Ecological Communities

In WA, there are currently 65 listed Threatened Ecological Communities (TECs), and of these 27 are also listed in the EPBC Act. The listed TEC Category of Threat and WA Criteria are “presumed totally destroyed (PD)”, “critically endangered (CR)”, “endangered (EN)” or “vulnerable (VU)”. Further information regarding the subcategories (i.e. A) ii)) is available via the *Definitions, Categories and Criteria for Threatened and Priority Ecological Communities* (DBCA, 2023a). Of the 65 TECs, none are located within the Coolgardie IBRA Bioregion (DBCA, 2023b).

An additional 390 ecological communities with insufficient information available to be considered a TEC, or which are rare but not currently threatened, have been placed on the Priority list and referred to as Priority Ecological Communities (PECs). Of the 390 PECs, 62 are located within the Goldfields Region (DBCA, 2023c).

A desktop search was undertaken using the PMST Report and the Threatened Ecological Communities (DBCA-038) dataset. This search confirms that there are no Commonwealth or State TECs, or State PECs located within or near (<80km) the Barbara Surprise Project.

7.2.2.3 Groundwater Dependent Ecosystems

Groundwater plays an important role in sustaining aquatic and terrestrial ecosystems, such as springs, wetlands, rivers and vegetation. Understanding these groundwater dependent ecosystems (GDEs) is essential for groundwater management and planning. The Bureau of Meteorology (BoM) GDE Atlas was developed as a national dataset of Australian GDEs to inform groundwater planning and management. The Atlas contains information about three (3) types of ecosystems:

- Aquatic ecosystems that rely on the surface expression of groundwater – this includes surface water ecosystems which may have a groundwater component, such as rivers, wetlands and springs. Marine and estuarine ecosystems can also be groundwater dependent, but these are not mapped in the Atlas.
- Terrestrial ecosystems that rely on the subsurface presence of groundwater – this includes all vegetation ecosystems.
- Subterranean ecosystems includes cave and aquifer ecosystems.

A search of the GDE Atlas identified a nearby Salt Lake (called Brown Lake) as a high potential terrestrial GDE based on the national assessment. In 2024, CMW Geosciences (CMW) was commissioned by FMR to undertake a Hydrological Study (Appendix 12.1) to assess the potential impacts arising from the proposed water extraction from the existing Barbara Surprise Pits on local surface and groundwater conditions. The Study focused on an impact assessment of baseflow to Brown Lake using the conservative scenario of the full dewatering of Bakers Flat, Shirl and Surprise Pits.

.

Brown Lake is classified as a non-perennial surface water feature. Although it typically dries out in the summer months, it is considered to be receiving the baseflow component from groundwater that is understood to be seasonally lost to evaporation at the lake surface. It also receives storm flows from a network of ephemeral streams and run-off from numerous watersheds to the west and south-west indicating a significant catchment size. Evaporative losses at Brown Lake are high due to the substantial lake area (~6,200,000m^2) and potential evaporation is estimated to vary seasonally between approximately 16,850m^3/day in June to 52,200m^3/day in February (CMW, 2024).

A simplified assessment was undertaken of the potential impact to Brown Lake arising from reduced aquifer throughflow reporting as baseflow. Under the conservative scenario considering full dewatering of Bakers Flat, Shirl and Surprise Pits, the theoretical groundwater flow net pattern (accommodating a 150m radius of influence from the pits) was used to approximate a discharge zone affected by dewatering. Calculations indicate a baseflow reduction of 2.4km^2, which represents approximately 1.7% of the Brown Lake groundwater catchment from the higher terrain recharge areas (Figure 7-3), calculated to be approximately 142km^2 (CMW, 2024).

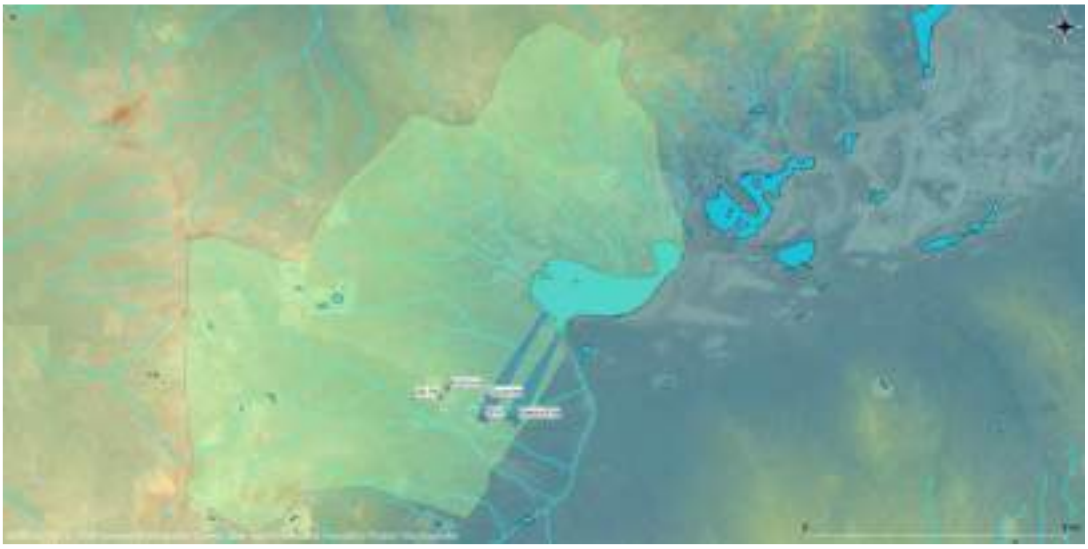


Figure 7-3: Brown Lake Catchment Area (CMW, 2024)

The CMW assessment determined that due to the presence of surface water at Brown Lake during the wetter and cooler winter months, the combined groundwater baseflow and surface water inflows exceed evaporative losses during this period. Despite the planned inter-pit pumping and water transfers, the proposed water abstraction by FMR from the groundwater system is ~2,400kL/day to the Greenfields Site. This is calculated to be approximately 1.5 orders of magnitude lower than the average daily lake evaporation rate of around 43,750kl/day at Brown Lake. As a result, the impact on the Brown Lake water balance is considered minimal (CMW, 2024).

7.2.2.4 Threatened and Priority Flora

In 2000, Mattiske Consulting Pty Ltd Pty Ltd were commissioned by New Hampton Goldfields Ltd to undertake a Flora and Vegetation Survey of the proposed Bakers Flat Mining Area. In 2009, Natural Resource Management Services (NRMS) conducted a Flora and Vegetation Survey in the general Barbara Surprise Mining Area. No listed threatened or priority flora was identified within the Project area during the Flora and Vegetation Surveys.

A desktop search was undertaken using the PMST Report and the Threatened and Priority Flora (DBCA-036) dataset. This search confirms that there are no identified Threatened or Priority Flora located within or near (<8km) the Barbara Surprise Project (Figure 7-4).

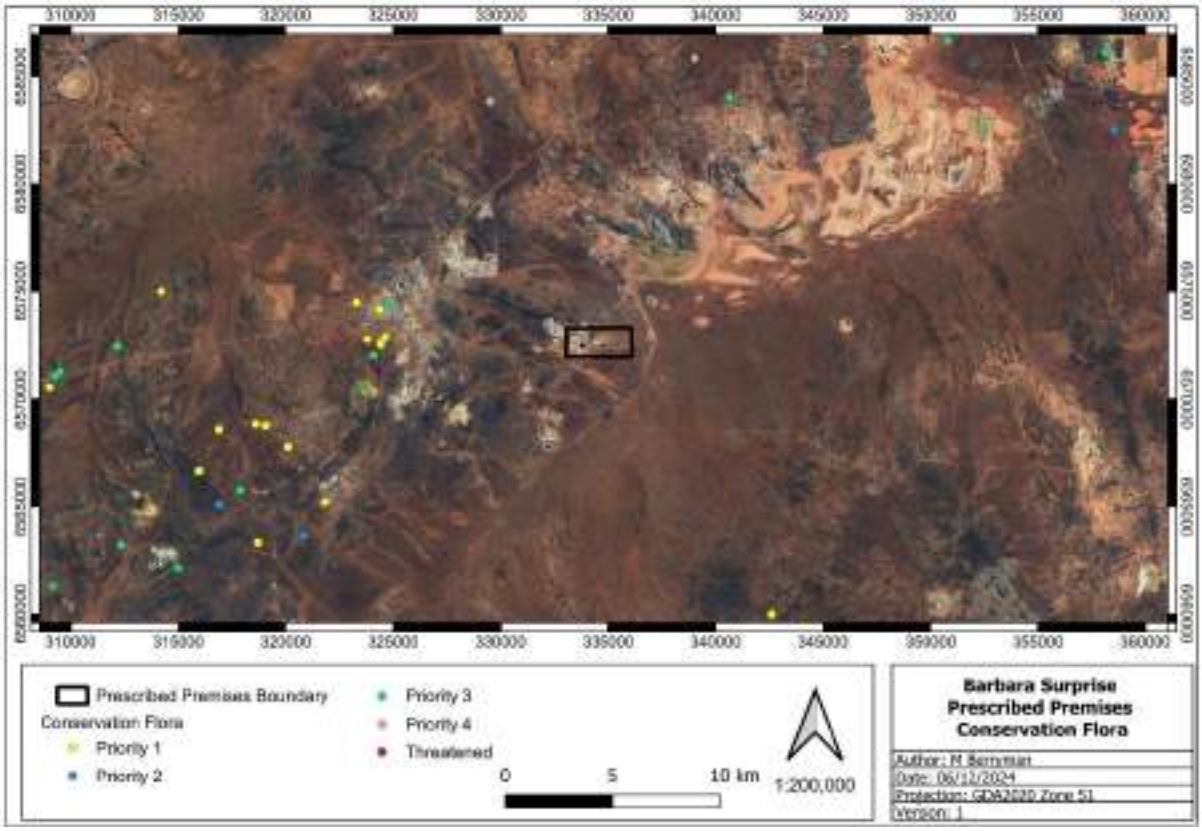


Figure 7-4: Regional Conservation Flora Records

7.2.2.5 Threatened and Priority Fauna

In 2000, Ninox Wildlife Consulting were commissioned by New Hampton Goldfields Ltd to undertake a Vertebrate Fauna Survey of the proposed Bakers Flat Mining Area. This survey identified that there are no native fauna species likely to occur within the Project area that may have exceptional regional significance.

A desktop search was undertaken using the PMST Report and the Threatened and Priority Fauna (DBCA-037) dataset. While *Leipoa ocellata* (Malleefowl) was identified in the PMST as known to occur and there is a 1996 DBCA recorded observation 4km southeast of the Project, the Fauna Survey noted a very low probability of occurrence. Clearing Permit 3391/2 requires an inspection for the presence of Malleefowl mounds by a fauna specialist prior to undertaking clearing. The DBCA Threatened and Priority Fauna Database records are shown in Figure 7-5.

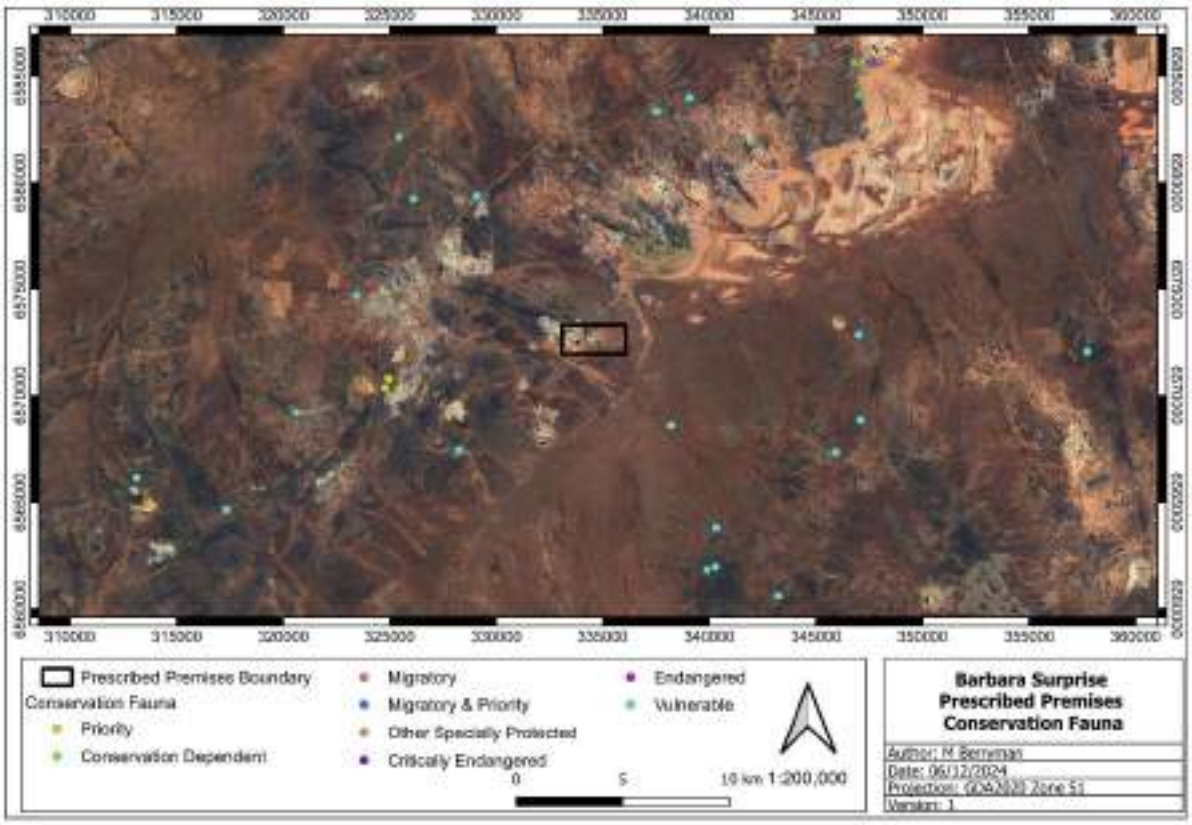


Figure 7-5: Regional Conservation Fauna Records

7.2.2.5.1 Short Range Endemic Invertebrates

Short Range Endemics (SREs) are defined as terrestrial and freshwater invertebrates that have naturally small distributions of less than 10,000km^2. SRE species are generally at a greater risk of changes in conservation status than other more widely distributed species. In recognition of their small distributions and ongoing threatening processes, there are 217 invertebrates protected under the *Biodiversity Conservation Act 2016*.

SREs have specialised habitat characteristics and these types of habitats can occur in all bioregions of WA. Vine thickets, boulder piles, isolated hills and other landforms, vegetated gullies and freshwater habitats may all harbour SREs (EPA, 2016). The DBCA Threatened and Priority Fauna List (DBCA, 2024) currently lists eleven (11) protected invertebrates in the Goldfields Region including five (5) trapdoor spiders, three (3) fairy shrimps, two (2) butterflies and one (1) slater. Two (2) of these invertebrates (Shield-backed Trapdoor Spider and Arid Bronze Azure Butterfly) are also protected under the EPBC Act.

The PMST Report identified that the *Ogyris subterrestris petrina* (Arid Bronze Azure Butterfly (ABAB)) may occur in the Barbara Surprise Project area. At the two (2) known extant sites where the ABAB occurs, the vegetation is mature mixed gimlet / salmon gum woodlands (*Eucalyptus salubris* / *E. salmonophloia)* on red-brown loam soils, with an open understorey. In addition to gimlet and salmon gum, other smooth-barked eucalyptus at these sites which have basal ant colonies include wandoo (*E. capilosa* subsp. *wandoo)*, smooth-barked york gum (*E. loxophleba subsp. lissophloia)* and ribbon-barked mallee (E. *sheathiana)*.

While no targeted surveys have been undertaken for the ABAB and its associated ant, *Camponotus* sp. nr. *terrebrans*, FMR will utilise existing disturbance areas, where possible, to reduce the need for additional clearing. If required any additional clearing would avoid the removal of mature Eucalypt trees to reduce any impacts to potential ABAB habitat.

7.2.2.6 Conservation Reserves or Other Specially Protected Areas

The *Conservation and Land Management Act 1984* (CALM Act) is legislation dealing with the management of National Parks, State Forests and Conservation Reserves. The DBCA administers the CALM Act which was established to make better provision for the use, protection and management of certain public lands and waters and the flora and fauna thereof, to establish the Conservation and Parks Commission, and for incidental or connected purposes.

A desktop search was undertaken using the following datasets:

- Directory of Important Wetlands in Australia – WA (DBCA-045);
- EPA Redbook Rec Cons Reserves 1976-1991 (DBCA-029);
- Lands of Interest (DBCA-012);
- Legislated Lands and Waters (DBCA-011);
- Ramsar Sites (DBCA-010); and
- Region Scheme Special Areas (DPLH-022).

This search indicates that there are no gazetted or proposed Reserves or Other Specially Protected Areas (i.e. Bush Forever Areas, Water Catchments, Environmental Conditions and Special Control Areas) located within the vicinity of the Barbara Surprise Project. The nearest Reserve is the Kangaroo Hills Timber Reserve 198/25, located >8km southwest of the Prescribed Premises (Figure 7-6).

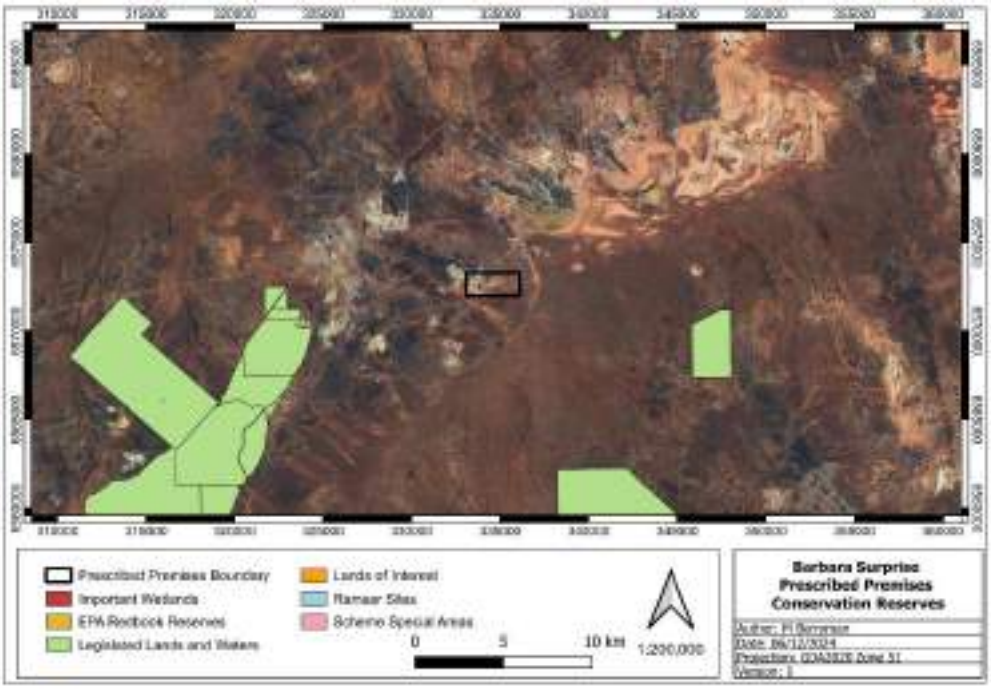


Figure 7-6: Project Regional Conservation Areas

7.2.3 Heritage

7.2.3.1 Aboriginal Cultural Heritage

The *Aboriginal Heritage Act 1972* (AH Act) makes provision for the preservation of places and objects customarily used by, or traditional to, the original inhabitants of Australia or their descendants. Of relevance is the application of the Act to places which includes both registered and unregistered sites of Aboriginal importance and significance. New laws that protect and manage Aboriginal Cultural Heritage in WA came into effect as of 15 November 2023.

The Department of Planning Lands and Heritage (DPLH) Aboriginal Cultural Heritage Inquiry System (ACHIS) provides details about Aboriginal Cultural Heritage places including:

- The location, extent and assessment status of each place; and
- Any access restrictions or additional information the DPLH holds in relation to the place.

A desktop regional search was undertaken of the ACHIS and the following datasets:

- Aboriginal Heritage Protected Areas (DPLH-108);
- Aboriginal Cultural Heritage Register (DPLH-099);
- Aboriginal Cultural Heritage Lodged (DPLH-100); and
- Aboriginal Cultural Heritage Survey Areas (DPLH-080).

This search indicates that there has been a Aboriginal Cultural Heritage Survey completed and there are no listed Aboriginal Cultural Heritage Protected Areas, Registered Sites or Lodged Places located within the Barbara Surprise Project area (Figure 7-7).

Figure 7-7: Project Aboriginal Cultural Heritage

7.2.3.2 European Heritage Places

The Heritage Council of WA was established under the *Heritage of Western Australia Act 1990*. The Council is the State's advisory body on heritage matters and focuses on places, buildings, and sites. Its functions include maintaining the State Register of Heritage Places which is a statutory list of places that represent the story of WA's history and development. Places included in the State Register include buildings, structures, gardens, cemeteries, memorials, landscapes, and archaeological sites.

The inHerit database (Heritage Council, 2024) provides information about heritage places and listings in WA. inHerit contains detailed information about cultural heritage places entered in the State Register of Heritage Places, local government inventories and other lists, the Australian Government's heritage list, and other non-government lists and surveys.

7.2.3.2.1 National Heritage Places

The Goldfields Water Supply Scheme WA, Mundaring to Kalgoorlie (Place ID 106007) was listed as a historic national heritage place on 23 June 2011. It is significant for the economic benefits it brought to WA and to the nation, for its demonstration of outstanding technological achievement for its time, and for its association with engineer Charles Yelverton O'Connor (CY O'Connor).

It incorporates the remaining elements of the Coolgardie Goldfields Water Supply Scheme, as designed by CY O'Connor, and was completed in 1903. The remaining elements include the former steam powered pump stations, reservoirs, tanks and over 560km of pipeline. The Goldfields Water Supply Scheme pipeline was identified in the PMST Report and is located approximately 7km northwest of the Barbara Surprise Project area.

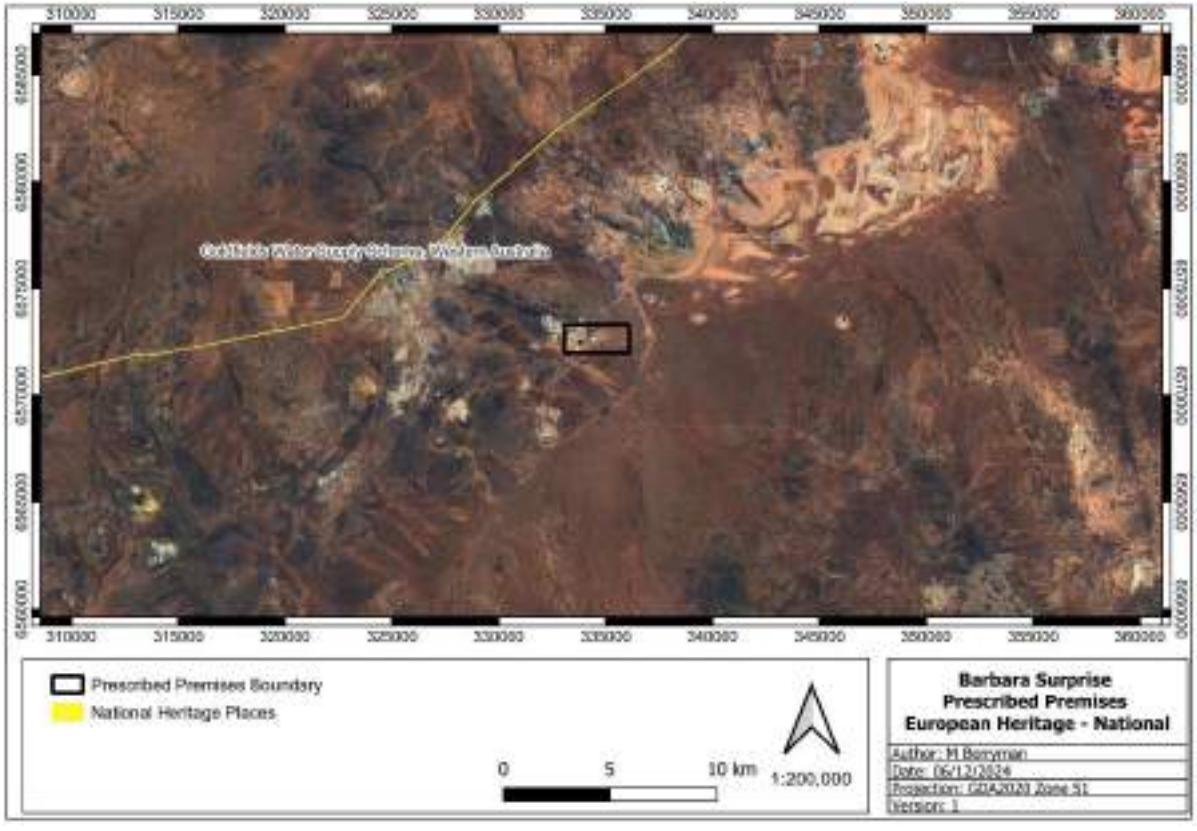


Figure 7-8: Project European Heritage - National Places

7.2.3.2.2 State and Local Heritage Sites

A desktop regional search was undertaken of the Heritage Council inHerit Database and the following datasets:

- Heritage Council WA State Register (DPLH-006); and
- Heritage Council WA Local Heritage Survey (DPLH-008).

According to the inHerit database there are 23 State Registered and 123 other listed places in the Coolgardie Shire. There are no listed State or Local Heritage Places in the Barbara Surprise Project area. The nearest is local heritage site – Coolgardie-Norseman Track (Place ID 10125) located approximately 700m south of the Prescribed Premises (Figure 7-9). This site was adopted in 1995 and is listed as an abandoned bush track and is noted as important but not essential to the history of the district.

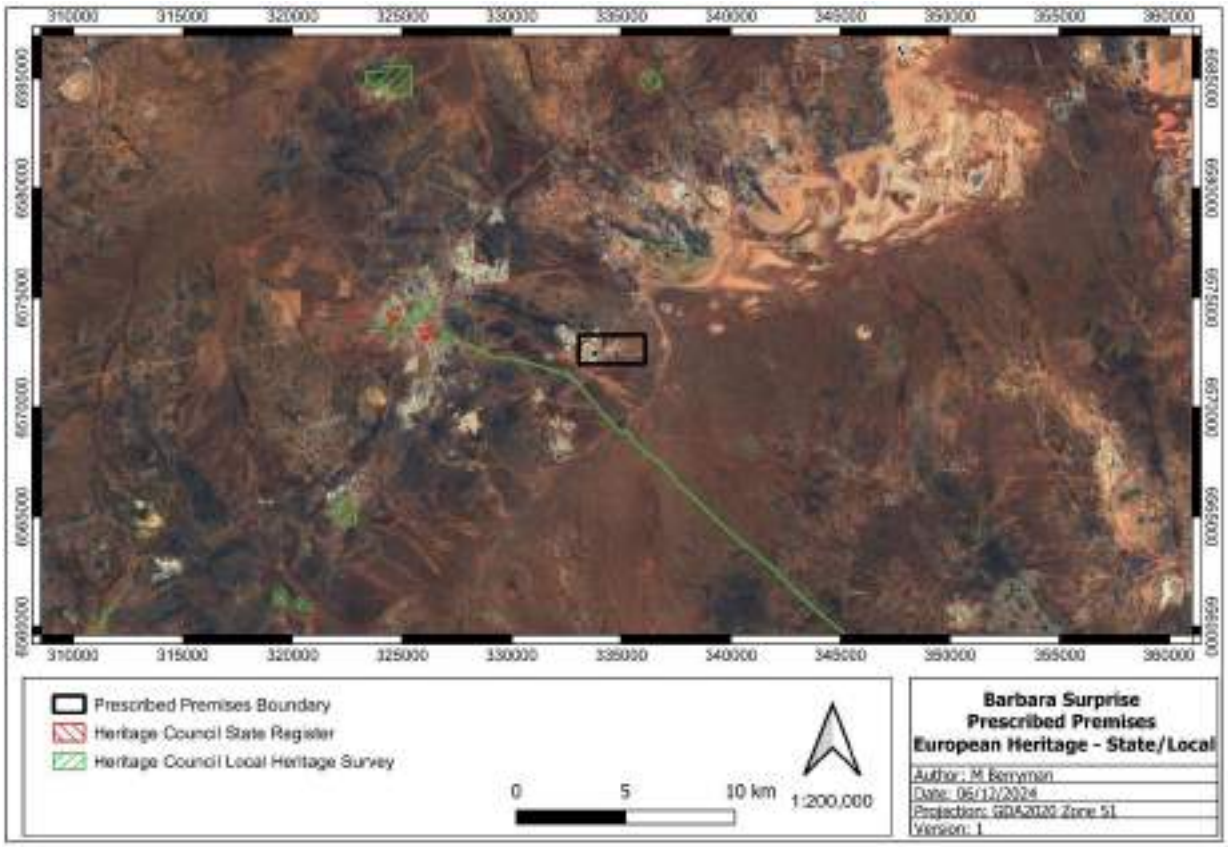


Figure 7-9: Project European Heritage – State and Local Sites

7.2.4 Water Management Areas

7.2.4.1 Surface Water

The *Waterways Conservation Act 1976* provides for the management of waterways via the declaration of defined Management Areas and the establishment of management authorities. There are currently five (5) declared Management Areas in WA. The Waterways Conservation Act Management Areas (DWER-072) dataset identifies the location of these areas. A desktop review of the dataset confirms that there are no declared Management Areas located within or near the Barbara Surprise Project.

Under the *Rights in Water and Irrigation Act 1914*, it is illegal to take water from a proclaimed surface water area without a licence. Water can be taken from watercourses in unproclaimed areas without a licence as long as the flow is not 'sensibly diminished' and affecting the rights of downstream users. The RIWI Act, Surface Water Areas, and Irrigation Districts (DWER-037) dataset identifies the location of these areas. A desktop review of the dataset confirms that the Barbara Surprise Project is not located within a Proclaimed Surface Water Area.

Public drinking water source areas (PDWSAs) are areas that have been proclaimed under the *Metropolitan Water Supply, Sewerage and Drainage Act 1909* or the *Country Areas Water Supply Act 1947* for the management and protection of a water source used for community drinking water supplies. Groundwater sources are normally referred to as underground water pollution control areas or water reserves, and surface water sources as catchment areas. There are currently over 150 proclaimed PDWSAs in WA.

The Public Drinking Water Source Areas (DWER-033) dataset identifies the location of these areas. A desktop review of the dataset confirms that there are no surface water catchment PDWSAs located within or near the Barbara Surprise Project. The nearest is more than 55km north of the Project (Broad Arrow Dam Surface Water Catchment Area).

7.2.4.2 Groundwater

Under the *Rights in Water and Irrigation Act 1914*, it is illegal to take water from a Proclaimed Groundwater Area without a licence. Water can be taken from an underground water source in an unproclaimed area without a licence, where the original water sourced is non-artesian. The DWER dataset (RIWI Act, Groundwater Areas (DWER-034)) identifies the location of these areas. A desktop review of the dataset confirms that the Barbara Surprise Project is located within the Proclaimed Goldfields Groundwater Area.

Process water for the Greenfields Site is abstracted from the Noble 5 Pit, around 9km to the south-south-east. The Noble 5 Pit is located within the Roe Sub Area of the Proclaimed Goldfields Groundwater Area. FMR have been issued GWL173070 by the DWER for the abstraction of groundwater from the Noble 5 Pit. In June 2024, FMR applied to the DWER to amend GWL173070 (Application 065002) to authorise the abstraction from additional water sources at the Barbara Surprise Mining Area including the Bakers Flat, Shirl and Surprise Pits.

According to the Public Drinking Water Source Areas (DWER-033) dataset, there are no groundwater catchment PDWSAs located near the Barbara Surprise Project. The closest is the Menzies Water Reserve (WB93), located more than 130km north of the Project. The reserve boundaries have been determined based on the recharge area for the drinking water production wellfields and consideration of surrounding land uses.

7.2.5 Acid Sulfate Soils

Acid sulfate soils are naturally occurring soils, sediments and peats that contain iron sulfides, predominantly in the form of pyrite materials. These soils are commonly found in low-lying land bordering the coast or estuarine and saline wetlands and freshwater groundwater-dependent wetlands throughout WA (DER, 2015). A desktop regional search was undertaken using the DWER Acid Sulfate Soil Risk datasets. The Barbara Surprise Project area is located well outside of the acid sulfate soil risk area (>400km southwest).

7.3 Existing Environment

7.3.1 Landscape and Ecosystem

The Barbara Surprise Project occurs in the Coolgardie (COO) Bioregion, as defined by the Commonwealth Department of Agriculture, Water and the Environment (DAWE) Interim Biogeographic Regionalisation for Australia (IBRA) classification system (DAWE, 2012). The region is divided into three (3) subregions and the Barbara Surprise Project lies within the COO03 – Eastern Goldfields subregion (Figure 7-10).

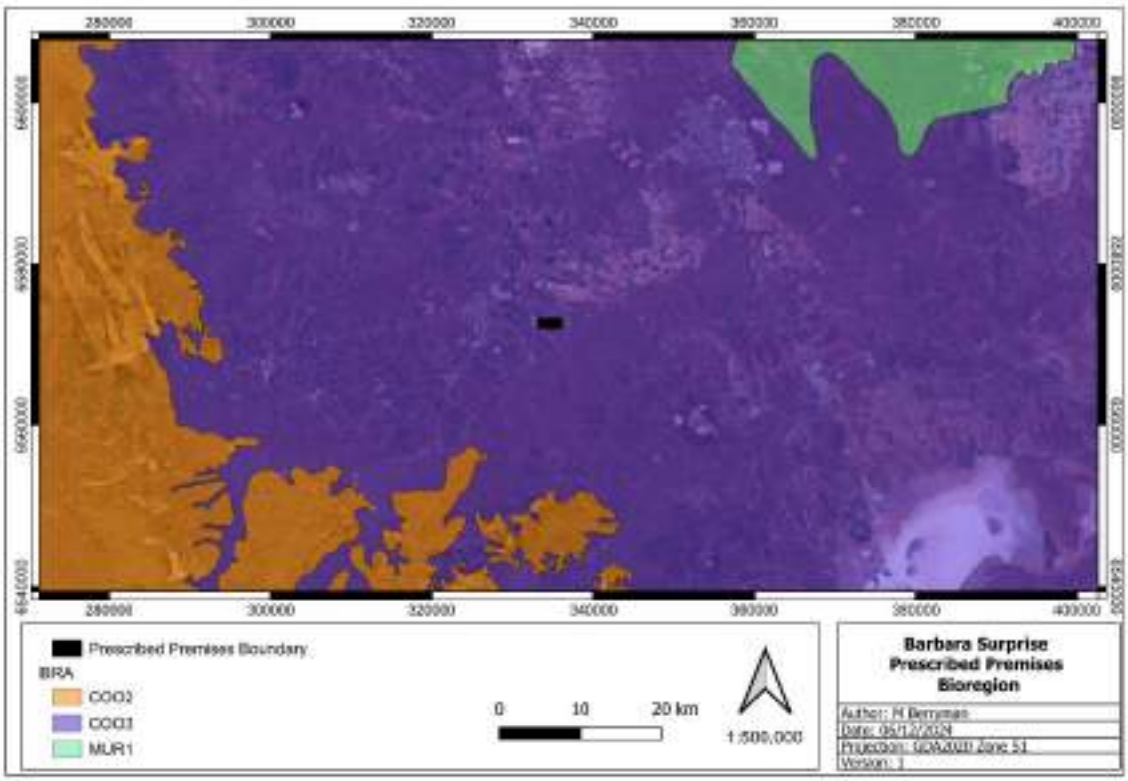


Figure 7-10: Project Bioregion - IBRA Subregions

The COO03 – Eastern Goldfields subregion lies on the Yilgarn Craton's 'Eastern Goldfields Terrains'. The relief is subdued and comprises of gently undulating plains interrupted in the west with low hills and ridges of Archaean greenstones and in the east by a horst of Proterozoic basic granulite. The underlying geology is of gneisses and granites eroded into a flat plane covered with tertiary soils and with scattered exposures of bedrock. Calcareous earths are the dominant soil group and cover much of the plains and greenstone areas. A series of large playa lakes in the western half are the remnants of an ancient major drainage line. The subregional area is 5,102,428 ha (Cowan, 2001).

The COO03 subregion vegetation consists of Mallees, Acacia thickets and shrub-heaths on sandplains. Diverse Eucalyptus woodlands occur around salt lakes, on ranges, and in valleys. Salt lakes support dwarf shrublands of samphire. Woodlands and Dodonaea shrubland occur on basic granulite of the Fraser Range. The area is rich in endemic Acacias (Cowan, 2001).

The Department of Primary Industries and Regional Development (DPIRD) have collated detailed mapping of the WA Rangelands and Arid Interior. This mapping provides a consistent presentation and analysis of soil and landform data across the State and complements the IBRA classification system. According to the DPIRD mapping the Barbara Surprise Project is situated within the Kalgoorlie Province which occupies about 148,400km^2 (5.9% of WA). Although most (98%) lies within the Rangelands, its western edge extends into the Agricultural Area. Included are the towns of Kalgoorlie, Coolgardie, Kambalda, Norseman, Menzies, Southern Cross, Marvel Loch, Koolyanobbing, and Bullfinch (Tille, 2006).

There are six (6) soil-landscape zones in the Kalgoorlie Province, and the Barbara Surprise Project is located within the Norseman Zone (266) which occupies about 67,325km^2. This Zone is characterised by undulating plains and uplands (with some sandplains and salt lakes) on granitic rocks of the Yilgarn Craton. Calcareous loamy earths, Yellow sandy and loamy earths, Red loamy earths, Red deep sands and Salt lake soils (Tille, 2006). Soil-landscape mapping covering WA at the systems level of the soil-landscape mapping hierarchy is available via the Soil Landscape Mapping – Systems (DPIRD-064) dataset. The soil landscape systems in the Barbara Surprise Project area are outlined in Table 7-2 and shown in Figure 7-11

Table 7-2: Project Soil Landscape Systems

Soil Landscape System	Description
BB5	Rocky ranges and hills of greenstones-basic igneous rocks.
Mx43	Gently undulating valley plains and pediments; some outcrop of basic rock.

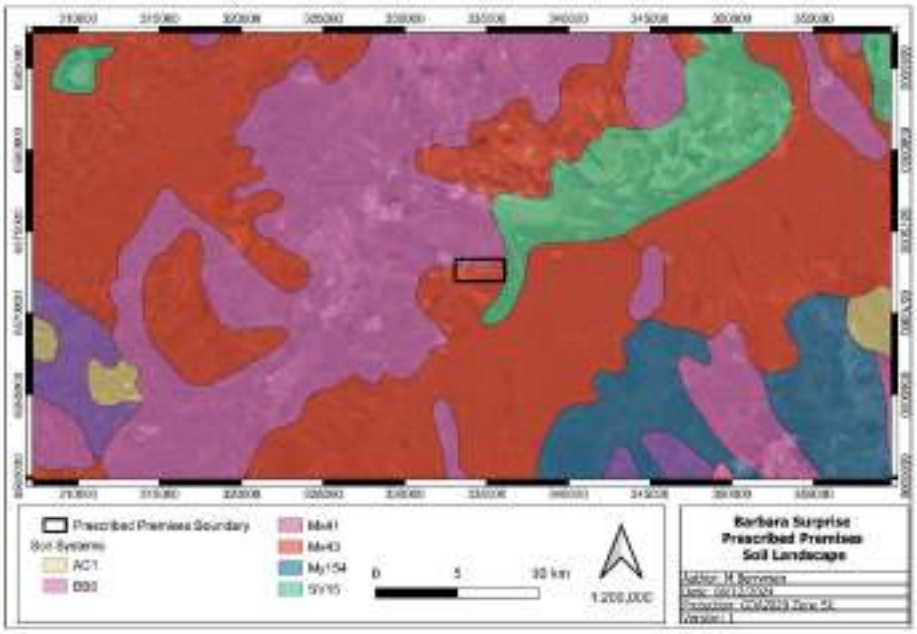


Figure 7-11: Project Soil Landscape Systems

The Pre-European Beard Vegetation Associations were identified during a desktop regional search using the Pre-European Vegetation (DPIRD-006) dataset. The Barbara Surprise Project is located primarily within the Pre-European Beard Vegetation Association – Coolgardie 936, with a small portion in the south-west in Coolgardie 9 (Figure 7-12). The extent of this association as described in Reports 1b and 3b of the DBCA *2018 State-wide Vegetation Statistics* (DBCA, 2019b) is provided in Table 7-3.

Table 7-3: Project Pre-European Vegetation Associations

Vegetation Association	Pre-European Extent (ha)	Current Extent (ha)	Pre-European Extent Remaining (%)	Current Extent within DBCA Managed Lands (%)	Vegetation Description (Beard, 1990)
Coolgardie 936	57,830 (WA)	57,459 (WA)	99.36 (WA)	8.60	Medium woodland; salmon gum.
	57,551 (COO03)	57,179 (COO03)	99.35 (COO03)	8.55	
Coolgardie 9	98,770 (WA)	95,688 (WA)	96.88 (WA)	11.32	Medium woodland; coral gum (*Eucalyptus torquata*) and goldfields blackbutt (*E. le soufii*).
	98,770 (COO03)	95,688 (COO03)	96.88 (COO03)	11.32	

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".

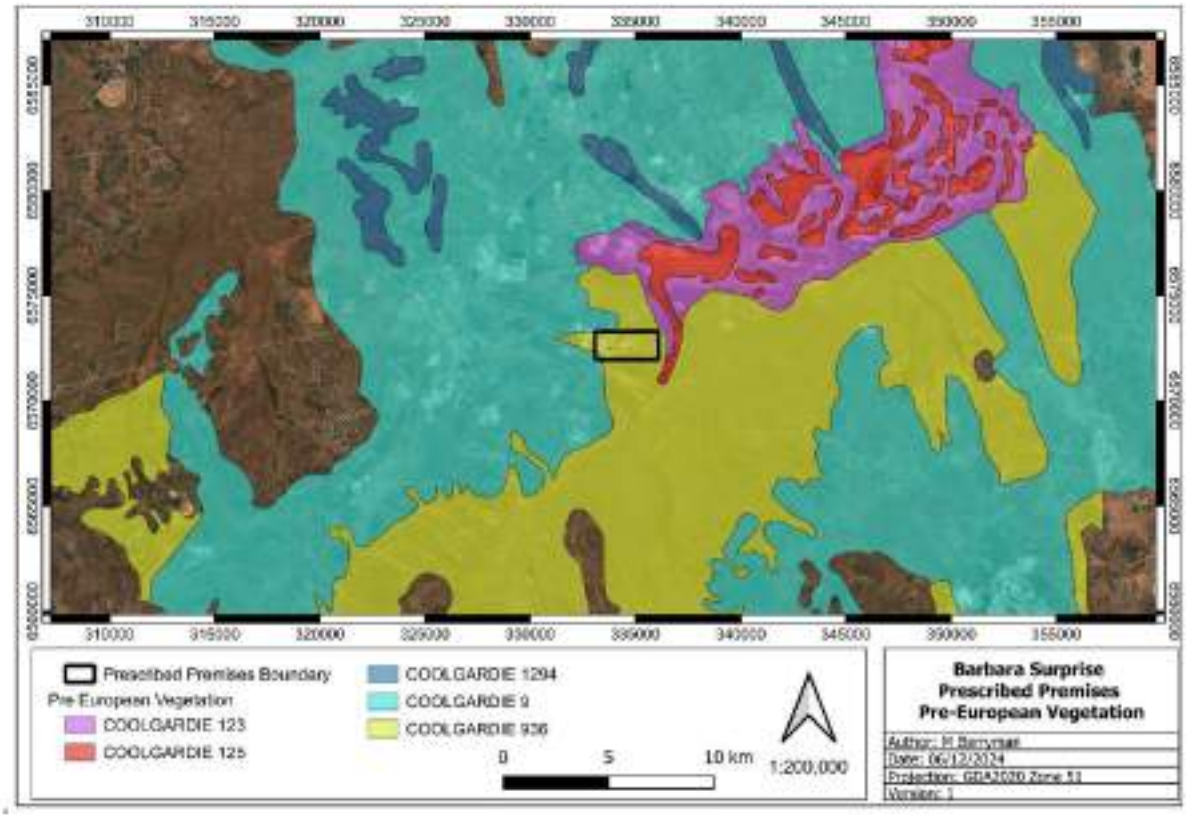


Figure 7-12: Project Pre-European Vegetation Associations

7.3.2 Climate

The Kalgoorlie Province bioclimate is described as a desert climate, commonly with 12 dry months a year. Mean annual rainfall is mostly in the 200-250 mm range, there is an even chance of summer or winter precipitation (Tille, 2006).

7.3.2.1 Climate Zone

The Bureau of Meteorology (BoM) provide climate classification maps using three (3) methods of classifying the climate of Australia. These different classification schemes are based on temperature/humidity, vegetation (Köppen) and seasonal rainfall.

The temperature and humidity zones map (Figure 7-13) show the climate of Australia classified according to temperature and humidity properties across the country. This map is based on temperature and humidity data collected over the period 1961 to 1990. This method of classification identifies six (6) key zones across Australia, based on a set of definitions relating to summer and winter conditions. This map indicates that the Greenfields-Gunga Project is within the hot dry summer, cold winter climate zone.

The Köppen classification map (Figure 7-14) show six (6) major groups of climate zones across Australia. This method of classification is based on the concept that native vegetation is the best expression of climate in an area and the six (6) major classes are identified predominantly on native vegetation type. This map indicates that the Greenfields-Gunga Project is within the grassland classification zone.

The seasonal rainfall map (Figure 7-15) use the differences between summer and winter rainfall across Australia to identify six (6) major climate zones. These maps use the median annual rainfall (based on the 100 year period from 1900 to 1999) and seasonal incidence (the ratio of the median rainfall over the period November to April to the period May to October) to identify these six (6) major zones. This map indicates that the Greenfields-Gunga Project is within the winter climate zone.

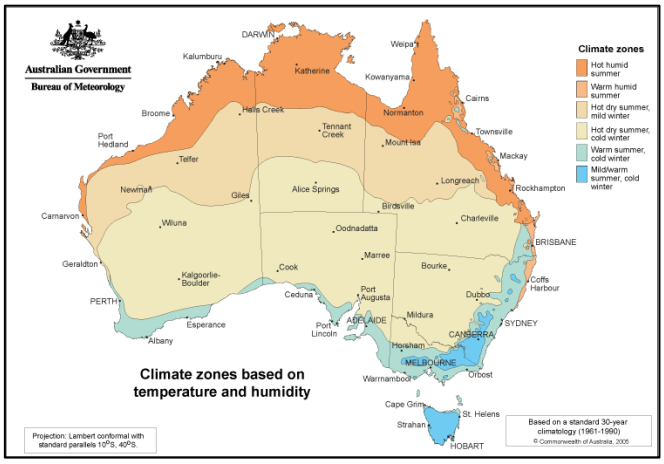


Figure 7-13: Australian Climate Zones based on Temperature and Humidity (BoM, 2005)

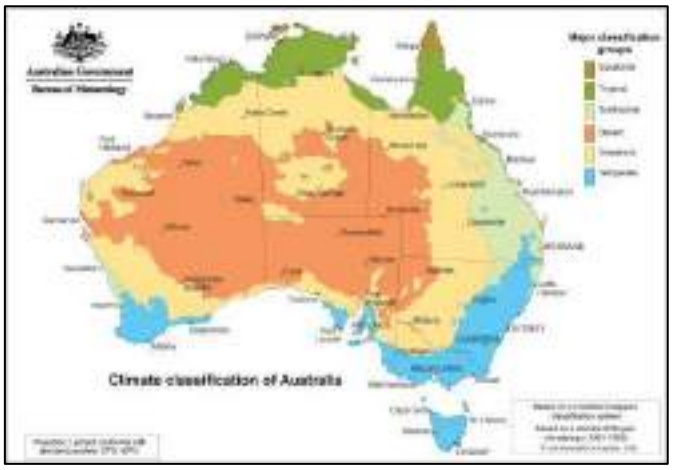


Figure 7-14: Australian Climate Zones based on Vegetation (BoM, 2005)

Figure 7-15: Australian Climate Zones based on Rainfall (BoM, 2005)

7.3.2.2 Temperature

The closest BoM weather station is the Kalgoorlie-Boulder Airport Weather Station (#12038) located approximately 26km northeast of the Barbara Surprise Project. Summary temperature data (1939-2024) from this weather station is provided in Table 7-4 and indicates the following key statistics regarding temperature in the region:

- Mean daily maximum temperatures range from 33.7°C in January to 16.9°C in July;
- Mean daily minimum temperatures range from 18.4°C in January to 5.1°C in July;
- Highest temperature recorded was 46.5°C in January 1990 and February 2024;
- Lowest temperature recorded was -3.4°C in July 1969;
- Mean number of days that temperature is ≥40°C is 9 (November to March); and
- Mean number of days that temperature is ≤2°C is 15.5 (May to October).

A review of the long term mean temperature trends (1939-2024 compared to 1991-2020) indicates that there is has been little variation in the mean maximum temperature (Figure 7-16). Mean minimum temperatures (Figure 7-17) are slightly warmer (annual 11.8°C compared to 12.2°C between 1991-2020).

Table 7-4: Kalgoorlie-Boulder Airport Weather Station Monthly Temperature (1939-2024)

Month	Mean Daily Maximum	Mean Daily Minimum	Highest Daily Maximum	Lowest Daily Minimum	Mean No. Days Maximum ≥ 40.0°C	Mean No. Days Minimum ≤ 2.0°C
Jan	33.7	18.4	46.5	8.8	3.6	0.0
Feb	32.2	18.0	46.5	8.5	2.4	0.0
Mar	29.5	16.2	44.5	5.7	0.6	0.0
Apr	25.3	12.7	40.1	1.7	0.0	0.0
May	20.8	8.7	33.4	-1.8	0.0	0.7
Jun	17.6	6.3	27.6	-3.0	0.0	3.6
Jul	16.9	5.1	28.7	-3.4	0.0	5.9
Aug	18.8	5.8	32.0	-2.4	0.0	4.4
Sep	22.4	8.2	37.9	-0.6	0.0	0.8
Oct	26.0	11.3	40.9	-1.0	0.0	0.1
Nov	29.1	14.2	44.7	3.1	0.5	0.0
Dec	32.1	16.7	45.0	5.5	1.9	0.0
Annual	**25.4**	**11.8**	**46.5**	**-3.4**	**9.0**	**15.5**

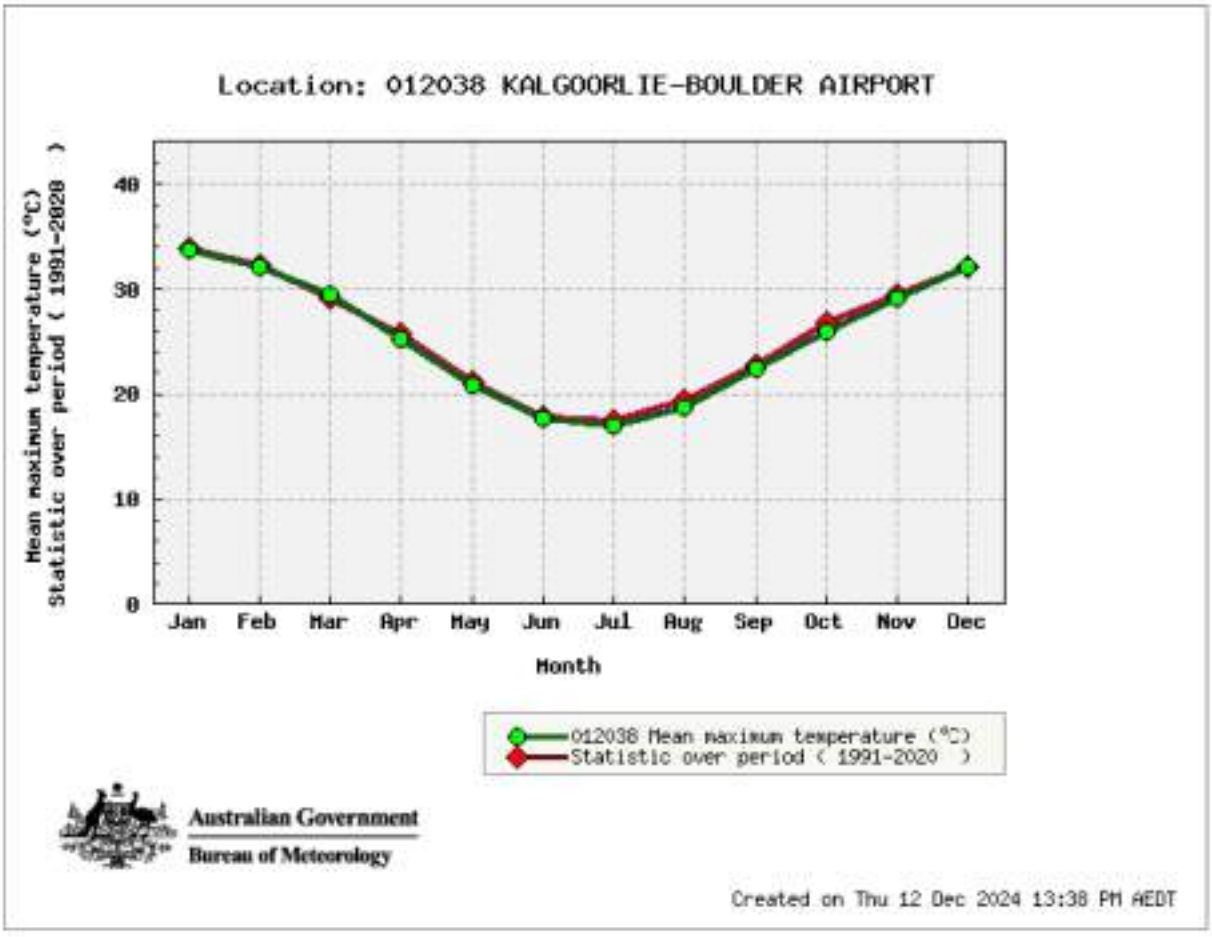


Figure 7-16: Kalgoorlie-Boulder Airport Weather Station Maximum Temperature Long Term Trend (BoM, 2024a)

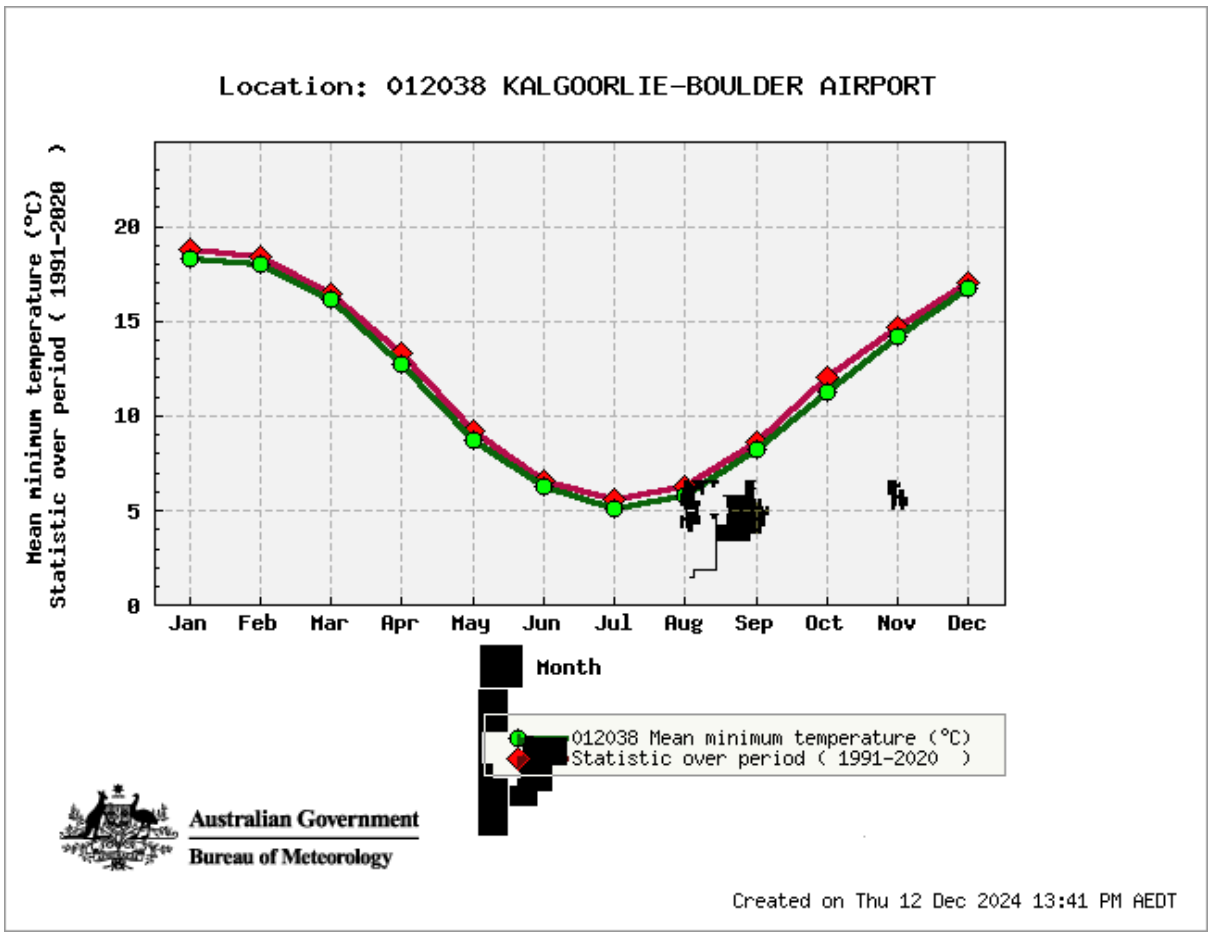


Figure 7-17: Kalgoorlie-Boulder Airport Weather Station Minimum Temperature Long Term Trend (BoM, 2024a)

7.3.2.3 Rainfall

The Kalgoorlie-Boulder Airport Weather Station (#12038) summary rainfall data (1939-2024) is provided in Table 7-5 and indicates the following key statistics regarding rainfall in the region:

- Mean annual rainfall is 265.5mm;
- Majority of rainfall is in summer/autumn/winter (January to August);
- Mean monthly rainfall ranges from 31.7mm in February to 13.4mm in September;
- Highest monthly rainfall recorded was 307.8mm in February 1948;
- Highest daily rainfall recorded was 177.8mm in February 1948;
- Highest mean number of days of rain is 9.1 in July;
- Lowest mean number of days of rain is 3.9 in December;
- Mean number of days of rain ≥10mm is 7.2; and
- Mean number of days of rain ≥25mm is 1.5.

A review of the long-term rainfall trends (1939-2024 compared to 1991-2020) indicates that there has been higher rainfall (1991-2020) between December to March and lower rainfall (1991-2020) in May to July (Figure 7-18).

Table 7-5: Kalgoorlie-Boulder Airport Weather Station Monthly Rainfall (1939-2024)

Month	Mean Rainfall	Highest Rainfall	Lowest Rainfall	Mean No. Days of Rain	Mean No. Days ≥ 10mm	Mean No. Days ≥ 25mm
Jan	26.4	185.9	0.0	4.0	0.7	0.2
Feb	31.7	307.8	0.0	4.6	0.9	0.3
Mar	25.6	197.0	0.0	4.5	0.7	0.3
Apr	20.1	98.6	0.0	5.3	0.6	0.1
May	24.1	110.2	0.0	6.7	0.7	0.1
Jun	27.7	185.7	1.4	8.5	0.7	0.1
Jul	24.0	82.6	0.6	9.1	0.6	0.0
Aug	21.3	74.0	1.6	7.6	0.5	0.1
Sep	13.4	98.3	0.0	5.3	0.3	0.0
Oct	15.5	84.4	0.0	4.4	0.4	0.1
Nov	19.6	115.4	0.0	4.3	0.5	0.2
Dec	15.9	88.6	0.0	3.9	0.5	0.0
Annual	**265.5**	**530.8**	**108.7**	**68.2**	**7.2**	**1.5**

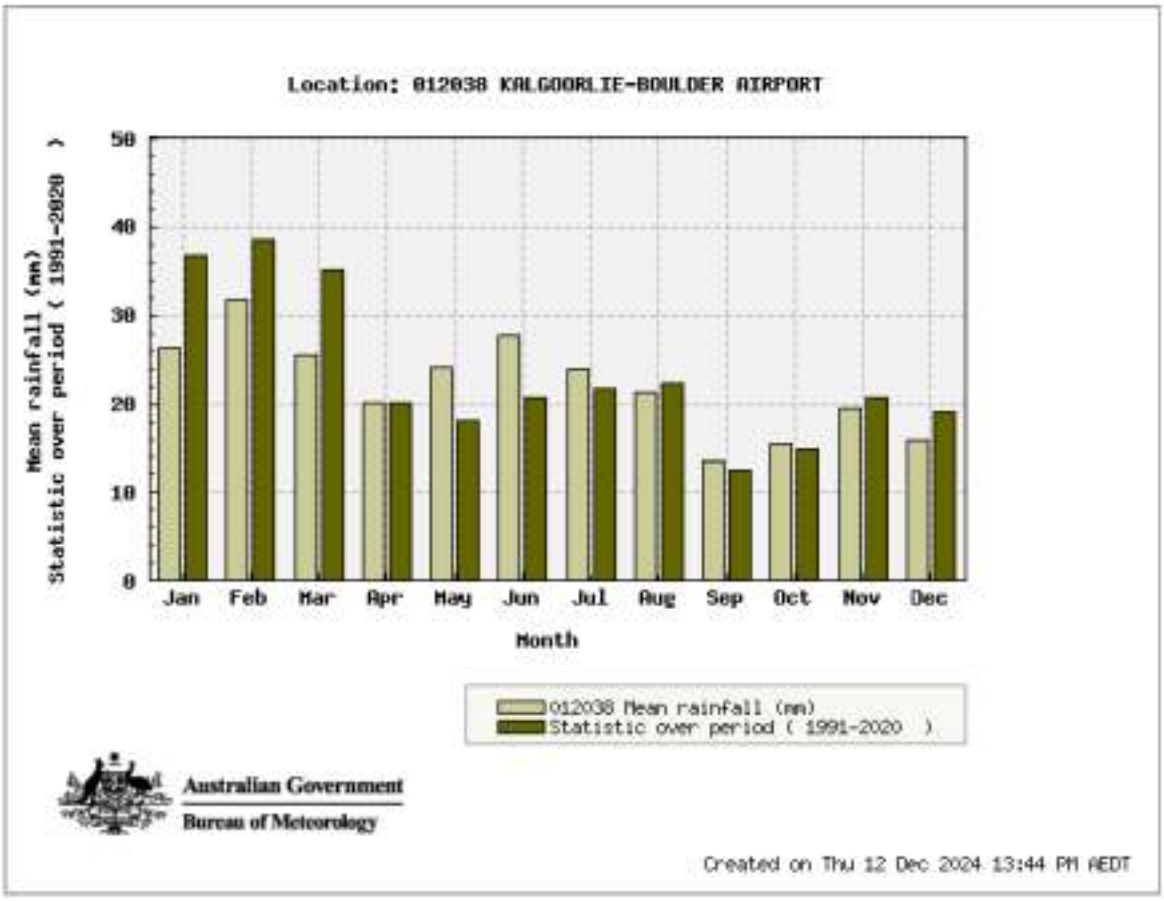


Figure 7-18: Kalgoorlie-Boulder Airport Weather Station Rainfall Long Term Trend (BoM, 2024a)

7.3.2.3.1 Rainfall Intensity Frequency Duration

Analyses of data from rainfall gauges and the use of statistical theory enables the estimation of the probability that a particular rainfall depth (mm) will be equalled or exceeded at a particular place, within a particular time interval (duration), and over any given time. This analysis is known as rainfall intensity-frequency-duration (IFD). The BoM website provides a Design Rainfall Data System (2016) which enables the estimation of the IFD at a specified location in Australia.

The probability of a particular rainfall depth for a specified duration being equalled or exceeded in any 1-year period can be expressed as a percentage (the Annual Exceedance Probability or AEP) or as "on the average once in every x years" (an Average Recurrence Interval, or ARI). The use of AEP to describe the chance of a particular rainfall event is preferred as it conveys the probability for each year. The alternative, ARI, is a term which has been frequently used in the past but is easily misunderstood.

The IFD calculated for the Barbara Surprise Project area is provided in Table 7-6. An example interpretation of these results is that a rainfall amount of 48.7mm in 1 hour can be expected to be equalled or exceeded on average once every 100 years. In this case, the AEP is 1% and the ARI is 100 years. It is important to note that an ARI of 100 years does not mean that the event will only occur once every 100 years. Rather that for every year, there is a 1% chance (a 1 in 100 chance) that the event will be equalled or exceeded (once or more than once).

Table 7-6: Project Calculated Rainfall Intensity-Frequency-Duration

Duration	Annual Exceedance Probability (AEP)					
	50%#	20%^	10%	5%	2%	1%
5 mins	4.65	7.19	9.10	11.1	14.1	16.6
30 mins	10.8	16.8	21.3	26.1	33.1	39.1
1 hour	13.8	21.2	26.8	32.8	41.4	48.7
2 hours	17.4	26.7	33.7	41.1	51.9	61.1
3 hours	20.0	30.6	38.7	47.3	59.9	70.6
6 hours	25.2	39.0	49.7	61.3	78.2	92.6
12 hours	31.5	49.5	64.0	80.0	103	123
24 hours	38.3	61.4	80.3	102	132	158
72 hours	47.4	77.1	102	131	170	204
ARI	**1 in 1.44 #**	**1 in 4.48 ^**	**1 in 10**	**1 in 20**	**1 in 50**	**1 in 100**

Note: *# The 50% AEP IFD **does not** correspond to the 2-year ARI IFD. Rather it corresponds to the 1.44 ARI.*
*^ The 20% AEP IFD **does not** correspond to the 5-year ARI IFD. Rather it corresponds to the 4.48 ARI.*

7.3.2.4 Evaporation

Mean daily evaporation data (1966-2016) at the Kalgoorlie-Boulder Airport Weather Station (#12038) indicates that it ranges from 2.6mm in June to 12.5mm in January. This data has been used to calculate the mean annual evaporation data of 2,640mm (around 10 times higher than mean rainfall). This annual evaporation is consistent with the BoM map showing the average annual evaporation rates across Australia (Figure 7-19) which indicates that the Project area has around 2,800mm of evaporation a year.

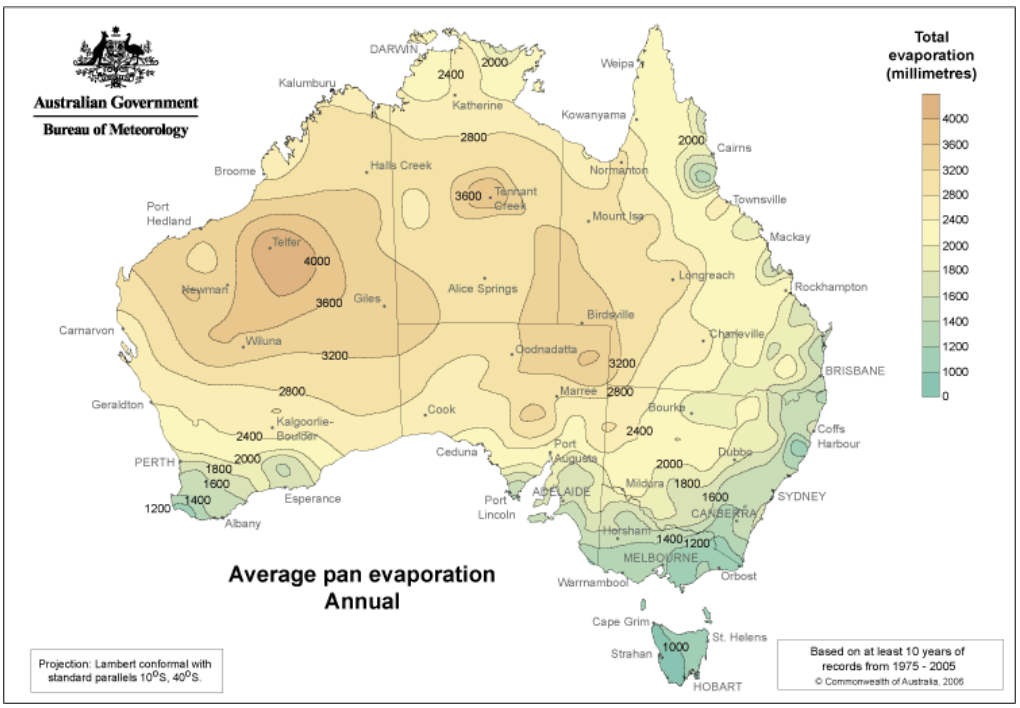


Figure 7-19: Australian Annual Average Pan Evaporation (BoM, 2006)

7.3.2.5 Wind Speed and Direction

Wind is one of the most highly variable meteorological elements, both in speed and direction. It is influenced by a wide range of factors, from large scale pressure patterns to the time of day and the nature of the surrounding terrain. Because the wind is highly variable it is often studied by means of frequency analyses, provided in the form of wind roses, rather than as simple averages.

Wind roses are available for the Kalgoorlie-Boulder Airport Weather Station (#12038) based on data from 1939 to 2023. During January (i.e. summer), winds are expected to be predominantly east to south-easterly in the morning (9am) trending towards south-easterly in the afternoon (3pm) (Figure 7-20). During July (i.e. winter), winds are expected to be west to north-westerly in the morning (9am) trending towards north-westerly in the afternoon (3pm) (Figure 7-21).

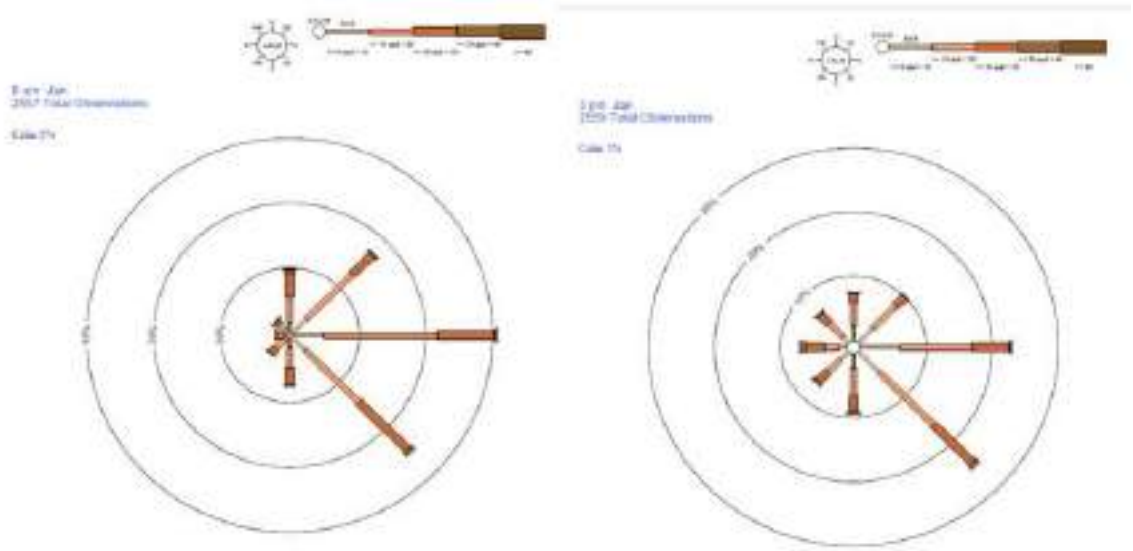


Figure 7-20: Kalgoorlie-Boulder Airport Weather Station Wind Roses January 9am and 3pm (BoM, 2024a)

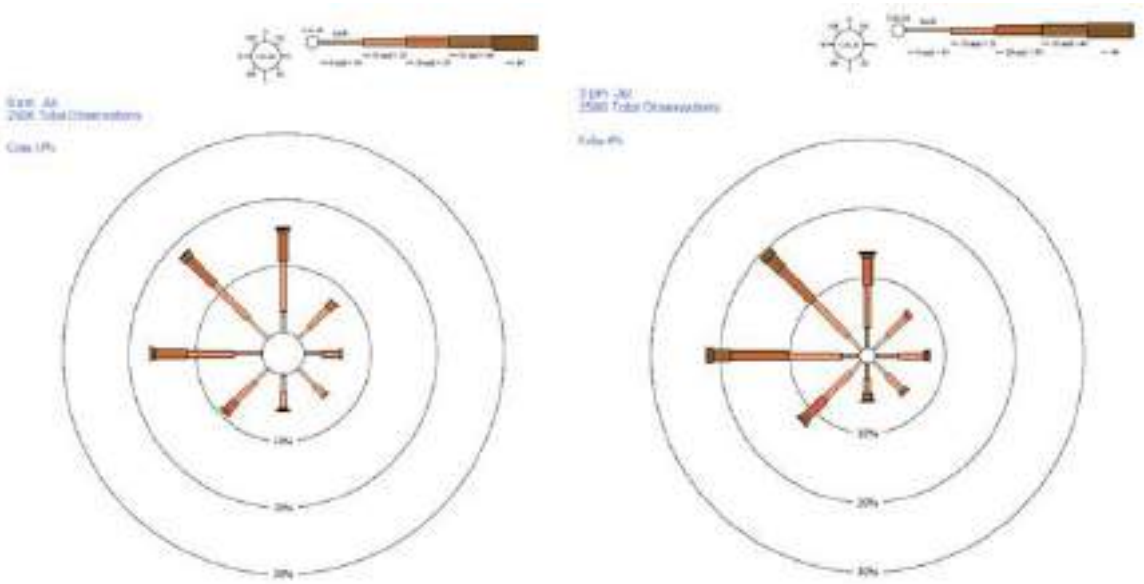


Figure 7-21: Kalgoorlie-Boulder Airport Weather Station Wind Roses July 9am and 3pm (BoM, 2024a)

7.3.3 Geology

7.3.3.1 Regional Geology

The Coolgardie Goldfield is located on the western side of the Archaean Norseman-Wiluna Greenstone Belt within the Coolgardie Domain. Coolgardie gold deposits occur in a variety of host lithologies, including dolerites, gabbros, basalts, ultramafics and diorites (Whyche, 1998).

The Coolgardie Domain is comprised of an NNW-SSE striking band of mafic to ultramafic volcanic and intrusive rocks overlain by felsic volcanic and sedimentary rocks which have been metamorphosed to amphibolite facies, which are bounded and intruded by granitoid batholiths. The greenstone belt sequence comprises a basal 500 to 600m of high-Magnesium (Mg) basalt, which is intruded by a 500m thick iron (Fe) rich differentiated gabbro sill (Porter, 2017).

This is overlain by approximately 2,000m of massive spinifex textured mafic rocks with interflow black shales and cherts. A further 2,500m of felsic volcanics and volcaniclastics overly the basalts. The sequence is cut by a series of felsic and mafic porphyries, which include dacite, rhyolite to diorite, dolerite, and hornblende lamprophyre. The greenstone belt rocks are intruded by composite granitoid batholiths which include monzogranites, tonalites, porphyritic granodiorites and granites (Porter, 2017).

Many deposits in the Coolgardie Goldfield appear to exhibit spatial zonation with respect to distance from the Calooli Monzogranite. Large scale variations between deposits in the distribution and style of mineralisation, the gangue and ore mineralogy and alteration zones, and the ore geochemistry are correlated with distance from the contact between the greenstone hosts and the Calooli Monzogranite (Knight, 2000).

7.3.3.2 Local Geology

The general bedrock geology of the Barbara Surprise Mining Area comprises metamorphosed mafic and ultramafic volcanics (gabbro, dolerite and diorite with ultramafic schist) of the Archaean Yilgarn Craton. The gold mineralisation is reported to be hosted in a differentiated gabbro sill within a sequence of ultramafic rocks. The local geology is completely weathered to a depth of approximately 20m below the natural surface, with fresh rock at approximately 50m depth (CMW, 2024).

The regolith surrounding the Bakers Flat Pit deposit comprises of an approximate 40m thick sequence of transported paleochannel sediments unconformably overlying lower saprolite clay and differentiated gabbroic and ultramafic bedrock with felsic porphyry intrusive. The mineralisation is reported to be hosted within gravelly clays above the basal conglomerate (CMW, 2024).

Both the Surprise and Shirl Pit deposits exhibit mineralisation that is dispersed across multiple lode structures, with both deposits sharing similar structural characteristics. No widespread paleochannel sediments have been reported in the vicinity of these pits, suggesting that the overburden is thinner compared to the Bakers Flat deposit and primarily consists of undifferentiated saprolite (CMW, 2024).

7.3.4 Hydrology

7.3.4.1 Surface Water

Most of the Kalgoorlie hydrogeological area is gently undulating and of subdued relief, with elevations between 360 and 400mAHD. The eastern half of the area comprises low hills with broad valleys occupied by saline playa lakes. These broad valleys and playa lakes mark the courses of palaeorivers that ceased to flow when the climate became arid during the Tertiary (Kern, 1995).

Although situated in an arid region with average annual rainfalls of 265.6mm, significant short duration rainfall events can occur (daily rainfall >150mm has been recorded Kalgoorlie-Boulder Airport Weather Station). Under these conditions, runoff will report to the local ephemeral drainage lines which tend to have a shallow, braided, and indistinct main channel and wide, diffuse floodplain and overland flow area. Drainage lines also occur as just shallow overland flow paths with no obvious incised channel.

In general, surface flows are easterly, consistent with topography and seasonal catchment discharge ultimately reports to Brown Lake which form part of a system of saline playa lakes. According to the BoM GDE Atlas, the Brown Lake area is a high potential terrestrial GDE based on a national assessment. The Barbara Surprise Shirl Pit is located along a drainage line which connects to Italian Gully, ultimately discharging seasonal catchment run-off into Brown Lake. The Bakers Flat and Surprise Pits are within the same catchment zone as the Shirl Pit, with surface runoff flowing eastward consistent with the natural topography.

7.3.4.2 Groundwater

The Kalgoorlie hydrogeological area covers a part of the Yilgarn Craton that is characterised by north-north-westerly trending belts of Archaean greenstones intruded by granitoid rocks. Cainozoic surficial deposits form an extensive cover over the Precambrian bedrock and conceal Tertiary sedimentary rocks preserved in palaeochannels (Kern, 1995).

Fractured-rock aquifers occupy the greater part of the Kalgoorlie area, but they generally contain only minor groundwater supplies, and these are difficult to locate. The basal sandstone unit in the palaeochannels is the most prospective aquifer. The groundwater resources of the Cainozoic surficial deposits are very small. Most of the groundwater is saline to hypersaline and is currently used only for mining purposes. There is no fresh groundwater, but limited areas of brackish groundwater exist in the upper reaches of some catchments (Kern, 1995).

In 2024, CMW was commissioned by FMR to undertake a Hydrological Study of the Barbara Surprise Project. While limited information is available regarding the groundwater conditions, based on the regional topography and the relative position of the drainage lines, the groundwater flow direction is easterly, and groundwater levels are around 338.5mAHD (approximately 20m to 40m beneath the surrounding surface area).

A study completed in 2000 by Aquaterra indicates that there is little to no information on whether the Surprise Pit required dewatering or had significant inflows. However, it was believed that the pit does not intersect a major aquifer although there are some groundwater inflows occurring. Based on aerial imagery, the Surprise Pit lake began to form around 2005 and reached full recovery by 2018. The 2024 Surprise Pit lake level is 325mAHD, around 13.5m below pre-mining groundwater levels. The Surprise Pit is estimated to have a hydraulic conductivity of 0.25m/day for water balance modelling.

An assessment of the site hydrogeology for the Bakers Flat Pit area by Aquaterra in 2000 inferred that the groundwater table was within horizons of sandy clay, palaeochannel sand, and gravelly clay, and ranged from 13.5 to 15mBGL. Rising and falling head slug tests were reported to provide values ranging from 0.02 to 0.002m/day, but with most values in the order of 0.01m/day. Based on aerial imagery, the Bakers Flat Pit lake began to form around 2009 and reached full recovery by 2018. The 2024 Bakers Flat Pit lake level is 328mAHD, around 10.5m below pre-mining groundwater levels. The Bakers Flat Pit is estimated to have a hydraulic conductivity of 0.56m/day for water balance modelling.

No records are available regarding historical Shirl Pit inflows or pit lake level recovery rates, however aerial imagery over time enables inferences to be made in relation to volume changes in the pit lake. Based on aerial imagery, the Shirl Pit lake began to form around 2009 and reached full recovery by 2018. The 2024 Shirl Pit lake level is 322mAHD, around 16.5m below pre-mining groundwater levels. The Shirl Pit is estimated to have a hydraulic conductivity of 0.3m/day for water balance modelling.

7.3.4.2.1 Water Quality

The water quality analysis in 2000 of the Surprise Pit showed a salinity of 49,000mg/L TDS which suggests some dilution of the groundwater inflow with incident rainfall and runoff from the pit catchment. The results also show the pit water sample to be a sodium chloride type water with magnesium and sulphate also in significant (although) much lower concentrations (Aquaterra, 2000).

In September 2024, FMR sampled the Barbara Surprise Pit lakes (Bakers Flat, Shirl and Surprise) and the results are presented in Table 7-7. Water quality characteristics are similar across all three (3) pit lakes. When compared to 2000, the Surprise Pit salinity has increased, which is most likely attributable to salt accumulation due to the high evaporation and low rainfall rates in the region.

Table 7-7: Barbara Surprise Pit Lake Major Component Analysis Results 2024

Characteristic	Units	Surprise Pit	Shirl Pit	Bakers Flat Pit
pH	-	7.6	7.8	7.7
Electrical Conductivity (EC)	µS/cm	120,000	100,000	120,000
Total Dissolved Solids (TDS)	mg/L	120,000	92,000	100,000
Bicarbonate Alkalinity (HCO_3)	mg/L	360	330	190
Carbonate Alkalinity (CO_3)	mg/L	<5	<5	<5
Sulphate (SO_4)	mg/L	10,000	7,500	7,700
Sodium (Na)	mg/L	31,000	25,000	33,000
Nitrate (NO_3)	mg/L	5.5	<0.02	<0.02
Chloride (Cl)	mg/L	63,000	51,000	58,000
Potassium (K)	mg/L	390	240	320
Calcium (Ca)	mg/L	800	440	590
Magnesium (Mg)	mg/L	7,100	5,000	4,500
Aluminum (Al)	mg/L	<0.05	<0.05	0.12
Arsenic (As)	mg/L	0.29	0.056	0.021
Cadmium (Cd)	mg/L	<0.0005	<0.0005	0.00075
Chromium (Cr)	mg/L	<0.005	0.0094	0.056
Copper (Cu)	mg/L	<0.005	<0.005	<0.005
Iron (Fe)	mg/L	<0.05	<0.05	<0.05
Lead (Pb)	mg/L	<0.005	<0.005	<0.005
Manganese (Mn)	mg/L	0.71	0.018	0.11
Nickel (Ni)	mg/L	0.086	0.058	0.31
Zinc (Zn)	mg/L	<0.005	<0.005	0.068

7.3.4.2.2 Other Groundwater Users

No other significant water users have been identified within a 4km radius of the Barbara Surprise Pits. The DWER Water Information Reporting (WIR) database indicates 44 groundwater wells and bores are located within 10km radius from the Barbara Surprise Pits. The closest bore (AWRC: 120415141; WIN ID:20075012) is located approximately 3.6km southeast from the Barbara Surprise Shirl Pit and is assumed to be an observation bore. None of the remaining bores within the search radius are identified as water supply wells and the ownership is not known.

Historical groundwater information indicates that groundwater in the area can be hypersaline, up to 150,000 mg/L TDS, with limited beneficial use other than in mining activities (CMW, 2024a). There are no other known groundwater users in the expected area of influence associated with abstraction from the Barbara Surprise Pits.

8 Category Checklist

This Category Checklist Section is provided in accordance with Section 12.1 of the DWER Application Form (*Attachment 9: Category Checklist(s)*).

Applications for certain categories of Prescribed Premises may require additional supporting Category Checklists to be submitted with the new instrument or amendment application form. The Checklists provide clear instruction on what information is required to assess an application and currently include Solid Waste Landfills, Tailings Storage Facilities and Organics Recycling Facilities. No Category Checklist is required to be completed for this Works Approval Application.

10 Glossary

Term	Definition
ABAB	Arid Bronze Azure Butterfly.
ACHIS	Aboriginal Cultural Heritage Inquiry System.
Activity	Elements of the organisation's activities or products or services that can interact with the environment. These include routine and non-routine activities.
AHD	Australian Height Datum.
ALARP	As Low as Reasonably Practicable.
ANZECC	Australian and New Zealand Environment and Conservation Council.
ANZMEC	Australian and New Zealand Minerals and Energy Council.
Applicant	As defined under section 3 of the EP Act to mean the person applying for the works approval, licence, amendment, etc.
Authorised Company/Person	A company or person authorised by the occupier to submit a Works Approval or Licence application to DWER.
BC	Botanica Consulting
BoM	Bureau of Meteorology, Commonwealth.
CALM Act	*Conservation and Land Management Act 1984*.
Category	A category of prescribed premises, as specified in Schedule 1 of the EP Regulations.
CMW	CMW Geosciences.
Community	A group of people living in a particular area or region. In terms of mining activities, this refers to the inhabitants of immediate and surrounding areas who are affected by a mining activity.
Community and Stakeholder Strategy	The proposed course of action for community and stakeholder engagement.
Condition	A restriction or limitation as stated and applied under a works approval or licence.
Consequence	Outcome of an event affecting objectives.
Construction Phase	A period of time where the proposed infrastructure is constructed, where emissions and discharges are linked to the construction and not operation of the plant.

Term	Definition
Consultation	A process that permits and promotes the two-way flow of ideas and information. Effective consultation is based on principles of openness, transparency, integrity, and mutual respect.
DAFWA	Department of Agriculture and Food, WA (now known as DPIRD).
DAWE	Department of Agriculture, Water, and the Environment, Commonwealth (now known as DCCEEW).
DBCA	Department of Biodiversity, Conservation and Attractions, WA.
DCCEEW	Department of Climate Change, Energy, the Environment and Water, Commonwealth.
Decision Making Authority	A decision-making authority is a public authority with a statutory decision-making role in respect to a proposal. This can include another Minister, a State Government agency, or a local government authority.
DEMIRS	Department of Energy, Mines, Industry Regulation and Safety, WA.
DER	Department of Environment Regulation, WA (now known as DWER).
Discharge	As defined under section 3 of the EP Act to mean: in relation to waste or other matter, includes deposit it or allow it to escape, or cause or permit it to be, or fail to prevent it from being, discharged, deposited, or allowed to escape.
Disturbed	Area where vegetation has been cleared and/or topsoil (surface cover) removed.
DMIRS	Department of Mines, Industry Regulation and Safety, WA (now known as DEMIRS).
DPIRD	Department of Primary Industries and Regional Development, WA.
DPLH	Department of Planning, Lands and Heritage, WA.
DWER	Department of Water and Environmental Regulation, WA.
Earthworks	Reshaping, clearing, capping, water/wind erosion control, rock armouring, ripping.
EC	Electrical Conductivity.
EIA	Environmental Impact Assessment.
Emissions	As defined under section 3 of the EP Act to mean any of the following: (a) a discharge of waste; (b) an emission of noise, odour, or electromagnetic radiation; or (c) the transmission of electromagnetic radiation.

Term	Definition
EMS	Environmental Management System. A system of practices and procedures relating to the: • identification and assessment of the risk of environmental harm occurring as a result of the carrying out of mining operations; and • implementation of practicable measures to avoid or minimise the risk of such environmental harm occurring or reduce such environmental harm if it occurs.
Engagement	The process by which relevant parties work collaboratively to build ongoing, mutually beneficial relationships.
Environment	Living things, their physical, biological, and social surroundings, and interactions between all of these.
Environmental Commissioning Phase	A period of time allowing for stabilisation and optimisation of the process following input of raw materials under operating conditions (including emissions) to confirm that emissions meet predicted levels prior to ongoing operation.
Environmental Commissioning Report	Report on any commissioning activities that have taken place and a demonstration they have concluded, with focus on emissions and discharges, waste containment and other environmental factors.
Environmental Compliance Report	Report used to satisfy that works have been constructed in accordance with a works approval.
Environmental Factor	A part of the environment that may be impacted by an activity.
Environmental Harm	Environmental harm means adverse ecological effects on the environment.
Environmental Impact	Any change to the environment, whether adverse or beneficial, wholly, or partially resulting from a proponent's activities.
Environmental Offsets	Offsite actions to address significant residual environmental impacts of a development or activity.
Environmental Value	A beneficial use and/or an ecosystem health condition.
EPA	Environmental Protection Authority, WA.
EP Act	*Environmental Protection Act 1986.*
EP Regulations	*Environmental Protection Regulations 1987.*
EPBC Act	*Environment Protection and Biodiversity Conservation Act 1999.*
ESA	Environmentally Sensitive Area. Declared by the Minister for Environment under section 51B of the EP Act.
FMR	FMR Investments Pty Ltd (Proponent).
GDE	Groundwater Dependant Ecosystem.

Term	Definition
GLOS	Groundwater Licence Operating Strategy.
GST	Good and Services Tax.
GWL	Groundwater Licence.
IBRA	Interim Biogeographic Regionalisation for Australia classification system.
Interested Parties	For the purposes of this document, the term 'interested parties' may be used in exchange with community and stakeholders.
Instrument	A works approval or a licence issued under Part V Division 3 of the EP Act.
Key Stakeholders	Refers to post-mining landowners/managers and relevant regulators.
kL	Kilolitre (1,000 litres).
Level of Risk	Magnitude or a risk or combination of risks, expressed in terms of the combination of consequences and their likelihood.
Licence	A licence granted and in force under Part V Division 3 of the EP Act.
Likelihood	Description of probability or frequency of an event occurring.
LoM	Life of Mine - expected duration of mining and processing operations.
Maintain	To keep in existence or continuance; preserve; retain or to keep in a specified state, position, etc.
mBGL	Meters Below Ground Level.
MCA	Minerals Council of Australia.
MCMPR	Ministerial Council on Mineral and Petroleum Resources
Minimise	Limit the degree or magnitude of the adverse impact.
MNES	Matters of National Environmental Significance.
NRMS	Natural Resource Management Services.
NSR	Northern Star Resources Limited.
Operations	The active pit, haul roads, workshops, administration; – the collective group of features that are needed to run an operation.
PDWSA	Public Drinking Water Source Area.
PEC	Priority Ecological Communities.
Pits	All open excavations including active mineral rock, gravel, sand, clay, bauxite, and salt-pan extraction areas.

Term	Definition
PMST	Protected Matters Search Tool.
Prescribed Premises	As defined under section 3 of the EP Act to mean premises prescribed for the purposes of Part V.
Project	The total integrated mining operation in which the site(s) contribute to the overall operation to supply ore, processing facilities and disposal of waste products.
Receptors	The environment or humans who may suffer negative impacts due to the activities carried out on (or the resultant emissions and/or discharges from) the prescribed premises.
Residual Risk	Risk remaining after risk treatment.
Revision	A numerical identifier of a document.
Risk	The chance of something happening that will have an impact on objectives. It is measured in terms of consequences and their likelihood of occurrence.
Risk Analysis	Process to comprehend the nature of risk and to determine the level of risk.
Risk Assessment	Overall process for risk identification, risk analysis and risk evaluation.
Risk Identification	Process of finding, recognising, and describing risks.
Risk Management	Coordinated activities to direct and control an organisation with regard to risk.
Risk Management Framework	Set of components that provide the foundations and organisational arrangements for designing, implementing, monitoring, reviewing and continually improving risk management.
Risk Pathway	The causal mechanism through which a hazard or risk would be realised to occur.
Risk Treatment	Process to modify and reduce risk.
RIWI Act	*Rights in Water and Irrigation Act 1914.*
Safe	A condition where the risk of adverse effects to people, livestock, other fauna, and the environment in general has been reduced to a level acceptable to all stakeholders.
Source of Risk	Source of potential harm or situation with the potential to cause loss or adverse impact. These should also include sources which may only have potential unplanned interactions with the environment (i.e. accidents/incidents).
SRE	Short Range Endemic. Terrestrial and freshwater invertebrate species that have naturally small distributions of less than 10,000km^2. Within this distribution, the actual areas occupied may be small, discontinuous, or fragmented.

Term	Definition
Stable	A condition where the rates of change of specified parameters meet agreed criteria.
Stakeholder	A person or representatives of an organisation that can affect, be affected by, or perceive themselves to be affected by, a decision or activity. A decision maker can be a stakeholder.
SWL	Standing Water Level.
TDS	Total Dissolved Solids.
TEC	Threatened Ecological Communities.
Time Limited Operations Phase	Operations permitted under a works approval, subject to conditions, while an application for licence is assessed.
TSF	Tailings Storage Facility. An area used to store and consolidate tailings and may include one (1) or more tailings storage features.
WA	Western Australia.
Water Table	The level below which the ground is saturated with water.
WIR	Water Information Reporting Database.
Works Approval	An approval required under sections 52 and 53 of the EP Act to change a premises to become a prescribed premises or make changes to a licensed premises.

11 Bibliography

Australian and New Zealand Minerals and Energy Council and Minerals Council of Australia (2000) – *Strategic Framework for Mine Closure*. Available: https://www.sernageomin.cl/wp-content/uploads/2017/11/Strategic-Framework-Mine-Closure.pdf.Prepared by the ANZMEC/MCA.

Australian Government (2008) – *Rangelands 2008 – Taking the Pulse: Coolgardie Bioregion*. Available: https://www.dcceew.gov.au/sites/default/files/env/resources/a8015c25-4aa2-4833-ad9c-e98d09e2ab52/files/bioregion-coolgardie.pdf. Prepared by the National Land and Water Resources Audit.

Botanica Consulting (2024) – *Groundwater Licence Operating Strategy 5C Licence to Take Water GWL173070 – Noble and Barbara Surprise Pit Lake Abstraction*. Prepared for FMR.

Bureau of Meteorology (2005) – *Climate Classification Maps*. Available: http://www.bom.gov.au/jsp/ncc/climate_averages/climate-classifications/index.jsp?maptype=tmp_zones#maps. Prepared by the BoM.

Bureau of Meteorology (2006) – *Average Monthly and Annual Evaporation*. Available: http://www.bom.gov.au/watl/evaporation/. Prepared by the BoM.

Bureau of Meteorology (2016) – *Design Rainfall Data System 2016*. Available: http://www.bom.gov.au/water/designRainfalls/revised-ifd/. Accessed: December 2024

Bureau of Meteorology (2024a) – *Climate Statistics for Australian Locations – Kalgoorlie-Boulder Airport Weather Station*. Available: http://www.bom.gov.au/climate/averages/tables/cw_012038.shtml. Accessed: December 2024

Bureau of Meteorology (2024b) – *Groundwater Dependent Ecosystem Atlas*. Available: http://www.bom.gov.au/water/groundwater/gde/. Accessed: December 2024

CMW Geosciences (2024) – *Barbara Surprise Mining Area – Pit Lake Hydrology Study*. Prepared for FMR.

Cowan, M, (2001) – *A Biodiversity Audit of Western Australia's 53 Biogeographic Subregions in 2002 – Section Coolgardie 3 (COO3 – Eastern Goldfields Subregion)*. Available: https://library.dbca.wa.gov.au/FullTextFiles/021927.011.pdf. Prepared for the Department of Conservation and Land Management (now the DBCA).

Department of Agriculture, Water, and the Environment (2012) – *Interim Biogeographic Regionalisation for Australia Version 7 Map*. Available: https://www.dcceew.gov.au/sites/default/files/env/pages/5b3d2d31-2355-4b60-820c-e370572b2520/files/ibra-regions.pdf. Prepared by the Commonwealth of Australia.

Department of Biodiversity, Conservation and Attractions (2019) – *2018 State-wide Vegetation Statistics*. Available: https://catalogue.data.wa.gov.au/dataset/dbca-statewide-vegetation-statistics. Prepared by the DBCA (*dataWA indicates that these statistics may now be out of date).

Department of Biodiversity, Conservation and Attractions (2020) – *Guideline for the Survey of Arid Bronze Azure Butterfly (ABAB) in Western Australia (and Additional Information)*. Available: https://www.dbca.wa.gov.au/media/2319/download and https://www.dbca.wa.gov.au/media/2318/download. Prepared by the DBCA.

Department of Biodiversity, Conservation and Attractions (2023a) – Definitions, Categories and Criteria for Threatened and Priority Ecological Communities. Available: https://www.dbca.wa.gov.au/media/3148/download. Prepared by the DBCA.

Department of Biodiversity, Conservation and Attractions (2023b) – *List of Threatened Ecological Communities Endorsed by the WA Minister for Environment (23 November 2023).* Available: https://www.dbca.wa.gov.au/media/3286/download. Prepared by the DBCA.

Department of Biodiversity, Conservation and Attractions (2023c) – *Priority Ecological Communities for Western Australia Version 35 (19 June 2023).* Available: https://www.dbca.wa.gov.au/media/1730/download. Prepared by the DBCA.

Department of Biodiversity, Conservation and Attractions (2024) – *Threatened and Priority Fauna List (November 2024).* Available: https://www.dbca.wa.gov.au/sites/default/files/2024-11/Threatened%20and%20Priority%20Fauna%20List%20Nov%202024.xlsx. Prepared by the DBCA.

Department of Climate Change, Energy, the Environment and Water (2024) – *Protected Matters Search Tool*. Available: https://pmst.environment.gov.au/. Accessed: December 2024

Department of Environment Regulation (2015) – Guideline – Identification and Investigation of Acid Sulfate Soils and Acidic Landscapes. Available: https://www.wa.gov.au/system/files/2023-04/Identification-and-investigation-of-acid-sulfate-soils-and-acidic-landscapes.pdf. Prepared by the DER (now DWER).

Department of Planning, Lands and Heritage (2023a) – *Aboriginal Heritage Act 1972 Guidelines*. Available: https://www.wa.gov.au/system/files/2023-11/aboriginal_heritage_act_1972_guidelines.pdf. Prepared by the DPLH.

Department of Planning, Lands and Heritage (2024) – *Aboriginal Cultural Heritage Inquiry System*. Available: https://espatial.dplh.wa.gov.au/ACHIS/index.html?viewer=ACHIS. Accessed: December 2024

Department of Water and Environmental Regulation (2018) – *Industry Regulation Fact Sheet – Industry Regulation Fees.* Available: https://www.der.wa.gov.au/images/documents/our-work/licences-and-works-approvals/Fee_changes_2018/2018-05-25_IR-FS-12_Industry_Regulation_Fees.pdf. Prepared by the DWER.

Department of Water and Environmental Regulation (2019a) – *Guideline – Industry Regulation Guide to Licensing.* Available: https://www.der.wa.gov.au/images/documents/our-work/licences-and-works-approvals/licensing%20guidelines/Industry%20Regulation%20Guide%20to%20licensing%20%20June%202019.pdf. Prepared by the DWER.

Department of Water and Environmental Regulation (2019b) – *Procedure – Prescribed Premises Works Approvals and Licences.* Available: https://www.wagov.pipeline.preproduction.digital.wa.gov.au/system/files/2024-11/procedure-prescribed-premises-works-approvals-and-licences.pdf. Prepared by the DWER.

Department of Water and Environmental Regulation (2019c) – *A Guide to the Exemptions and Regulations for Clearing Native Vegetation*. Available: https://www.der.wa.gov.au/images/documents/your-environment/native-vegetation/Guidelines/A%20guide%20to%20the%20exemptions%20and%20regulations%20for%20clearing%20native%20vegetation.pdf. Prepared by the DWER.

Department of Water and Environmental Regulation (2020a) – *Surface Water Proclamation Areas Map*. Available: https://www.wa.gov.au/system/files/2022-11/Proclaimed-surface-water-areas-map.pdf. Prepared by the DWER.

Department of Water and Environmental Regulation (2020b) – *Groundwater Proclamation Areas Map*. Available: https://www.wa.gov.au/system/files/2022-11/Proclaimed-groundwater-areas-map.pdf. Prepared by the DWER.

Department of Water and Environmental Regulation (2020c) – *Guideline – Risk Assessments.* Available: https://www.der.wa.gov.au/images/documents/our-work/licences-and-works-approvals/GS_Risk_Assessments.pdf. Prepared by the DWER.

Department of Water and Environmental Regulation (2023a) – *Water Quality Protection Note 75: Gazetted Public Drinking Water Source Areas*. Available: https://www.wa.gov.au/system/files/2023-07/wqpn-75_final-for-publishing-may-2023.pdf. Prepared by the DWER.

Environmental Protection Authority WA (2005) – *Guidance No.3 – Separation Distances between Industrial and Sensitive Land Uses*. Available: https://www.epa.wa.gov.au/sites/default/files/Policies_and_Guidance/GS3-Separation-distances-270605.pdf. Prepared by the EPA.

Environmental Protection Authority (2016) – *Technical Guidance - Sampling of Short-Range Endemic Invertebrate Fauna*. Available: https://www.epa.wa.gov.au/sites/default/files/Policies_and_Guidance/Tech%20guidance-%20Sampling-SREs-Dec-2016.pdf. Prepared by the EPA.

Heritage Council WA (2024) – *inHerit Heritage Places Search*. Available: http://www.inherit.stateheritage.wa.gov.au/Public/ Accessed: December 2024

Kern, A.M (1995) – Hydrogeology of the Kalgoorlie 1:250,000 Sheet. Prepared for the Geological Survey of WA.

Landgate (2024) – *Shared Location Information Platform (SLIP) Search*. Available: https://data.wa.gov.au/slip Accessed: December 2024

Mattiske Consulting Pty Ltd and Ninox Wildlife Consulting (2000) – *Flora and Fauna Survey of a Proposed Mine Site at Bakers Flat Coolgardie*. Prepared for New Hampton Goldfields Ltd.

MPL Laboratories (2024) – *Certificate of Analysis PFI1602*. Prepared for FMR.

Natural Resource Management Services (2009) – *Environmental Assessment Hampton Location 59*. Prepared for Dioro Exploration.

Tille, P (2006) – *Soil Landscapes of Western Australia's Rangelands and Arid Interior*. Available: https://library.dpird.wa.gov.au/cgi/viewcontent.cgi?article=1294&context=rmtr. Prepared for the DAFWA.

12 Appendices

12.1 Pit Lake Hydrology Study

1. 2024 CMW Geosciences – Barbara Surprise Mining Area Pit Lake Hydrology Study

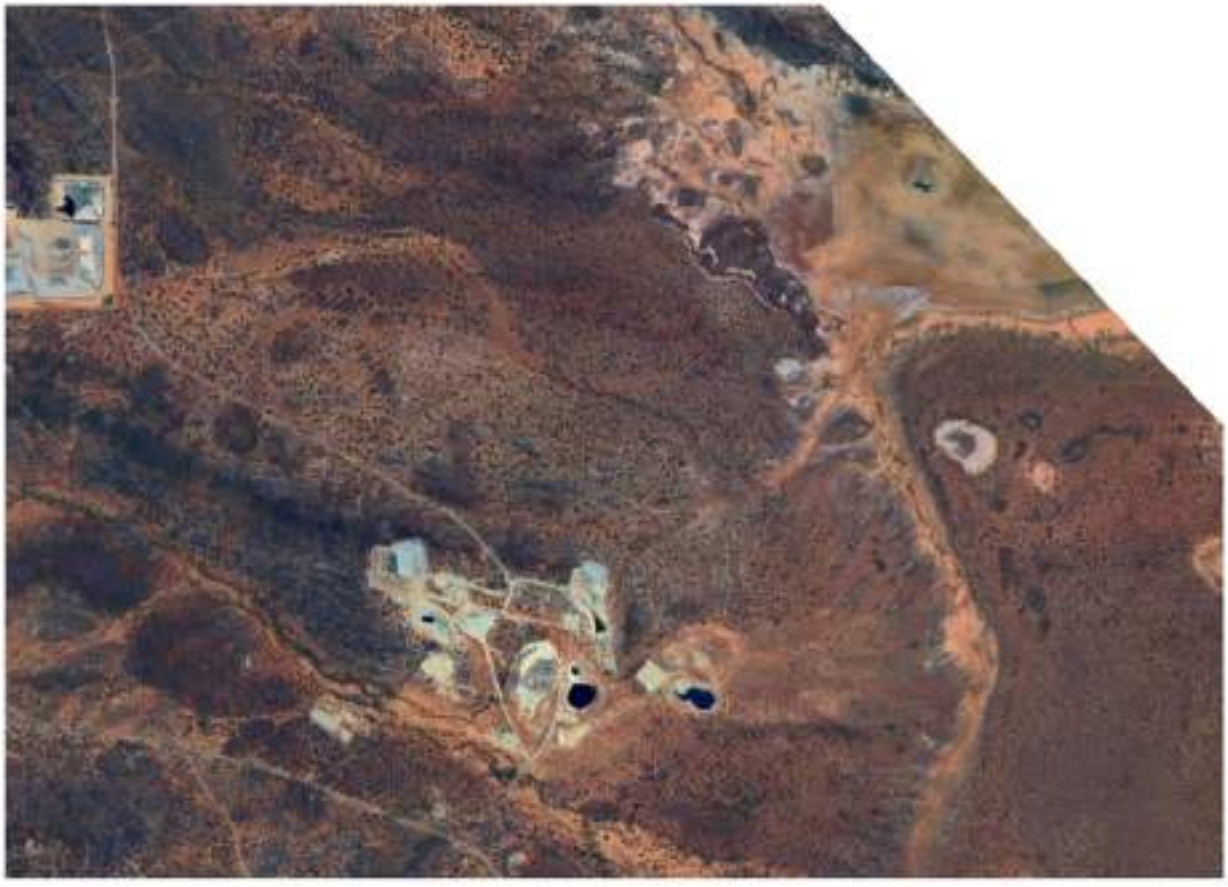
CMW Geosciences
Great People | Practical Solutions

31 October 2024

BARBARA SURPRISE MINING AREA - PIT LAKE HYDROLOGY STUDY

FMR Investments Pty Ltd, Coolgardie, WA

Job No. MEL2023-0233AF Rev1



[redacted]

[redacted]

Version	Date	Comments
Rev 0	21/10/2024	Draft
Rev1	31/10/2024	Final

CONTENTS

1.0 INTRODUCTION 4

1.1 Scope of Work 4

1.2 Project Background 4

2.0 EXISTING ENVIRONMENT 6

2.1 Topography 6

2.2 Climate 6

2.3 Geology 9

2.3.1 Regional Geology 9

2.3.2 Pit Geology 9

2.4 Hydrology 10

2.5 Hydrogeology 11

3.0 HYDROLOGICAL AND HYDROGEOLOGICAL ASSESSMENT OF PIT LAKE WATER BALANCE 13

3.1 Pit lake formation 13

3.2 Proposed pit water utilisation and transfer 14

3.3 Pit Volumes 14

3.4 Pit Lake Water Balance 16

3.4.1 Effect of Pit Lake Extractions 18

3.4.2 Water balance sensitivity 20

3.5 Brown Lake Impact Assessment 20

4.0 UNCERTAINTY 21

5.0 SUMMARY 22

6.0 REFERENCES 23

Appendices

APPENDIX A Site Aerial Imagery

APPENDIX B Water Balance Calculations

APPENDIX C Brown Lake – Wet Surface Area Histogram

1.0 INTRODUCTION

CMW Geosciences Pty Ltd (CMW) was commissioned by FMR Investments Pty Ltd (FMR) to undertake a desktop study of the water balance strategy for the Barbara Surprise mining area (the Project), where it is planned to re-commence mining operations and therefore requires two existing pits to be dewatered in advance.

FMR operates the Greenfields Mill facility, with an ore processing plant and tailings storage facilities (TSFs), located approximately 4 km northeast of Coolgardie, Western Australia. The Greenfields Mill site and the Barbara Surprise mining area are shown in Figure 1.

The phased water management plan considers the transfer of existing pit lake water from the Bakers Flat Pit and Shirl Pit into the Surprise Pit. Water from the Surprise Pit would then be pumped to the Greenfields Mill to supplement ore processing water requirements. This study aims to provide a high-level water balance, and to assess the potential impacts from pit lake water withdrawals, inter-pit water pumping, and transfers, as well as the temporary in-pit storage on the site vicinity groundwater and surface water environments.

1.1 Scope of Work

The work has been performed according with CMW proposal MEL2023-0233AE (16 September 2024) and comprises the following scope:

- Review, collation and synthesis of pertinent site-specific data related to the Bakers Flat, Barbara, Surprise, and Shirl Pit lakes and the regional hydrological and hydrogeological setting.
- Appraisal of stage-volume curves for Baker Flat, Shirl, and Surprise Pits and to assess current water inventories.
- Identification of groundwater recharge and discharge mechanisms, with particular attention to groundwater-surface water interactions involving regional surface water bodies.
- Evaluating the pit lake hydraulic characteristics and assessing their groundwater interactions.
- Estimating water balance components, specifically revisiting conceptual models to refine estimates of groundwater inflows.
- High-level quantitative assessment of the proposed water management, and its potential impact on pit lake water balances and downstream groundwater discharge to Brown Lake.
- Preparation of a report, detailing the water balance, simulations, and results.

1.2 Project Background

The Barbara Surprise site is located within a historic gold mining area, within the Coolgardie Domain (mineral freehold Hampton East Location 59) approximately 15 km southeast of Coolgardie. Historical mining operations include the Shirl, Barbara, Surprise, Bakers Flat and Pit28 areas.

The Barbara and Surprise operations have a long history of both underground and open pit mining and were decommissioned before 2005. The Barbara Pit has been partially filled with waste rock (as inferred from aerial imagery). At the Shirl and Bakers Flat Pits, mining was previously completed in January 2008. Post-mining, the pits having subsequently flooded forming lakes.

To facilitate the restart of mining operations at the Bakers Flat and Shirl Pits, a staged dewatering approach is proposed as part of the water management plan. In the initial phase (Phase 1), the strategy involves dewatering Bakers Flat Pit at a rate of up to 300 m^3/hr, transferring the water into Surprise Pit. From Surprise Pit, water will be pumped at a rate of up to 100 m^3/hr to the process water dam at Greenfields Mill. As mining at Bakers Flat nears completion, dewatering of Shirl Pit will begin (Phase 2) to enable continued open-pit mining operations. Water from Shirl Pit will also be transferred to Surprise Pit for temporary storage, before being pumped to Greenfields Mill for use in ore processing.

The project site location and proposed water transfer sequence is shown on Figure 1 Aerial imagery showing the evolution of mining activity at the Barbara Surprise mining area is shown in Appendix A.

Figure 1 Project location and pit lakes

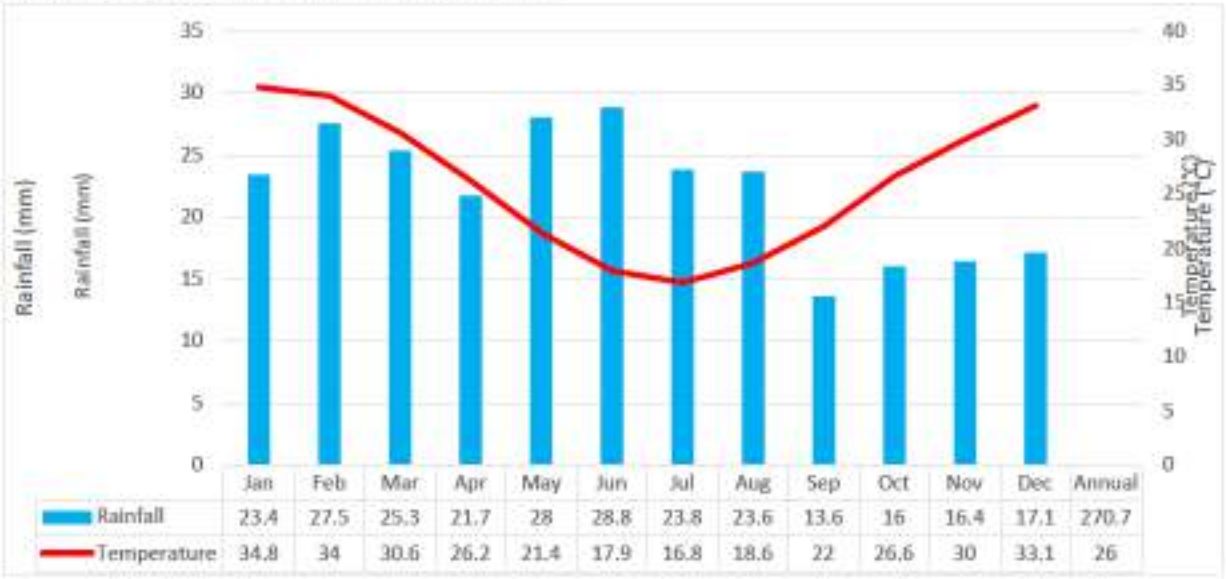
2.0 EXISTING ENVIRONMENT

2.1 Topography

The Project area is relatively flat at approximately 370 m Australian Height Datum (AHD)) with the surface area modified by historical mining activities with legacy voids and rock waste dumps. The wider Project area altitude ranges from 493 m AHD around Coolgardie to 354 m AHD in low lying areas approximately 3.8 km southeast from the site, associated with a broad alluvial valley ('Italian Gully') terminating at the salt playa of 'Brown Lake'. Other notable landforms within the region include clay pans and laterite capped low mesas.

2.2 Climate

The Project area has a semi-arid climate with hot summers and mild winters. Climate data for the Bureau of Meteorology (BOM) for Coolgardie (station 12018) indicates that mean annual rainfall is approximately 271 mm and ranged from 138 mm (5th percentile) to 447 mm (95th percentile). Mean monthly rainfall is well distributed through the year, with little seasonality, and ranged from 13.6 mm (September) to 28.8 mm (June). Mean daily maximum temperature ranged from 16.8°C (July) to 34.8°C (January). The mean monthly rainfall and temperature dataset are shown on plot in Figure 2.



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Rainfall	23.4	27.5	25.3	21.7	28	28.8	23.8	23.6	13.6	16	16.4	17.1	270.7
Temperature	34.8	34	30.6	26.2	21.4	17.9	16.8	18.6	22	26.6	30	33.1	26

Figure 2 Monthly rainfall and temperature

Given the prevailing climatic conditions of the site, evaporation is considered to be an important factor in the removal and transfer of water from exposed surface water bodies, and for shallow groundwater. BOM mapping shows that average pan evaporation in the region is approximately 2,500 mm/yr, far in excess of the mean annual rainfall of 271 mm/yr.

To account for evaporative loss from the pit lake, a detailed site-specific and seasonal distribution of both evapotranspiration (ET) and potential evapotranspiration (PET) was appraised for the Project area. This comprised remote sensing (satellite) data from the Terra Moderate Resolution Imaging Spectroradiometer (MODIS) MOD16A2 Version 6.1, accessed via 'Earth Data' platform[11].

[11] https://lpdaac.usgs.gov/products/mod16a2gfv006/

MOD16A2, derived from NASA's MODIS satellite imagery, offers high-resolution (500 m) and frequent (8-day composites) evapotranspiration estimates globally. The MOD16 algorithm is based on the logic of the Penman-Monteith equation which uses daily meteorological re-analysis data and 8-day remotely sensed vegetation property dynamics from MODIS as inputs. The MOD16 ET algorithm flowchart, including remote sensing input (green), meteorological data (blue) and other intermediate algorithms (such as plant transpiration, net radiation, soil evaporation etc.) is shown in Figure 3.

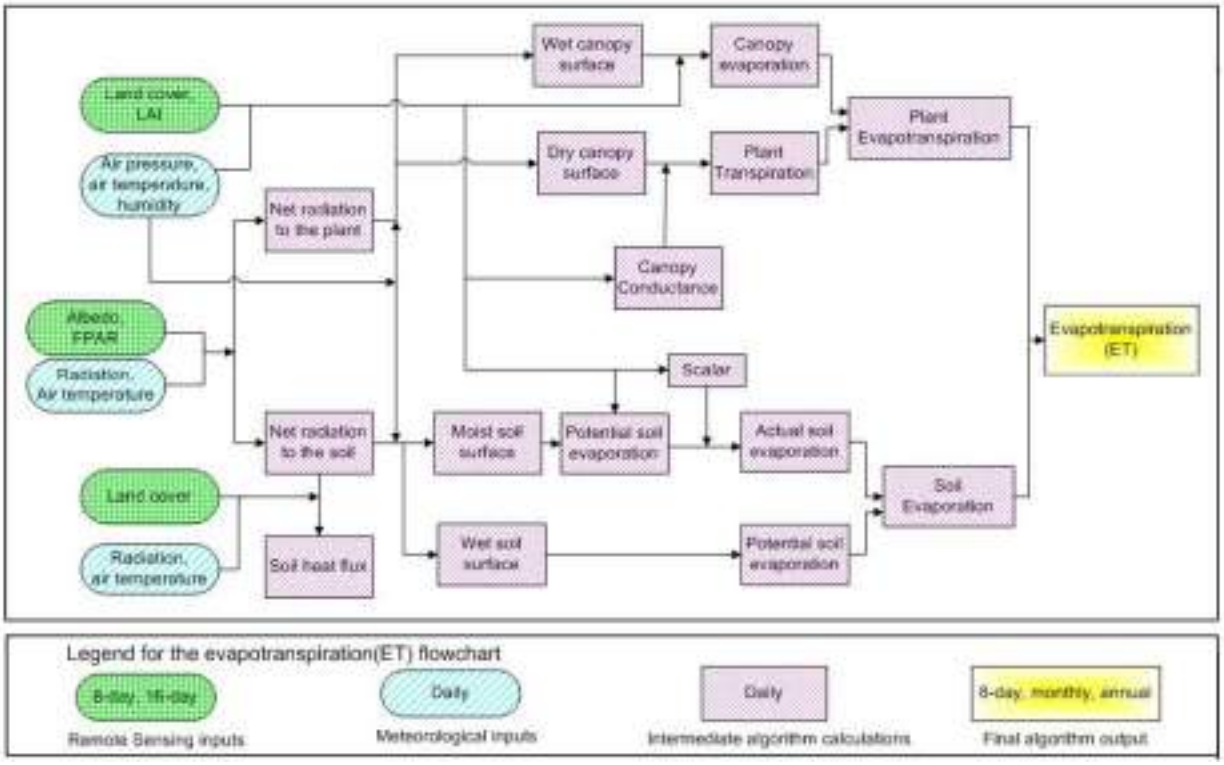


Figure 3 MOD16 ET algorithm flowchart

The input data was generated using Application for Extracting and Exploring Analysis Ready Samples (AppEEARS), followed by data processing in Excel.

The annual total actual and potential ET rates between years 2000 and 2020 are calculated to be 156 mm and 2,026 mm respectively. The monthly distribution is presented in Figure 3 and Table 1.

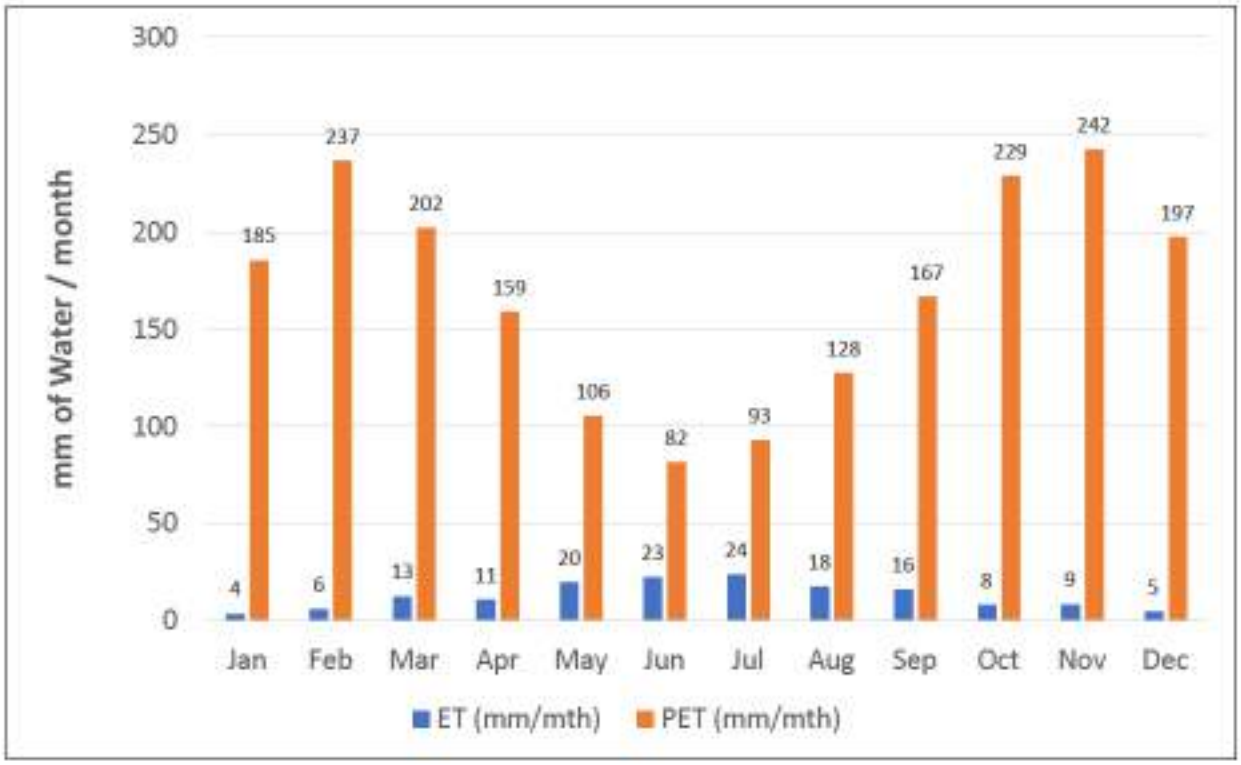


Figure 4 Monthly actual evapotranspiration and potential evapotranspiration distribution (MOD16)

Table 1: Average daily and monthly actual and potential evapotranspiration (mm)

Month	Days in month	Daily		Monthly	
		ET	PET	ET	PET
Jan	31	0.1	6.0	4	185
Feb	28	0.2	8.4	6	237
Mar	31	0.4	6.5	13	202
Apr	30	0.4	5.3	11	159
May	31	0.6	3.4	20	106
Jun	30	0.8	2.7	23	82
Jul	31	0.8	3.0	24	93
Aug	31	0.6	4.1	18	128
Sep	30	0.5	5.6	16	167
Oct	31	0.3	7.4	8	229
Nov	30	0.3	8.1	9	242
Dec	31	0.2	6.4	5	197
Average		0.4	5.6	13	169
			Annual	**156**	**2,026**

2.3 Geology

2.3.1 Regional Geology

The general bedrock geology of the Project area comprises metamorphosed mafic and ultramafic volcanics (gabbro, dolerite and diorite with ultramafic schist) of the Archaean Yilgarn Craton. The gold mineralisation is reported to be hosted in a differentiated gabbro sill within a sequence of ultramafic rocks. The local geology is completely weathered to a depth of approximately 20 m below the natural surface, with fresh rock at approximately 50 m depth (Alacer, 2012).

2.3.2 Pit Geology

Bakers Flat Pit

The regolith surrounding the Bakers Flat Pit deposit comprises approximately 40 m thick sequence of transported paleo-channel sediments unconformably overlying lower saprolite clay and differentiated gabbroic and ultramafic bedrock with felsic porphyry intrusive.

The following lithological units have been identified (Harmony Australia, 2007):

1. Upper Gravel unit: Poorly-sorted, rounded quartz, lithic fragments
2. Upper Clay unit: Very fine-grained, puggy 'plasticine' clays with ferruginous overprint
3. Sand/Silt unit: Fine-grained sand and silt composed of quartz and lithic fragments sometimes with weak goethitic overprint
4. Silcrete: Present in isolated patches up to 2 m thick
5. Gravelly Clays: Clay material with 5-10% pisolitic and lithic gravel component
6. Pisolithic (+/- lithic) Gravel: Well-sorted pisolitic gravel +/-10% clay
7. Reworked Clay unit: Reworked clays after mafic and ultramafic rocks, commonly with ferruginous/haematitic overprint
8. Reduced Sand/Silt unit: Dark grey, quartz-rich reduced sand, typically 1-3 m thick
9. Basal Conglomerate unit: 3-8 m thick, poorly-sorted gravel comprising magnetic lag, lithic (commonly high-magnesium basalt) and quartz fragments and up to 20% reworked clays.

The mineralisation is reported to be hosted within gravelly clays above the basal conglomerate. The local geological and structural setting for the Bakers Flat Pit is illustrated in Figure 5.

Surprise and Shirl Pits

Both the Surprise and Shirl Pit deposits exhibit mineralisation that is dispersed across multiple lode structures, with both deposits sharing similar structural characteristics. No widespread paleochannel sediments have been reported in the vicinity of these pits, suggesting that the overburden is thinner compared to Bakers Flat and primarily consists of undifferentiated saprolite. The local geological and structural settings for the Surprise and Shirl Pits are illustrated in Figure 5.

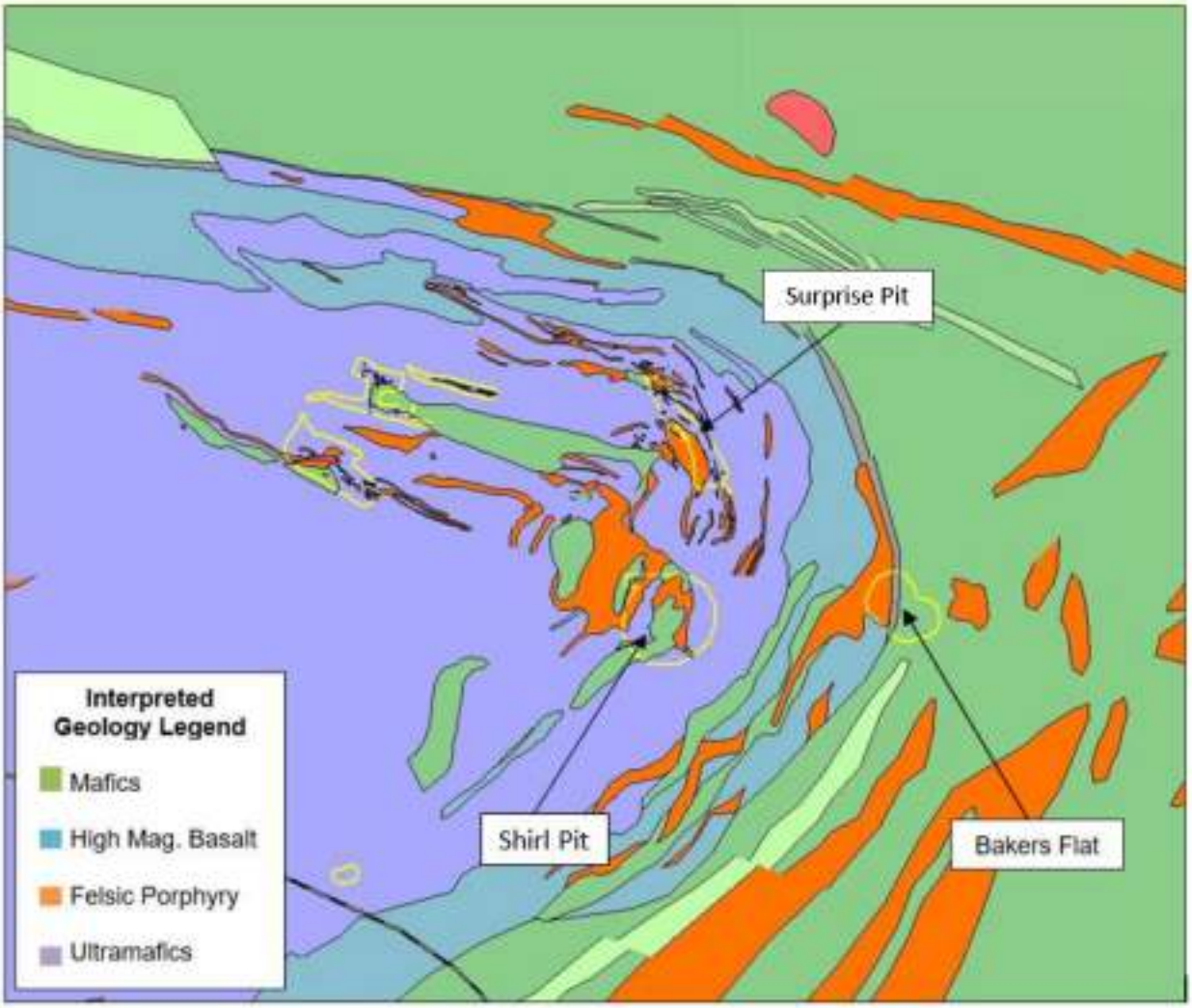


Figure 5 Bedrock geology of the Barbara-Surprise deposit (Alacer, 2012)

2.4 Hydrology

Due to the semi-arid environment, stream flow in the local gullies and watercourses is ephemeral. However, short-duration, high-intensity rainfall events can occur, resulting in runoff flowing into local drainage lines. These lines typically feature shallow, braided, and indistinct main channels with wide, diffuse floodplains and overland flow areas. Drainage generally occurs through shallow overland flow paths without well-defined channels.

Notwithstanding the presence of pit lakes formed by the cessation of historical mining activities, no permanent surface water features exist in the immediate vicinity of the site. However, ephemeral streams and gullies are present. Shirl Pit is located along a drainage line, which is presumed to be a paleochannel, connecting to Italian Gully and ultimately discharging seasonal runoff into Brown Lake. Based on the topographic characteristics (Figure 1), it is assumed that the Bakers Flat and Surprise Pits are within the same catchment zone, with surface runoff flowing eastward, consistent with the natural topography and preliminary assessment undertaken as part of the Bakers Flat feasibility study (Figure 6).

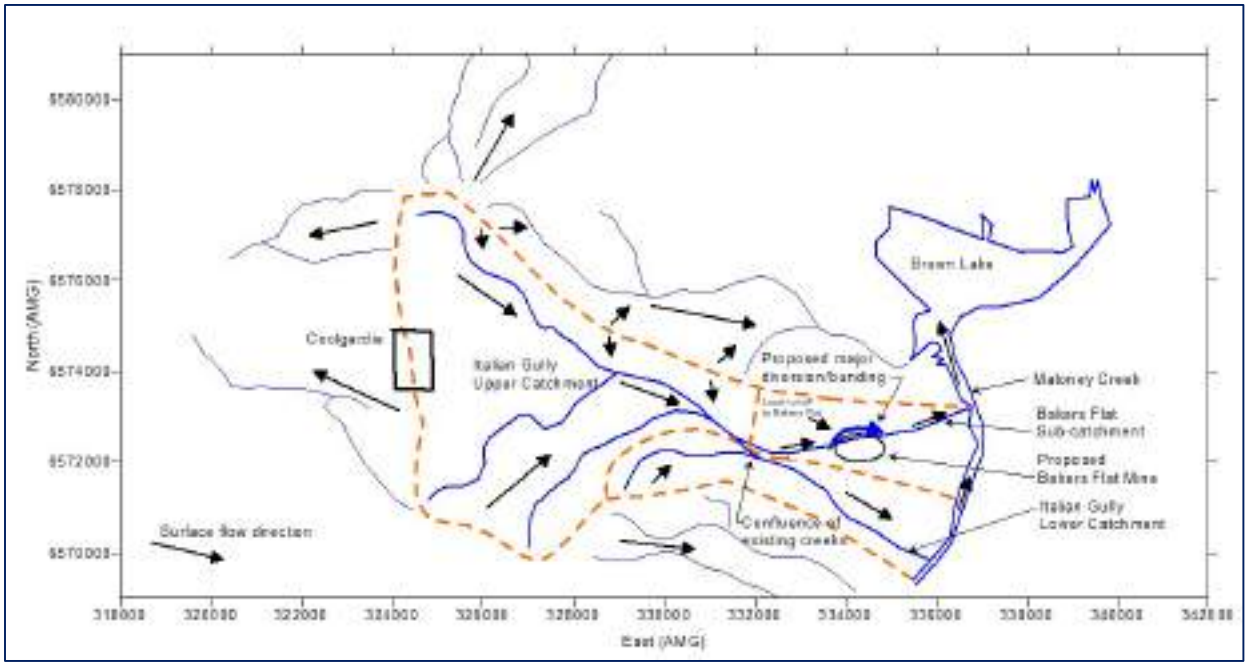


Figure 6 Surface drainage at Bakers Flat area (Harmony Australia, 2007)

It is noted that the combination of generally gentle slopes in conjunction with relatively low intensity rainfall (typically less than 5 mm/day) is not expected to produce a run-off flow reporting to the pits.

2.5 Hydrogeology

Fractured-rock aquifers occupy the greater part of the Eastern Goldfields area but are reported to generally contain only minor groundwater supplies, with paleochannels being the most prospective aquifer (Kern, 1995). Groundwater resources associated with Cainozoic surficial deposits are reported as very small, and saline to hypersaline. Limited areas of brackish groundwater are reported to exist in the upper reaches of some catchments (Kern, 1995).

Limited information is available regarding the groundwater conditions and piezometric levels. High-level approximation based on the regional topography and the relative position of the drainage lines, suggests the groundwater flow direction is easterly and groundwater levels in the Project site vicinity are around 330 m AHD, approximately 20-40 m beneath the surrounding surface area.

An assessment of the site hydrogeology for the Bakers Flat Pit area (Aquaterra, 2000) inferred that the groundwater table was within horizons of sandy clay, palaeochannel sand, and gravelly clay, and ranged from 13.5 to 15 mBGL (meters below ground level), equivalent to RL 338.7 to 338.3 mAHD. Rising and falling head slug tests were reported to provide values ranging from 0.02 to 0.002 m/day, but with most values in the order of 0.01 m/day. A conservative case of 0.1 m/day was adopted for inflow calculations (Aquaterra, 2000). This value (0.1 m/day) is consistent with a theoretical hydraulic conductivity calculated by CMW (2024a) derived from the timing of observed groundwater recovery over time in lake pits, indicating a value of 0.12 m/day.

Groundwater electrical conductivity (EC) for the Bakers Flat bores ranged from 100 to 120 mS/cm, indicating salinity from 60,000 to 70,000 mg/L TDS (Aquaterra, 2000). The Surprise Pit water was reported as 49,000 mg/L TDS, indicating a likely mix of groundwater and catchment water (Aquaterra, 2000). The hydrogeological conditions showing pre-mining groundwater levels around Bakers Flat and Surprise mining areas are shown on cross sectional views in Figure 7.

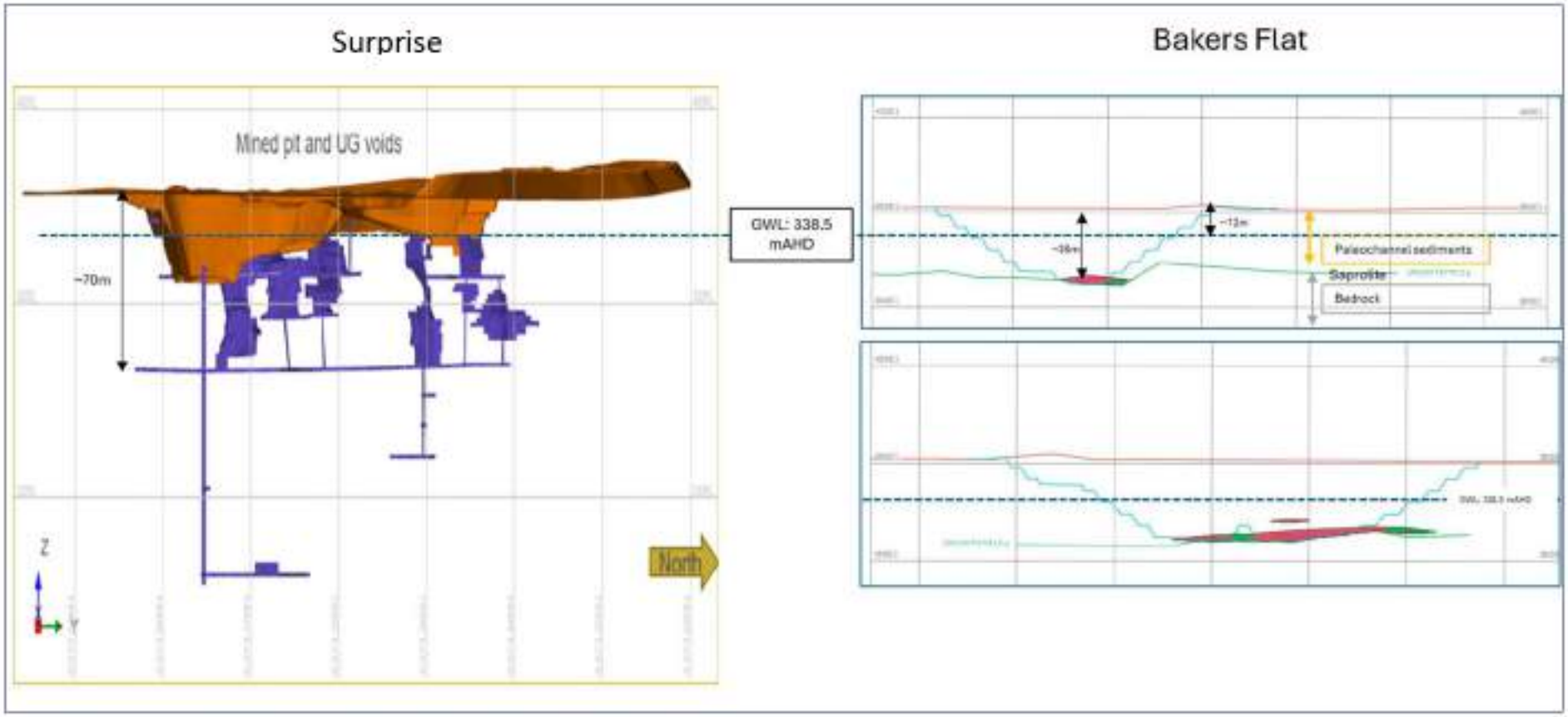


Figure 7 Bakers Flat and Surprise pit hydrostratigraphy and pre-mining groundwater levels

3.0 HYDROLOGICAL AND HYDROGEOLOGICAL ASSESSMENT OF PIT LAKE WATER BALANCE

3.1 Pit lake formation

In a typical open pit mine excavated below the groundwater level, following the cessation of dewatering operations, the phreatic water levels start to recover and gradually equilibrate to the ambient groundwater levels. In addition to groundwater inflows, rainfall and run-off contribute to pit infill.

The rate of pit lake formation and volume is influenced by a range of factors such as rainfall, evaporation, hydrogeology, and the pit geometry. Pit lakes in semi-arid settings are usually classified as 'flow-through' or 'terminal sinks' (McCullough et al., 2013). Terminal sinks form in arid environments where the potential evaporation is higher than the mean precipitation, and the lake catchment is small, leading to a pit lake water elevation below the surrounding pre-mining groundwater level (Niccoli, 2009). Figure 8 depicts the primary components of a pit lake water balance.

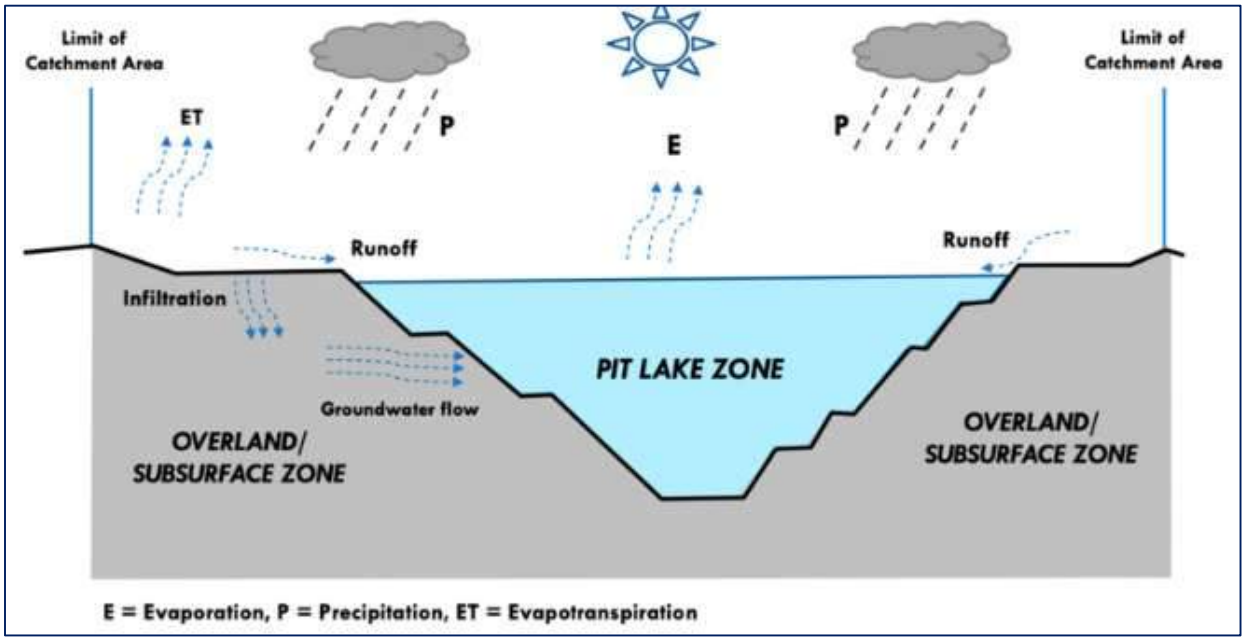


Figure 8 Conceptual pit lake water balance (Tuheteru et al., 2021)

Based on the available aerial imagery (Appendix A), the Barbara, Surprise, and PIt28 pPit lakes began to form around 2005, with Shirl and Bakers Flat Pit lakes appearing by 2009. It is assumed that these lakes reached full recovery by 2018. Current pit lake levels, appraised from the DSM (Digital Surface Model) provided by FMR, indicate that the phreatic levels are approximately 10.5 and 13.5 m below pre-mining groundwater levels at Bakers Flat and Surprise Pits respectively, and around 16.5 m below the surrounding groundwater level at Shirl Pit. Subsequently, the Project pit lakes exhibit characteristics of terminal sink-type lakes, understood to be primarily controlled by evaporation rates, as evidenced by Shirl Pit showing the greatest magnitude of drawdown due to its larger surface area.

3.2 Proposed pit water utilisation and transfer

At the Barbara Surprise mining area, mining operations are proposed to recommence, starting at the Bakers Flat Pit. To support this, a key water management objective is to dewater the Bakers Flat Pit into Surprise Pit, which will function as a temporary storage before transfer via pipeline to the process water dam at Greenfields Mill.

To ensure a smooth transition of mining activities to Shirl Pit once operations at Bakers Flat conclude, advanced dewatering of Shirl Pit will be initiated. This process will involve pumping water into the already dewatered Surprise Pit, and from there, water will be transferred to the Greenfields Mill. The schematic concept of these water transfers is shown in Figure 1 and in more detail in Figure 10.

The proposed pumping rate from Bakers Flat and Shirl Pits to Surprise Pit will be up to 300 m^3/hr. The proposed pumping rate from Surprise Pit to the Greenfields Mill will be at a lower rate, up to 100 m^3/hr.

To simulate the proposed pit water utilization and transfers, including the observed changes in pit lake levels, an analytical water balance model for the Bakers Flat, Surprise, and Shirl Pit lakes were developed and calibrated to achieve a similar rebound rate and equilibrated water level to those observed. Depending on the transfer sequence, each individual model provides forecasts of future pit lake levels in response to the proposed water transfers between pits and to then to Greenfields Mill, while also determining the timing required to achieve full dewatering or phreatic level recovery following artificial in-pit filling.

An objective of water balance modelling is to assess whether the Surprise Pit has sufficient capacity to absorb the additional dewatering volumes from Bakers Flat and Shirl pits within specified timeframes and the limits of the pit capacity. The water balance study is also intended to support an assessment of potential impacts on groundwater baseflow to Brown Lake.

3.3 Pit Volumes

Detailed pit geometry data were obtained using 3D pit profiling provided in the '.dm' data mining format, was processed using GEM4D[2]. This method allowed for the calculation of segmented finite difference volumes along specified horizontal planes. Subsequently, the detailed geometries were appraised at 10 m level intervals, enabling the estimation of associated water storage inventories based on individual stage-volume relationships, as shown in Figure 9.

The estimated water inventories currently stored within the pits are presented in Table 2.

Table 2: Estimated pit water volumes

Pit	Pit crest (mAHD)	Pit floor (mAHD)	Current GW level (mAHD)	Estimated stored volume of water (m^3)
Bakers Flat*	341	308	328	428,169
Shirl	360	224	322	1,250,536
Surprise	356	311	325	34,434

** Water volume calculations were adjusted to consider the partial filling of the initial pit void with low specific-yield material.*

[2] https://www.basrock.net/gem4d

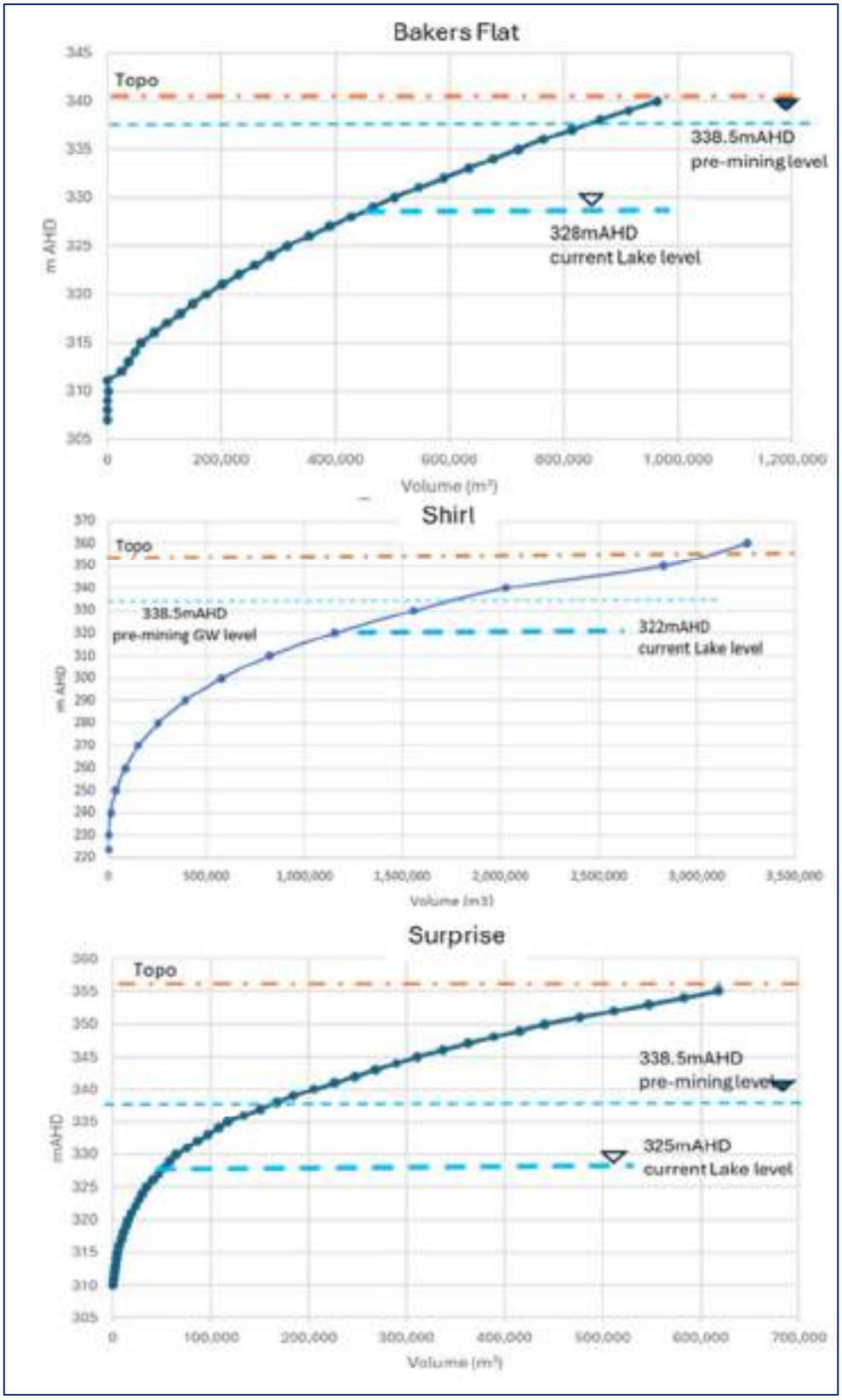


Figure 9 Stage-volume curves

3.4 Pit Lake Water Balance

A series of interlinked pit lake simulation models was developed in Excel[3] to simulate time dependent inflow and outflow components for the pit lakes. The transient water exchange between pit lakes and the groundwater was calculated using Jacob-Lohman equation (Lohman, 1972, Fontaine et al, 2003) for monthly time steps.

The water exchange solves for lake volume and stage, with groundwater exchange calculated for each time step based on the balance between changing hydraulic gradient and changing lake surface area. In addition, precipitation and evaporation from the pit lakes were varied according to seasonally distributed values and assigned dynamically based on current surface area, relative to lake stage. The lake stages (h) were calculated using the Equation 1 :

$$h = \frac{V_o + (V_{GW} + V_P - V_{ET})}{A_{Surf}}$$

Equation 1 Water balance formula for a lake stage

where:

- V_o= initial volume;
- Groundwater input: V_{GW}=$A_{LAT} * (h_{RECOVERED} - h) * \frac{K}{L} * \Delta t$;
- Precipitation input: V_P=$A_{SURF} * Precip * \Delta t$;
- Evaporation output: V_{ET}=$A_{SURF} * ET * \Delta t$; and
- A_{Surf}= pit cross-sectional area for groundwater flow.

To enable the water balance model to handle artificial recharge from external pumping (up to ~7,200 m³/day), an adjustment to the stage calculations was made. For the time corresponding with those events, the change in lake stage was assessed using higher resolution (i.e. 1 m intervals) stage-volume data linearly interpolated from the original 10 m stages. This higher resolution was applied to enhance the accuracy of the model simulating instantaneous release of large water volumes into the hydraulic system, ensuring that the lake stage changes are captured in finer detail throughout the dewatering and transfer operations.

It is noted that for the scenario involving infilling above the current water level (i.e. Surprise Pit), the model calculations were time-adjusted to assume that the rate of outflow equals the inverted rate of inflow under a comparable hydraulic gradient. Following an adjustment of hydraulic conductivity to match the rate of water rebound observed in the pit (as indicated by historical photographs and current lake levels), the model was then run using the parameters outlined in Table 3.

Water volume calculations were adjusted to consider the partial filling of the initial pit void with low specific-yield material.
.com/plism/) was used as framework and simplified to remove iterative calculation module.

Table 3: Additional Pit Lake Water Balance Inputs				
Pit Lake	**Parameter Description**	**Parameter**	**Model Input**	**Unit**
Bakers Flat	Static water level	$h_{RECOVERED}$	328	m
	Dynamic water level (pit lake stage)	h	calculated	m
	Radius of influence from pumping (assumed)	L	31.50	m
	Hydraulic conductivity	K	0.56	m/day
	Shirl Pit catchment run-off	*Catchment run-off*	0	%
	Proposed pit lake pumping schedule	*Extraction (transfer to Surprise)*	216,000 173,000	m³/month
Shirl	Static water level	$h_{RECOVERED}$	322	m
	Dynamic water level (pit lake stage)	h	calculated	m
	Radius of influence from pumping (assumed)	L	98	m
	Hydraulic conductivity	K	0.3	m/day
	Shirl Pit catchment run-off	*Catchment run-off*	0	%
	Proposed pit lake pumping schedule	*Extraction (transfer to Surprise)*	(23 x) 86,400 (1 x) 38,000	m³/month
Surprise	Static water level	$h_{RECOVERED}$	325	m
	Dynamic water level (pit lake stage)	h	calculated	m
	Radius of influence from pumping (assumed)	L	27.5	m
	Hydraulic conductivity	K	0.25	m/day
	Shirl Pit catchment run-off	*Catchment run-off*	0	%
	Proposed pit lake pumping schedule	*Pumping-in (input from Bakers Flat)*	216,000 173,000	m³/month
		(Transfer to Greenfields dam	(5 x) 72,000	m³/month
		Pumping-in (input from Shirl pit)	(23 x) 86,400 (1 x) 38,000	m³/month
		Extraction (transfer to Greenfields dam)	(24 x) 72,000	m³/month

It is noted that the '*L*' parameter in the Jacob-Lohman equation corresponds to the length over which the hydraulic head is depressed in the vicinity of the dewatered pit, which is used to calculate the hydraulic gradient, a factor informing the rate of groundwater inflow. In all models, *L* was assumed to be equal to the saturated pit depth, implying a moderately steep hydraulic gradient, which is consistent with expectations for medium to low permeability formations.

The modelled lake levels and the individual water balance components are presented graphically in Appendix B-1. The water balance analytical calculations for groundwater exchange, time series of precipitation and evaporation (PET) rates, and time series of volumetric extraction and transfer rates are all detailed in a tabular form in Appendix B-2.

Overall, all models exhibit similar hydrodynamic characteristics consistent with hydrogeological and climate setting in the Project area. In particular, an increase in evaporation losses occurs as the lake surface area expands over time due to the recovery of water levels. Groundwater inflows are indicated to be most significant during the early stages of pit filling, driven by a high hydraulic gradient in relation to the lateral cross-sectional area available for groundwater inflow. The highest groundwater inflow rate is indicated for Shirl Pit at 1,700 m³/day, consistent with its larger pit volume, followed by Bakers Flat at approximately 830 m³/day. It is noted, the latter estimate is broadly consistent with the groundwater numerical modelling undertaken by Aquaterra (2000) considering higher end range permeability between 0.5 to 1.0 m/day.

3.4.1 Effect of Pit Lake Extractions

The pit lake extraction scheme was modelled to run sequentially, beginning in January 2026. The water balance model estimates indicate a total of 389,000 m³ of water requiring removal from the Bakers Flat Pit lake to lower the phreatic level close to the pit floor. The proposed extraction plan includes pumping at a rate of 216,000 m³/month (7,200 m³/day) for the first month, followed by 173,000 m³/month (5,767 m³/day) in the second month to achieve full dewatering.

A simulation was run to test the impact of the reduced volume of Bakers Flat Pit, due to the presence of partial infill (as indicated in aerial images in Appendix A). Under this simulation, no material difference to the monthly model dewatering estimates was indicated, assuming this partially filled sector of the pit is highly permeable and fully drainable.

The Surprise Pit water balance indicates that there is a sufficient capacity to accommodate the additional discharge from Bakers Flat without the lake surface levels approaching the pit crest with a substantial freeboard of 16 m. Simultaneous water transfer from Surprise Pit to the Greenfields Mill at a rate of 100 m³/hr was simulated, resulting in a net discharge from Bakers Flat Pit into Surprise Pit of 200 m³/hr. After the water transfer from the Surprise Pit to Greenfields Mill is complete, continued in-pit pumping is planned to manage the groundwater inflows, keeping phreatic levels in the open pit depressed and optimising storage capacity for the future dewatering of the Shirl Pit.

The dewatering of Shirl Pit is projected to take around 24 months, with pumping rates reduced to 120 m³/hr transfer rates to account for the Surprise Pit storage capacity compared to the Shirl Pit water volume. This reduction is designed to enable uninterrupted pumping and prevent phreatic levels from rising near the upper crest of the pit with a substantial freeboard of 23 m. To ensure a smooth transition ahead of mining, the dewatering of Shirl Pit could start earlier, with adjustments to pumping rates to maintain stable operations.

The model also provides recovery timelines for pit lake levels after cessation of pumping. For Surprise Pit, the elevated phreatic levels are expected to take about three years to return to the surrounding groundwater levels assuming the maximum in-pit level will reach 333 mAHD.

The lake levels and associated water transfers between the pits have been presented on a time plots in Figure 10.

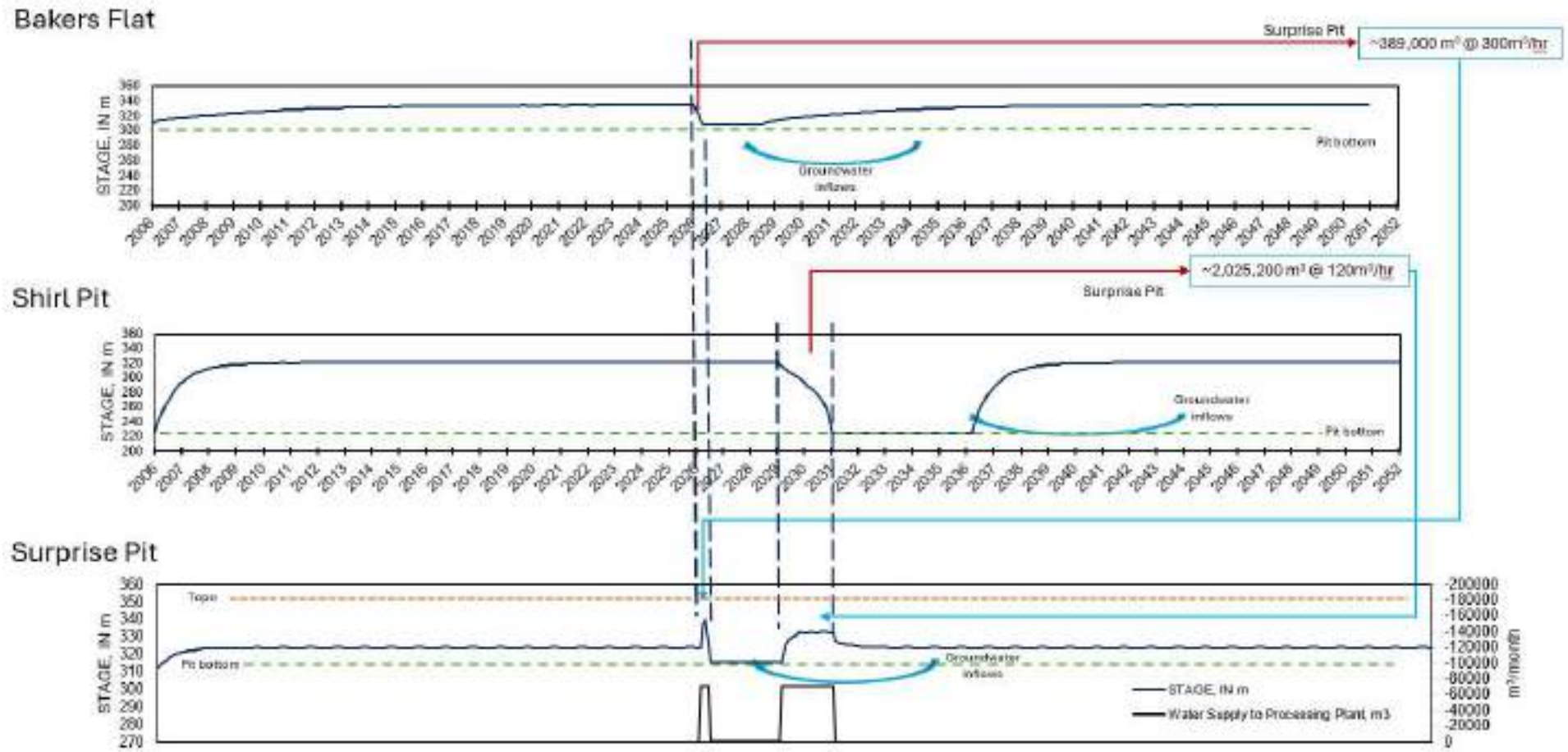


Figure 10 Simulated lake levels over time from inter-pit transfers and water extraction

3.4.2 Water balance sensitivity

Sensitivity analysis is used to determine how changes in independent variables impact model outcomes, i.e., how sensitive the model is to variations in parameter values.

In the water balance analytical modelling, groundwater inflow contributions significantly affect pit lake recovery rates. Conversely, lake level reduction under offtake is influenced by the hydraulic conductivity, which governs the rate of groundwater inflow to the pit lake.

The hydraulic conductivity parameter value used to calculate groundwater inflows was set at 0.1 m/day, consistent with previous conservative estimates (e.g., Aquaterra, 2000) and the CMW (2024a) recent estimate of 0.12 m/day, based on hydrogeological assessments.

In preliminary water balance calculations for Shirl Pit (CMW, 2024a), sensitivity analysis was conducted on the hydraulic conductivity parameter. It was determined that values around 0.01 m/day, which is an order of magnitude lower than the initial estimate, were unrealistically low. Modelling results with such low values were inconsistent with observed pit lake formation times and would necessitate implausibly high hydraulic gradients to account for the observed inflows. Consequently, in the current model iteration, hydraulic conductivity was adjusted to a range of 0.25 to 0.56 m/day, which is only marginally above the previously used values, to accurately reflect the current pit lake levels.

A sensitivity scenario was also conducted to address uncertainty regarding the hydraulic gradient by testing the model's response to changes in the 'L' parameter input to water balance calculations. For the Bakers Flat model, it was noted that altering the L value from the initial 31.5 m (representing the plausible radius of influence from pit pumping) to 100 m would reduce groundwater inflows from 24,900 m^3/month to 7,850 m^3/month. Given that values below 30 m are unlikely, the groundwater inflows calculated using the input parameters appear to be conservative.

3.5 Brown Lake Impact Assessment

Brown Lake is classified a non-perennial surface water feature (Geoscience Australia, 2024). Although it typically dries out in the summer months (Ref. Appendix C - Brown Lake wet surface index histogram), it is considered to be receiving the baseflow component from groundwater that is understood to be seasonally lost to evaporation at the lake surface. It also receives storm flows from network of ephemeral streams and run-off from numerous watersheds to the west and south-west from the Brown Lake indicating a significant catchment size. The Brown Lake surface area in relation to the pit lakes is shown in blue in Figure 11.

A simplified assessment was undertaken of the potential impact to Brown Lake arising from reduced aquifer throughflow reporting as baseflow. Under the conservative scenario considering full dewatering of Bakers Flat, Shirl, and Surprise Pits, the theoretical groundwater flow net pattern (accommodating a 150 m radius of influence from the pits) was used to approximate a discharge zone affected by dewatering (shown in dark blue on Figure 11). Calculations indicate a baseflow reduction of 2.4 km^2 (in dark blue), which represents approximately 1.7% of the Brown Lake groundwater catchment from the higher terrain recharge areas, calculated to be approximately 142 km^2 (shown in green).

Evaporative losses at Brown Lake are high due to the substantial lake area (~6,200,000 m^2) and (based on published PET data) potential evaporation is estimated to vary seasonally between approximately 16,850 m^3/day in June to 52,200 m^3/day in February.

Due to the presence of surface water at Brown Lake during the wetter and cooler winter months, the combined groundwater baseflow and surface water inflows exceed evaporative losses during this period. Despite the planned inter-pit pumping and water transfers, the proposed water offtake by FMR from the groundwater system—at a rate of 2,400 m^3/day (100 m^3/hr nominal transfer rate to Greenfields Mill)—is calculated to be

approximately 1.5 orders of magnitude lower than the average daily lake evaporation rate of around 43,750 m³/day at Brown Lake. As a result, the impact on the lake's water balance is considered minimal.

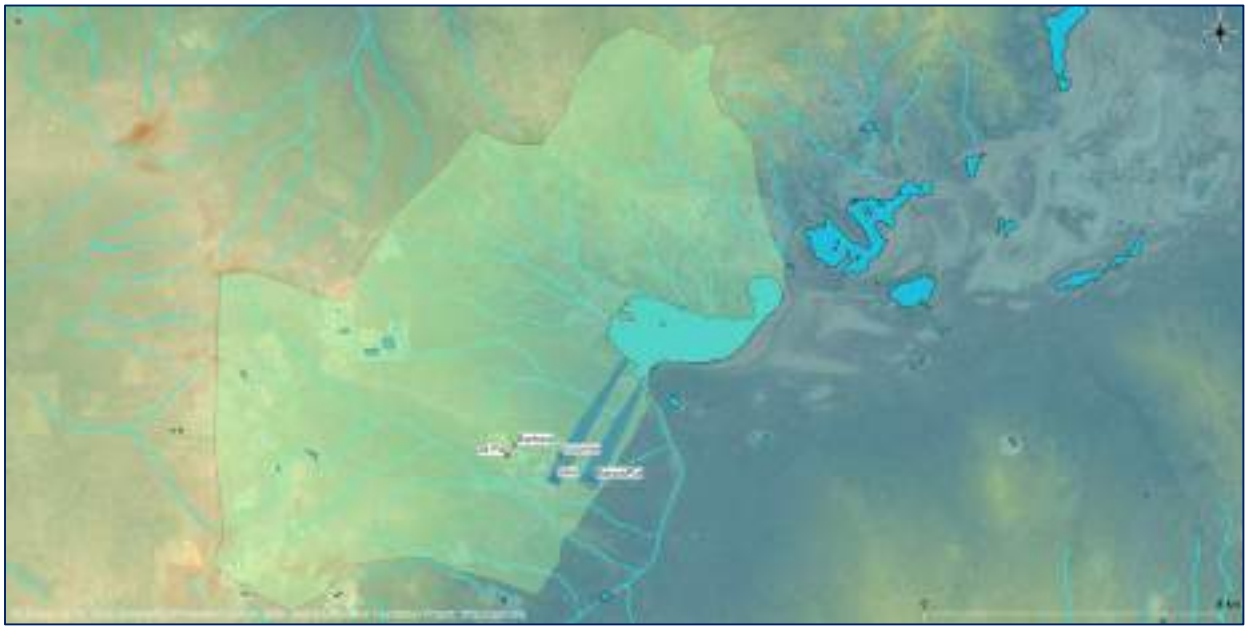


Figure 11 Brown Lake and catchment areas

4.0 UNCERTAINTY

All models are subject to uncertainty. In particular, uncertainty arises due to parameter uncertainty, conceptual uncertainty, and assumptions.

Conceptual uncertainty in the model arises because of the limitations necessary in simplifying complex hydrogeology and hydrochemistry for the purpose of constructing a practical model. Parameter uncertainty arises because the modelling adopts physical and hydraulic parameters which have not been tested in the field. At a field scale, actual parameters may vary from those adopted.

The approach undertaken for this project was deterministic, and uncertainty analysis has not been performed. Based on the information available at the time of reporting, the model parameters adopted are considered reasonable, but do not necessarily represent a unique solution. Other interpretations are possible. Accordingly, the modelling results and predictions made in this report should be considered indicative, and subject to interpretation.

The specific uncertainty pertains to the volume of the Bakers Flat Pit void filled with external material and its drainage characteristics. The current model assumes a reduction of approximately 14% in volume due to this filling, along with the specification of low specific-yield material, which is not expected to yield significant water during pumping conditions. This leads to an overall reduction in the estimated volumes of the pit lake.

5.0 SUMMARY

A study was undertaken using a water balance method to assess the potential impacts of pit lake water transfer and abstraction to the surrounding groundwater and surface water environment. The study considered transfers from the Bakers Flat and Shirl Pit lakes into the Surprise Pit lake, and subsequent abstraction to the Greenfields Mill for processing water supply.

The model results demonstrate that the Surprise Pit has sufficient capacity to contain the discharge of 389,000 m^3 of water pumped from Bakers Flat Pit at 300 m^3/hr over two months with a substantial freeboard. The model also indicated that the Surprise Pit has an additional storage buffer to accommodate the water stored in the partially backfilled area of Bakers Flat Pit, assuming the infill material has reasonable porosity. If mining operations shift to the flooded Shirl Pit, around 2 million m^3 of water will need to be dewatered.

The model suggests that by reducing the nominal pumping rate to 120 m^3/hr, the discharged water from Shirl Pit could be contained within the Surprise Pit with a substantial freeboard. This assumes that water is also being continuously pumped out of Surprise Pit at 100 m^3/hr and sent to the Greenfields Mill. Updated water balance calculations indicate that approximately two years will be required to fully dewater Shirl Pit under these conditions.

The study's sensitivity analysis indicated that reducing hydraulic conductivity to 0.01 m/day led to unrealistic pit lake formation times, supporting the use of higher values (i.e. above 0.1 m/day) for more accurate water balance predictions. The proposed water extraction is expected to have minimal impact on groundwater discharge zones in the vicinity, representing only 1.7% of the total aquifer throughflow toward Brown Lake.

Natural seasonal variations in Brown Lake water levels, largely due to evaporation, are expected to continue unaffected by the planned water transfers. The lake experiences significant evaporative losses, especially in warmer months, but retains surface water during cooler, wetter periods when inflows exceed evaporation. FMR's proposed water offtake from Surprise Pit (up to 2,400 m^3/day) is substantially lower than Brown Lake's average daily evaporation rate of 43,750 m^3/day, indicating that the impact on the lake's water balance will be negligible.

6.0 REFERENCES

Alacer Gold - South Kalgoorlie Operations (2012). NI 43-101 Technical Report. Document No. 129510300-REP-R0001-00 accessed on-line via: https://minedocs.com/21/South_Kalgoorlie_Operations-TR-04032012.pdf

Aquaterra (2000). Bakers Flat – Predicted Inflow and Dewatering Discharge Requirements. Report for New Hampton Goldfields Ltd. 3 March 2000.

CMW (2024a). Barbara Surprise Pit Lake Hydrology Study. Report for FMR Investments Pty Ltd. MEL2023-0233AB-Rev0.

Dioro Exploration NL (2008). ASX Announcement entitled: "Shirl Deeps and Mt Marion West drilling shows promise". Accessed online at: https://announcements.asx.com.au/asxpdf/20080121/pdf/3170kxfz93nk9s.pdf

Fontaine, RC; Andy Davis and Fennemore, GG (2003). The Comprehensive Realistic Yearly Pit Transient Infilling Code (CRYPTIC): A Novel Pit Lake Analytical Solution, Mine Water and the Environment v.22 pgs. 187–193 https://doi.org/10.1007/s10230-003-0021-z

Geoscience Australia (2024). 'Lakes and Reservoirs' dataset. Accessed at https://nationalmap.gov.au/ (Object ID: 67741)

Halford, K (2023). PLISM – Pit Lake Iterative Simulation Model, version 4, Halford Hydrology LLC web page, accessed April 2023, at https://halfordhydrology.com/plism/

Harmony Australia (2007). Bakers Flat Feasibility Study – East Location 59. Provided by the Client.

Jacob, C E and Lohman, S W (1952). Nonsteady flow to a well of constant drawdown in an extensive aquifer: Am. Geophys. Union Trans., v. 33, p. 559-569. https://agupubs.onlinelibrary.wiley.com/doi/abs/10.1029/TR033i004p00559

Kern, A M (1995). Hydrogeology of the Kalgoorlie 1:250,000 Sheet. Prepared for the Geological Survey of WA.

Lohman, SW (1972). Ground-Water Hydraulics: U.S. Geological Survey Professional Paper 708, 70 p. https://doi.org/10.3133/pp708

Tuheteru, EJ; Guatama, RS; Kasuma, GJ; Kuntoro, AA; Pranato, K; Pallingi, Y (2021). Water Balance of a Pit Lake Development in the Equatorial Region.

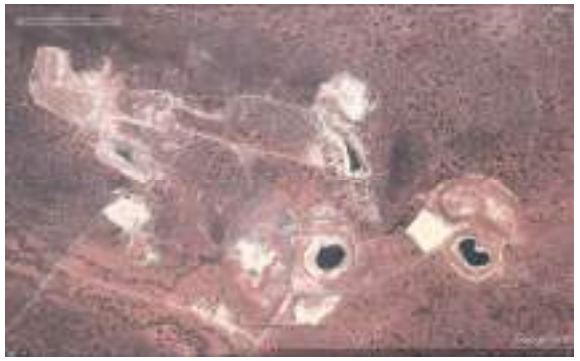
CMW Geosciences
Great People | Practical Solutions

APPENDIX A
Site Aerial Imagery

2005

2009

2011

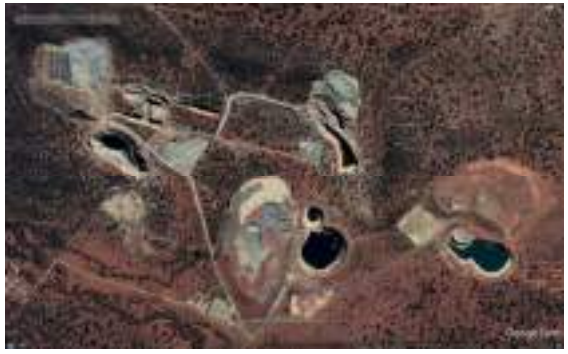


2013

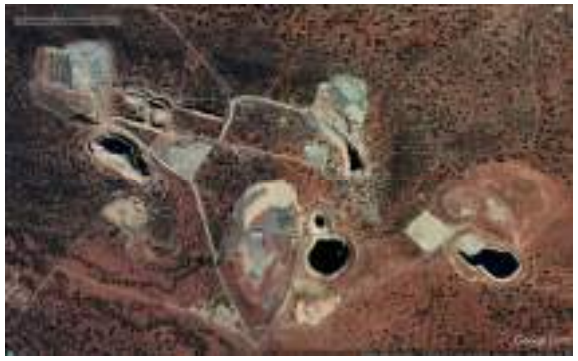
2015

2018

2020



2022



2023

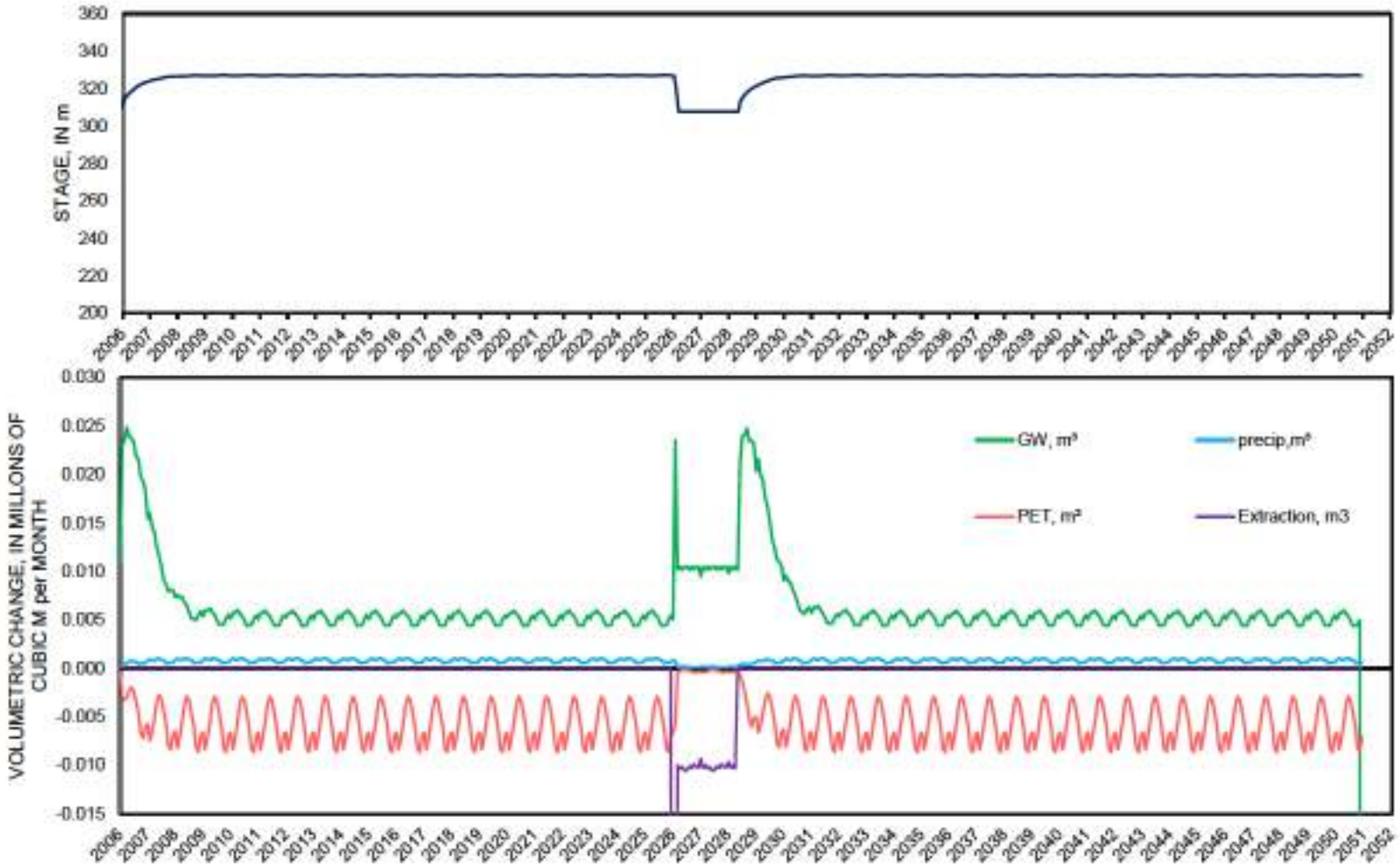
2020

2023

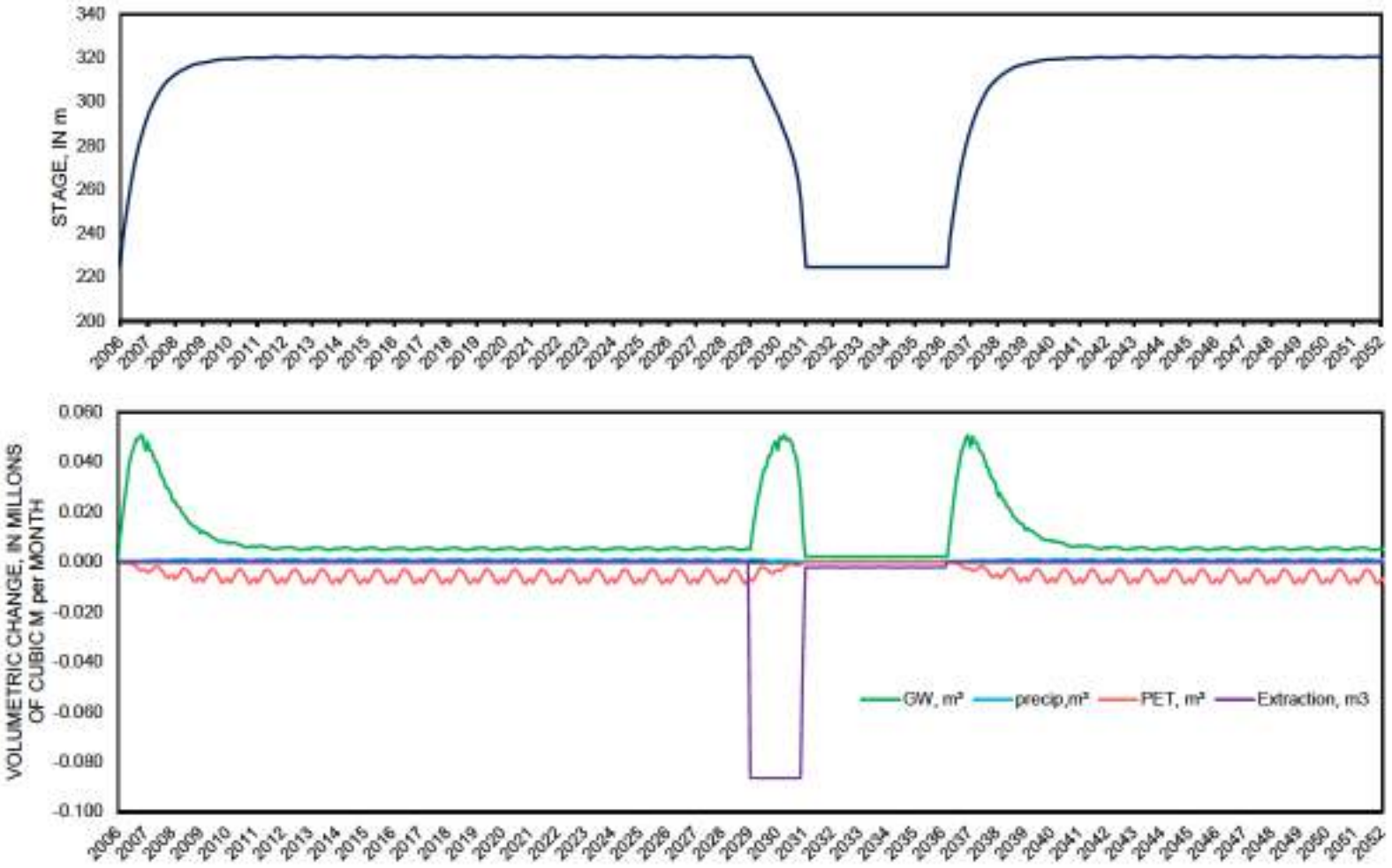
CMW Geosciences
Great People | Practical Solutions

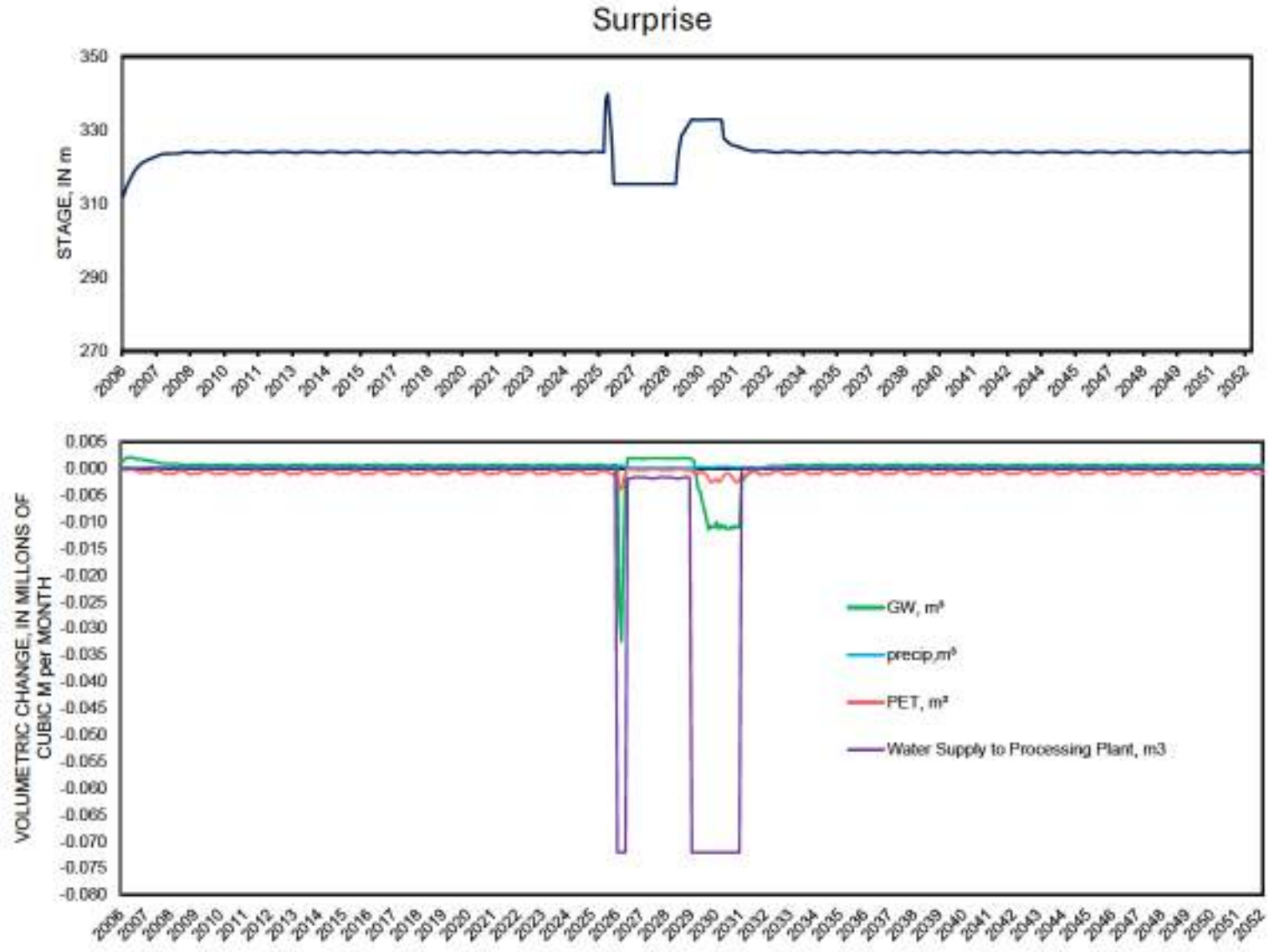
APPENDIX B
Water Balance Calculations

Bakers Flat


STAGE, IN m
360
340
320
300
280
260
240
220
200
VOLUMETRIC CHANGE, IN MILLONS OF CUBIC M per MONTH
0.030
0.025
0.020
0.015
0.010
0.005
0.000
-0.005
-0.010
-0.015
GW, m³
precip,m³
PET, m³
Extraction, m3
2006 2007 2008 2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019 2020 2021 2022 2023 2024 2025 2026 2027 2028 2029 2030 2031 2032 2033 2034 2035 2036 2037 2038 2039 2040 2041 2042 2043 2044 2045 2046 2047 2048 2049 2050 2051 2052

Shirl Pit


STAGE, IN m
340
320
300
280
260
240
220
200
VOLUMETRIC CHANGE, IN MILLONS OF CUBIC M per MONTH
0.060
0.040
0.020
0.000
-0.020
-0.040
-0.060
-0.080
-0.100
GW, m³
precip,m³
PET, m³
Extraction, m3
2006 2007 2008 2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019 2020 2021 2022 2023 2024 2025 2026 2027 2028 2029 2030 2031 2032 2033 2034 2035 2036 2037 2038 2039 2040 2041 2042 2043 2044 2045 2046 2047 2048 2049 2050 2051 2052


Surprise
STAGE, IN m
350
330
310
290
270
VOLUMETRIC CHANGE, IN MILLONS OF CUBIC M per MONTH
0.005
0.000
-0.005
-0.010
-0.015
-0.020
-0.025
-0.030
-0.035
-0.040
-0.045
-0.050
-0.055
-0.060
-0.065
-0.070
-0.075
-0.080
GW, m³
precip,m³
PET, m³
Water Supply to Processing Plant, m3

	ALTITUDE, IN M								VOLUMETRIC CHANGE, IN MILLONS OF CUBIC M per MONTH							0.27	-2.03
Stage, m	AREA, IN m	Volume, m^3	Lateral Area, m^2		row	DATE	STAGE, IN	AREA, IN m SQUARED	GW, m^3	precip,m^3	PET, m^3	Extraction, m^3	Catchment Run-off, m^3		Month	precip,m	PET, m
300	0	0	0		2	31/01/2006	310.0	2,343	10,870	177	-434	0	0		1	0.02	-0.19
310	2,343	2,375	1,213		2	28/02/2006	314.5	12,461	22,863	459	-2,948	0	0		2	0.03	-0.24
320	24,676	173,178	5,333		2	31/03/2006	316.2	16,112	23,691	505	-3,254	0	0		3	0.03	-0.20
330	40,232	503,090	11,720		2	30/04/2006	317.5	19,015	24,902	490	-3,026	0	0		4	0.02	-0.16
340	54,596	976,628	19,439		2	31/05/2006	318.6	21,642	23,827	698	-2,286	0	0		5	0.03	-0.11
350			27,722		2	30/06/2006	319.7	23,937	23,861	778	-1,957	0	0		6	0.03	-0.08
360					3	31/07/2006	320.6	25,635	23,304	679	-2,383	0	0		7	0.02	-0.09
					3	31/08/2006	321.5	26,946	21,856	701	-3,439	0	0		8	0.02	-0.13
	applied formula change				3	30/09/2006	322.2	28,050	21,591	418	-4,676	0	0		9	0.01	-0.17
					3	31/10/2006	322.8	29,011	19,778	505	-6,642	0	0		10	0.02	-0.23
					3	30/11/2006	323.3	29,743	19,379	529	-7,208	0	0		11	0.02	-0.24
					3	31/12/2006	323.7	30,407	18,283	561	-6,004	0	0		12	0.02	-0.20
					3	31/01/2007	324.1	31,064	15,421	782	-5,758	0	0				
					3	28/02/2007	324.4	31,587	16,020	932	-7,473	0	0				
					3	31/03/2007	324.7	32,054	14,528	868	-6,473	0	0				
					3	30/04/2007	325.0	32,487	14,021	753	-5,170	0	0				
					3	31/05/2007	325.3	32,946	12,493	983	-3,481	0	0				
					3	30/06/2007	325.6	33,418	11,704	1,023	-2,733	0	0				
					3	31/07/2007	325.9	33,884	10,452	856	-3,149	0	0				
					3	31/08/2007	326.2	34,258	9,096	856	-4,372	0	0				
					3	30/09/2007	326.3	34,512	8,663	497	-5,754	0	0				
					3	31/10/2007	326.4	34,665	7,944	587	-7,936	0	0				
					3	30/11/2007	326.4	34,692	8,129	602	-8,408	0	0				
					3	31/12/2007	326.4	34,706	8,085	627	-6,853	0	0				
					3	31/01/2008	326.5	34,790	7,329	860	-6,449	0	0				
					3	29/02/2008	326.6	34,868	7,599	1,013	-8,249	0	0				
					3	31/03/2008	326.6	34,884	7,306	932	-7,045	0	0				
					3	30/04/2008	326.6	34,937	7,387	801	-5,560	0	0				
					3	31/05/2008	326.7	35,054	6,799	1,036	-3,703	0	0				
					3	30/06/2008	326.8	35,237	6,453	1,071	-2,881	0	0				
					3	31/07/2008	326.9	35,442	5,801	889	-3,294	0	0				
					3	31/08/2008	327.0	35,591	5,148	885	-4,542	0	0				
					3	30/09/2008	327.1	35,656	5,107	511	-5,945	0	0				
					3	31/10/2008	327.0	35,642	4,987	601	-8,160	0	0				
					3	30/11/2008	327.0	35,530	5,518	614	-8,611	0	0				
					3	31/12/2008	326.9	35,421	5,868	638	-6,994	0	0				
					3	31/01/2009	326.9	35,400	5,362	873	-6,562	0	0				
					3	28/02/2009	326.9	35,386	5,982	1,026	-8,371	0	0				
					3	31/03/2009	326.8	35,326	5,974	942	-7,134	0	0				
					3	30/04/2009	326.8	35,316	6,204	808	-5,620	0	0				
					3	31/05/2009	326.9	35,377	5,815	1,044	-3,737	0	0				
					3	30/06/2009	327.0	35,515	5,568	1,078	-2,904	0	0				
					3	31/07/2009	327.1	35,679	5,034	894	-3,316	0	0				
					3	31/08/2009	327.1	35,792	4,508	889	-4,568	0	0				
					3	30/09/2009	327.2	35,829	4,539	513	-5,973	0	0				
					3	31/10/2009	327.1	35,789	4,521	603	-8,193	0	0				
					3	30/11/2009	327.1	35,655	5,111	616	-8,641	0	0				
					3	31/12/2009	327.0	35,528	5,525	640	-7,015	0	0				
					3	31/01/2010	327.0	35,491	5,099	875	-6,579	0	0				
					3	28/02/2010	326.9	35,464	5,730	1,028	-8,390	0	0				
					3	31/03/2010	326.9	35,393	5,768	944	-7,148	0	0				
					3	30/04/2010	326.9	35,373	6,021	809	-5,629	0	0				
					3	31/05/2010	326.9	35,426	5,663	1,046	-3,743	0	0				
					3	30/06/2010	327.0	35,557	5,432	1,079	-2,908	0	0				
					3	31/07/2010	327.1	35,714	4,917	895	-3,319	0	0				
					3	31/08/2010	327.2	35,823	4,411	890	-4,572	0	0				
					3	30/09/2010	327.2	35,854	4,453	513	-5,978	0	0				
					3	31/10/2010	327.2	35,811	4,450	603	-8,198	0	0				
					3	30/11/2010	327.1	35,674	5,049	616	-8,646	0	0				
					3	31/12/2010	327.0	35,544	5,473	640	-7,018	0	0				

Stage, m	AREA, IN m	Volume, m^3	Lateral Area, m^2		row	DATE	STAGE, IN	AREA, IN m SQUARED	GW, m^3	precip,m^3	PET, m^3	Extraction, m^3	Catchment Run-off, m^3		Month	precip,m	PET, m
					3	31/01/2011	327.0	35,504	5,059	875	-6,582	0	0				
					3	28/02/2011	326.9	35,476	5,692	1,028	-8,393	0	0				
					3	31/03/2011	326.9	35,403	5,737	944	-7,150	0	0				
					3	30/04/2011	326.9	35,382	5,994	809	-5,631	0	0				
					3	31/05/2011	326.9	35,434	5,641	1,046	-3,743	0	0				
					3	30/06/2011	327.0	35,563	5,412	1,079	-2,908	0	0				
					3	31/07/2011	327.1	35,720	4,899	895	-3,320	0	0				
					3	31/08/2011	327.2	35,827	4,396	890	-4,572	0	0				
					3	30/09/2011	327.2	35,858	4,440	513	-5,978	0	0				
					3	31/10/2011	327.2	35,814	4,440	603	-8,199	0	0				
					3	30/11/2011	327.1	35,677	5,040	616	-8,646	0	0				
					3	31/12/2011	327.0	35,546	5,465	640	-7,019	0	0				
					3	31/01/2012	327.0	35,506	5,233	876	-6,582	0	0				
					3	29/02/2012	326.9	35,486	5,661	1,028	-8,395	0	0				
					3	31/03/2012	326.9	35,411	5,711	944	-7,151	0	0				
					3	30/04/2012	326.9	35,389	5,971	810	-5,632	0	0				
					3	31/05/2012	326.9	35,440	5,622	1,046	-3,744	0	0				
					3	30/06/2012	327.0	35,568	5,395	1,079	-2,908	0	0				
					3	31/07/2012	327.1	35,724	4,885	895	-3,320	0	0				
					3	31/08/2012	327.2	35,831	4,384	890	-4,573	0	0				
					3	30/09/2012	327.2	35,862	4,429	513	-5,979	0	0				
					3	31/10/2012	327.2	35,817	4,431	603	-8,200	0	0				
					3	30/11/2012	327.1	35,679	5,032	616	-8,647	0	0				
					3	31/12/2012	327.0	35,548	5,459	640	-7,019	0	0				
					3	31/01/2013	327.0	35,508	5,048	876	-6,582	0	0				
					3	28/02/2013	326.9	35,479	5,682	1,028	-8,394	0	0				
					3	31/03/2013	326.9	35,405	5,728	944	-7,150	0	0				
					3	30/04/2013	326.9	35,384	5,986	810	-5,631	0	0				
					3	31/05/2013	326.9	35,436	5,634	1,046	-3,744	0	0				
					3	30/06/2013	327.0	35,565	5,406	1,079	-2,908	0	0				
					3	31/07/2013	327.1	35,721	4,895	895	-3,320	0	0				
					3	31/08/2013	327.2	35,829	4,392	890	-4,572	0	0				
					3	30/09/2013	327.2	35,859	4,436	513	-5,979	0	0				
					3	31/10/2013	327.2	35,815	4,437	603	-8,199	0	0				
					3	30/11/2013	327.1	35,678	5,037	616	-8,646	0	0				
					3	31/12/2013	327.0	35,547	5,463	640	-7,019	0	0				
					3	31/01/2014	327.0	35,507	5,051	876	-6,582	0	0				
					3	28/02/2014	326.9	35,478	5,685	1,028	-8,393	0	0				
					3	31/03/2014	326.9	35,405	5,731	944	-7,150	0	0				
					3	30/04/2014	326.9	35,384	5,988	810	-5,631	0	0				
					3	31/05/2014	326.9	35,435	5,636	1,046	-3,743	0	0				
					3	30/06/2014	327.0	35,564	5,408	1,079	-2,908	0	0				
					3	31/07/2014	327.1	35,721	4,896	895	-3,320	0	0				
					3	31/08/2014	327.2	35,828	4,394	890	-4,572	0	0				
					3	30/09/2014	327.2	35,859	4,437	513	-5,978	0	0				
					3	31/10/2014	327.2	35,814	4,438	603	-8,199	0	0				
					3	30/11/2014	327.1	35,677	5,038	616	-8,646	0	0				
					3	31/12/2014	327.0	35,547	5,464	640	-7,019	0	0				
					3	31/01/2015	327.0	35,507	5,052	876	-6,582	0	0				
					3	28/02/2015	326.9	35,478	5,686	1,028	-8,393	0	0				
					3	31/03/2015	326.9	35,404	5,731	944	-7,150	0	0				
					3	30/04/2015	326.9	35,384	5,989	810	-5,631	0	0				
					3	31/05/2015	326.9	35,435	5,637	1,046	-3,743	0	0				
					3	30/06/2015	327.0	35,564	5,408	1,079	-2,908	0	0				
					3	31/07/2015	327.1	35,721	4,896	895	-3,320	0	0				
					3	31/08/2015	327.2	35,828	4,394	890	-4,572	0	0				
					3	30/09/2015	327.2	35,859	4,437	513	-5,978	0	0				
					3	31/10/2015	327.2	35,814	4,438	603	-8,199	0	0				
					3	30/11/2015	327.1	35,677	5,038	616	-8,646	0	0				
					3	31/12/2015	327.0	35,547	5,464	640	-7,019	0	0				
					3	31/01/2016	327.0	35,507	5,232	876	-6,582	0	0				

Stage, m	AREA, IN m	Volume, m^3	Lateral Area, m^2		row	DATE	STAGE, IN	AREA, IN m SQUARED	GW, m^3	precip,m^3	PET, m^3	Extraction, m^3	Catchment Run-off, m^3		Month	precip,m	PET, m
					3	29/02/2016	326.9	35,486	5,660	1,028	-8,395	0	0				
					3	31/03/2016	326.9	35,411	5,710	944	-7,151	0	0				
					3	30/04/2016	326.9	35,389	5,970	810	-5,632	0	0				
					3	31/05/2016	326.9	35,440	5,621	1,046	-3,744	0	0				
					3	30/06/2016	327.0	35,568	5,394	1,079	-2,908	0	0				
					3	31/07/2016	327.1	35,724	4,884	895	-3,320	0	0				
					3	31/08/2016	327.2	35,831	4,384	890	-4,573	0	0				
					3	30/09/2016	327.2	35,862	4,429	513	-5,979	0	0				
					3	31/10/2016	327.2	35,817	4,431	603	-8,200	0	0				
					3	30/11/2016	327.1	35,679	5,032	616	-8,647	0	0				
					3	31/12/2016	327.0	35,548	5,458	640	-7,019	0	0				
					3	31/01/2017	327.0	35,508	5,048	876	-6,582	0	0				
					3	28/02/2017	326.9	35,479	5,682	1,028	-8,394	0	0				
					3	31/03/2017	326.9	35,405	5,728	944	-7,150	0	0				
					3	30/04/2017	326.9	35,384	5,986	810	-5,631	0	0				
					3	31/05/2017	326.9	35,436	5,634	1,046	-3,744	0	0				
					3	30/06/2017	327.0	35,565	5,406	1,079	-2,908	0	0				
					3	31/07/2017	327.1	35,721	4,894	895	-3,320	0	0				
					3	31/08/2017	327.2	35,829	4,392	890	-4,572	0	0				
					3	30/09/2017	327.2	35,859	4,436	513	-5,979	0	0				
					3	31/10/2017	327.2	35,815	4,437	603	-8,199	0	0				
					3	30/11/2017	327.1	35,678	5,037	616	-8,646	0	0				
					3	31/12/2017	327.0	35,547	5,463	640	-7,019	0	0				
					3	31/01/2018	327.0	35,507	5,051	876	-6,582	0	0				
					3	28/02/2018	326.9	35,478	5,685	1,028	-8,393	0	0				
					3	31/03/2018	326.9	35,405	5,731	944	-7,150	0	0				
					3	30/04/2018	326.9	35,384	5,988	810	-5,631	0	0				
					3	31/05/2018	326.9	35,435	5,636	1,046	-3,743	0	0				
					3	30/06/2018	327.0	35,564	5,408	1,079	-2,908	0	0				
					3	31/07/2018	327.1	35,721	4,896	895	-3,320	0	0				
					3	31/08/2018	327.2	35,828	4,394	890	-4,572	0	0				
					3	30/09/2018	327.2	35,859	4,437	513	-5,978	0	0				
					3	31/10/2018	327.2	35,814	4,438	603	-8,199	0	0				
					3	30/11/2018	327.1	35,677	5,038	616	-8,646	0	0				
					3	31/12/2018	327.0	35,547	5,464	640	-7,019	0	0				
					3	31/01/2019	327.0	35,507	5,052	876	-6,582	0	0				
					3	28/02/2019	326.9	35,478	5,686	1,028	-8,393	0	0				
					3	31/03/2019	326.9	35,404	5,731	944	-7,150	0	0				
					3	30/04/2019	326.9	35,384	5,989	810	-5,631	0	0				
					3	31/05/2019	326.9	35,435	5,637	1,046	-3,743	0	0				
					3	30/06/2019	327.0	35,564	5,408	1,079	-2,908	0	0				
					3	31/07/2019	327.1	35,721	4,896	895	-3,320	0	0				
					3	31/08/2019	327.2	35,828	4,394	890	-4,572	0	0				
					3	30/09/2019	327.2	35,859	4,437	513	-5,978	0	0				
					3	31/10/2019	327.2	35,814	4,438	603	-8,199	0	0				
					3	30/11/2019	327.1	35,677	5,038	616	-8,646	0	0				
					3	31/12/2019	327.0	35,547	5,464	640	-7,019	0	0				
					3	31/01/2020	327.0	35,507	5,232	876	-6,582	0	0				
					3	29/02/2020	326.9	35,486	5,660	1,028	-8,395	0	0				
					3	31/03/2020	326.9	35,411	5,710	944	-7,151	0	0				
					3	30/04/2020	326.9	35,389	5,970	810	-5,632	0	0				
					3	31/05/2020	326.9	35,440	5,621	1,046	-3,744	0	0				
					3	30/06/2020	327.0	35,568	5,394	1,079	-2,908	0	0				
					3	31/07/2020	327.1	35,724	4,884	895	-3,320	0	0				
					3	31/08/2020	327.2	35,831	4,384	890	-4,573	0	0				
					3	30/09/2020	327.2	35,862	4,429	513	-5,979	0	0				
					3	31/10/2020	327.2	35,817	4,431	603	-8,200	0	0				
					3	30/11/2020	327.1	35,679	5,032	616	-8,647	0	0				
					3	31/12/2020	327.0	35,548	5,458	640	-7,019	0	0				
					3	31/01/2021	327.0	35,508	5,048	876	-6,582	0	0				
					3	28/02/2021	326.9	35,479	5,682	1,028	-8,394	0	0				

Stage, m	AREA, IN m	Volume, m^3	Lateral Area, m^2		row	DATE	STAGE, IN	AREA, IN m SQUARED	GW, m^3	precip,m^3	PET, m^3	Extraction, m^3	Catchment Run-off, m^3		Month	precip,m	PET, m
					3	31/03/2021	326.9	35,405	5,728	944	-7,150	0	0				
					3	30/04/2021	326.9	35,384	5,986	810	-5,631	0	0				
					3	31/05/2021	326.9	35,436	5,634	1,046	-3,744	0	0				
					3	30/06/2021	327.0	35,565	5,406	1,079	-2,908	0	0				
					3	31/07/2021	327.1	35,721	4,894	895	-3,320	0	0				
					3	31/08/2021	327.2	35,829	4,392	890	-4,572	0	0				
					3	30/09/2021	327.2	35,859	4,436	513	-5,979	0	0				
					3	31/10/2021	327.2	35,815	4,437	603	-8,199	0	0				
					3	30/11/2021	327.1	35,678	5,037	616	-8,646	0	0				
					3	31/12/2021	327.0	35,547	5,463	640	-7,019	0	0				
					3	31/01/2022	327.0	35,507	5,051	876	-6,582	0	0				
					3	28/02/2022	326.9	35,478	5,685	1,028	-8,393	0	0				
					3	31/03/2022	326.9	35,405	5,731	944	-7,150	0	0				
					3	30/04/2022	326.9	35,384	5,988	810	-5,631	0	0				
					3	31/05/2022	326.9	35,435	5,636	1,046	-3,743	0	0				
					3	30/06/2022	327.0	35,564	5,408	1,079	-2,908	0	0				
					3	31/07/2022	327.1	35,721	4,896	895	-3,320	0	0				
					3	31/08/2022	327.2	35,828	4,394	890	-4,572	0	0				
					3	30/09/2022	327.2	35,859	4,437	513	-5,978	0	0				
					3	31/10/2022	327.2	35,814	4,438	603	-8,199	0	0				
					3	30/11/2022	327.1	35,677	5,038	616	-8,646	0	0				
					3	31/12/2022	327.0	35,547	5,464	640	-7,019	0	0				
					3	31/01/2023	327.0	35,507	5,052	876	-6,582	0	0				
					3	28/02/2023	326.9	35,478	5,686	1,028	-8,393	0	0				
					3	31/03/2023	326.9	35,404	5,731	944	-7,150	0	0				
					3	30/04/2023	326.9	35,384	5,989	810	-5,631	0	0				
					3	31/05/2023	326.9	35,435	5,637	1,046	-3,743	0	0				
					3	30/06/2023	327.0	35,564	5,408	1,079	-2,908	0	0				
					3	31/07/2023	327.1	35,721	4,896	895	-3,320	0	0				
					3	31/08/2023	327.2	35,828	4,394	890	-4,572	0	0				
					3	30/09/2023	327.2	35,859	4,437	513	-5,978	0	0				
					3	31/10/2023	327.2	35,814	4,438	603	-8,199	0	0				
					3	30/11/2023	327.1	35,677	5,038	616	-8,646	0	0				
					3	31/12/2023	327.0	35,547	5,464	640	-7,019	0	0				
					3	31/01/2024	327.0	35,507	5,232	876	-6,582	0	0				
					3	29/02/2024	326.9	35,486	5,660	1,028	-8,395	0	0				
					3	31/03/2024	326.9	35,411	5,710	944	-7,151	0	0				
					3	30/04/2024	326.9	35,389	5,970	810	-5,632	0	0				
					3	31/05/2024	326.9	35,440	5,621	1,046	-3,744	0	0				
					3	30/06/2024	327.0	35,568	5,394	1,079	-2,908	0	0				
					3	31/07/2024	327.1	35,724	4,884	895	-3,320	0	0				
					3	31/08/2024	327.2	35,831	4,384	890	-4,573	0	0				
					3	30/09/2024	327.2	35,862	4,429	513	-5,979	0	0				
					3	31/10/2024	327.2	35,817	4,431	603	-8,200	0	0				
					3	30/11/2024	327.1	35,679	5,032	616	-8,647	0	0				
					3	31/12/2024	327.0	35,548	5,458	640	-7,019	0	0				
					3	31/01/2025	327.0	35,508	5,048	876	-6,582	0	0				
					3	28/02/2025	326.9	35,479	5,682	1,028	-8,394	0	0				
					3	31/03/2025	326.9	35,405	5,728	944	-7,150	0	0				
					3	30/04/2025	326.9	35,384	5,986	810	-5,631	0	0				
					3	31/05/2025	326.9	35,436	5,634	1,046	-3,744	0	0				
					3	30/06/2025	327.0	35,565	5,406	1,079	-2,908	0	0				
					3	31/07/2025	327.1	35,721	4,894	895	-3,320	0	0				
					3	31/08/2025	327.2	35,829	4,392	890	-4,572	0	0				
					3	30/09/2025	327.2	35,859	4,436	513	-5,979	0	0				
					3	31/10/2025	327.2	35,815	4,437	603	-8,199	0	0				
					3	30/11/2025	327.1	35,678	5,037	616	-8,646	0	0				
					3	31/12/2025	327.0	35,547	5,463	640	-7,019	0	0				
					3	31/01/2026	327.0	35,507	5,051	876	-6,582	-216000	0	pit dewatering			
					2	28/02/2026	320.0	24,635	23,535	760	-5,828	-173000	0	pit dewatering			
					1	31/03/2026	307.7	1,815	10,154	179	-367	-9,967	0	collection of groundwater inflows!			

Stage, m	AREA, IN m	Volume, m^3	Lateral Area, m^2		row	DATE	STAGE, IN	AREA, IN m SQUARED	GW, m^3	precip,m^3	PET, m^3	Extraction, m^3	Catchment Run-off, m^3		Month	precip,m	PET, m
					1	30/04/2026	307.7	1,815	10,493	154	-289	-10,358	0				
					1	31/05/2026	307.7	1,815	10,154	199	-192	-10,161	0				
					1	30/06/2026	307.7	1,815	10,493	204	-148	-10,549	0				
					1	31/07/2026	307.7	1,815	10,493	169	-169	-10,493	0				
					1	31/08/2026	307.7	1,815	10,154	167	-232	-10,090	0				
					1	30/09/2026	307.7	1,815	10,493	96	-303	-10,287	0				
					1	31/10/2026	307.7	1,815	10,154	113	-416	-9,852	0				
					1	30/11/2026	307.7	1,815	10,493	116	-440	-10,169	0				
					1	31/12/2026	307.7	1,815	10,493	121	-358	-10,256	0				
					1	31/01/2027	307.7	1,815	9,477	166	-337	-9,307	0				
					1	28/02/2027	307.7	1,815	10,493	195	-429	-10,258	0				
					1	31/03/2027	307.7	1,815	10,154	179	-367	-9,967	0				
					1	30/04/2027	307.7	1,815	10,493	154	-289	-10,358	0				
					1	31/05/2027	307.7	1,815	10,154	199	-192	-10,161	0				
					1	30/06/2027	307.7	1,815	10,493	204	-148	-10,549	0				
					1	31/07/2027	307.7	1,815	10,493	169	-169	-10,493	0				
					1	31/08/2027	307.7	1,815	10,154	167	-232	-10,090	0				
					1	30/09/2027	307.7	1,815	10,493	96	-303	-10,287	0				
					1	31/10/2027	307.7	1,815	10,154	113	-416	-9,852	0				
					1	30/11/2027	307.7	1,815	10,493	116	-440	-10,169	0				
					1	31/12/2027	307.7	1,815	10,493	121	-358	-10,256	0				
					1	31/01/2028	307.7	1,815	9,816	166	-337	-9,645	0				
					1	29/02/2028	307.7	1,815	10,493	195	-429	-10,258	0				
					1	31/03/2028	307.7	1,815	10,154	179	-367	-9,967	0				
					1	30/04/2028	307.7	1,815	10,493	154	-289	-10,358	0				
					1	31/05/2028	307.7	1,815	10,154	199	-192	0	0				
					2	30/06/2028	313.3	9,817	20,933	412	-803	0	0				
					2	31/07/2028	315.4	14,490	23,912	440	-1,347	0	0				
					2	31/08/2028	317.0	18,036	24,044	512	-2,302	0	0				
					2	30/09/2028	318.3	20,792	24,780	329	-3,466	0	0				
					2	31/10/2028	319.3	23,117	23,408	420	-5,292	0	0				
					3	30/11/2028	320.1	24,837	23,498	456	-6,019	0	0				
					3	31/12/2028	320.8	25,961	23,173	493	-5,126	0	0				
					3	31/01/2029	321.5	27,072	20,313	698	-5,018	0	0				
					3	28/02/2029	322.1	27,990	21,653	843	-6,622	0	0				
					3	31/03/2029	322.7	28,873	19,954	796	-5,831	0	0				
					3	30/04/2029	323.2	29,677	19,480	698	-4,723	0	0				
					3	31/05/2029	323.7	30,487	17,557	921	-3,221	0	0				
					3	30/06/2029	324.2	31,265	16,676	968	-2,557	0	0				
					3	31/07/2029	324.7	32,016	15,096	816	-2,976	0	0				
					3	31/08/2029	325.1	32,644	13,206	822	-4,166	0	0				
					3	30/09/2029	325.4	33,114	12,488	480	-5,521	0	0				
					3	31/10/2029	325.6	33,464	11,210	569	-7,661	0	0				
					3	30/11/2029	325.8	33,656	11,074	586	-8,156	0	0				
					3	31/12/2029	325.9	33,818	10,634	614	-6,677	0	0				
					3	31/01/2030	326.0	34,028	9,079	844	-6,308	0	0				
					3	28/02/2030	326.1	34,193	9,585	996	-8,089	0	0				
					3	31/03/2030	326.2	34,307	8,962	919	-6,928	0	0				
					3	30/04/2030	326.3	34,440	8,872	791	-5,481	0	0				
					3	31/05/2030	326.4	34,629	8,047	1,026	-3,658	0	0				
					3	30/06/2030	326.6	34,873	7,583	1,061	-2,852	0	0				
					3	31/07/2030	326.7	35,131	6,787	882	-3,265	0	0				
					3	31/08/2030	326.8	35,326	5,973	879	-4,508	0	0				
					3	30/09/2030	326.9	35,429	5,843	508	-5,907	0	0				
					3	31/10/2030	326.9	35,449	5,594	598	-8,115	0	0				
					3	30/11/2030	326.9	35,364	6,051	612	-8,571	0	0				
					3	31/12/2030	326.8	35,280	6,317	636	-6,966	0	0				
					3	31/01/2031	326.8	35,280	5,707	871	-6,540	0	0				
					3	28/02/2031	326.8	35,281	6,314	1,023	-8,347	0	0				
					3	31/03/2031	326.8	35,237	6,246	940	-7,116	0	0				
					3	30/04/2031	326.8	35,240	6,444	807	-5,608	0	0				

Stage, m	AREA, IN m	Volume, m^3	Lateral Area, m^2		row	DATE	STAGE, IN	AREA, IN m SQUARED	GW, m^3	precip,m^3	PET, m^3	Extraction, m^3	Catchment Run-off, m^3		Month	precip,m	PET, m
					3	31/05/2031	326.8	35,313	6,015	1,043	-3,731	0	0				
					3	30/06/2031	326.9	35,459	5,747	1,076	-2,900	0	0				
					3	31/07/2031	327.0	35,631	5,189	893	-3,312	0	0				
					3	31/08/2031	327.1	35,752	4,637	888	-4,563	0	0				
					3	30/09/2031	327.1	35,794	4,653	512	-5,968	0	0				
					3	31/10/2031	327.1	35,759	4,615	602	-8,186	0	0				
					3	30/11/2031	327.0	35,630	5,193	615	-8,635	0	0				
					3	31/12/2031	327.0	35,507	5,594	640	-7,011	0	0				
					3	31/01/2032	326.9	35,473	5,336	875	-6,576	0	0				
					3	29/02/2032	326.9	35,457	5,755	1,028	-8,388	0	0				
					3	31/03/2032	326.9	35,386	5,788	944	-7,146	0	0				
					3	30/04/2032	326.9	35,368	6,039	809	-5,628	0	0				
					3	31/05/2032	326.9	35,422	5,678	1,045	-3,742	0	0				
					3	30/06/2032	327.0	35,553	5,445	1,079	-2,907	0	0				
					3	31/07/2032	327.1	35,711	4,928	895	-3,319	0	0				
					3	31/08/2032	327.2	35,820	4,420	890	-4,571	0	0				
					3	30/09/2032	327.2	35,852	4,461	513	-5,977	0	0				
					3	31/10/2032	327.2	35,808	4,457	603	-8,198	0	0				
					3	30/11/2032	327.1	35,672	5,055	616	-8,645	0	0				
					3	31/12/2032	327.0	35,542	5,478	640	-7,018	0	0				
					3	31/01/2033	327.0	35,503	5,063	875	-6,581	0	0				
					3	28/02/2033	326.9	35,475	5,696	1,028	-8,393	0	0				
					3	31/03/2033	326.9	35,402	5,740	944	-7,150	0	0				
					3	30/04/2033	326.9	35,381	5,996	809	-5,630	0	0				
					3	31/05/2033	326.9	35,433	5,643	1,046	-3,743	0	0				
					3	30/06/2033	327.0	35,562	5,414	1,079	-2,908	0	0				
					3	31/07/2033	327.1	35,719	4,901	895	-3,320	0	0				
					3	31/08/2033	327.2	35,827	4,398	890	-4,572	0	0				
					3	30/09/2033	327.2	35,858	4,441	513	-5,978	0	0				
					3	31/10/2033	327.2	35,814	4,441	603	-8,199	0	0				
					3	30/11/2033	327.1	35,676	5,041	616	-8,646	0	0				
					3	31/12/2033	327.0	35,546	5,466	640	-7,018	0	0				
					3	31/01/2034	327.0	35,506	5,054	876	-6,582	0	0				
					3	28/02/2034	326.9	35,478	5,687	1,028	-8,393	0	0				
					3	31/03/2034	326.9	35,404	5,732	944	-7,150	0	0				
					3	30/04/2034	326.9	35,383	5,990	810	-5,631	0	0				
					3	31/05/2034	326.9	35,435	5,638	1,046	-3,743	0	0				
					3	30/06/2034	327.0	35,564	5,409	1,079	-2,908	0	0				
					3	31/07/2034	327.1	35,720	4,897	895	-3,320	0	0				
					3	31/08/2034	327.2	35,828	4,394	890	-4,572	0	0				
					3	30/09/2034	327.2	35,859	4,438	513	-5,978	0	0				
					3	31/10/2034	327.2	35,814	4,438	603	-8,199	0	0				
					3	30/11/2034	327.1	35,677	5,039	616	-8,646	0	0				
					3	31/12/2034	327.0	35,547	5,464	640	-7,019	0	0				
					3	31/01/2035	327.0	35,507	5,052	876	-6,582	0	0				
					3	28/02/2035	326.9	35,478	5,686	1,028	-8,393	0	0				
					3	31/03/2035	326.9	35,404	5,731	944	-7,150	0	0				
					3	30/04/2035	326.9	35,384	5,989	810	-5,631	0	0				
					3	31/05/2035	326.9	35,435	5,637	1,046	-3,743	0	0				
					3	30/06/2035	327.0	35,564	5,408	1,079	-2,908	0	0				
					3	31/07/2035	327.1	35,720	4,896	895	-3,320	0	0				
					3	31/08/2035	327.2	35,828	4,394	890	-4,572	0	0				
					3	30/09/2035	327.2	35,859	4,438	513	-5,978	0	0				
					3	31/10/2035	327.2	35,814	4,438	603	-8,199	0	0				
					3	30/11/2035	327.1	35,677	5,038	616	-8,646	0	0				
					3	31/12/2035	327.0	35,547	5,464	640	-7,019	0	0				
					3	31/01/2036	327.0	35,507	5,232	876	-6,582	0	0				
					3	29/02/2036	326.9	35,486	5,660	1,028	-8,395	0	0				
					3	31/03/2036	326.9	35,411	5,710	944	-7,151	0	0				
					3	30/04/2036	326.9	35,389	5,970	810	-5,632	0	0				
					3	31/05/2036	326.9	35,440	5,621	1,046	-3,744	0	0				

Stage, m	AREA, IN m	Volume, m^3	Lateral Area, m^2		row	DATE	STAGE, IN	AREA, IN m SQUARED	GW, m^3	precip,m^3	PET, m^3	Extraction, m^3	Catchment Run-off, m^3		Month	precip,m	PET, m
					3	30/06/2036	327.0	35,568	5,394	1,079	-2,908	0	0				
					3	31/07/2036	327.1	35,724	4,884	895	-3,320	0	0				
					3	31/08/2036	327.2	35,831	4,384	890	-4,573	0	0				
					3	30/09/2036	327.2	35,862	4,429	513	-5,979	0	0				
					3	31/10/2036	327.2	35,817	4,431	603	-8,200	0	0				
					3	30/11/2036	327.1	35,679	5,032	616	-8,647	0	0				
					3	31/12/2036	327.0	35,548	5,459	640	-7,019	0	0				
					3	31/01/2037	327.0	35,508	5,048	876	-6,582	0	0				
					3	28/02/2037	326.9	35,479	5,682	1,028	-8,394	0	0				
					3	31/03/2037	326.9	35,405	5,728	944	-7,150	0	0				
					3	30/04/2037	326.9	35,384	5,986	810	-5,631	0	0				
					3	31/05/2037	326.9	35,436	5,634	1,046	-3,744	0	0				
					3	30/06/2037	327.0	35,565	5,406	1,079	-2,908	0	0				
					3	31/07/2037	327.1	35,721	4,894	895	-3,320	0	0				
					3	31/08/2037	327.2	35,829	4,392	890	-4,572	0	0				
					3	30/09/2037	327.2	35,859	4,436	513	-5,979	0	0				
					3	31/10/2037	327.2	35,815	4,437	603	-8,199	0	0				
					3	30/11/2037	327.1	35,678	5,037	616	-8,646	0	0				
					3	31/12/2037	327.0	35,547	5,463	640	-7,019	0	0				
					3	31/01/2038	327.0	35,507	5,051	876	-6,582	0	0				
					3	28/02/2038	326.9	35,478	5,685	1,028	-8,393	0	0				
					3	31/03/2038	326.9	35,405	5,731	944	-7,150	0	0				
					3	30/04/2038	326.9	35,384	5,988	810	-5,631	0	0				
					3	31/05/2038	326.9	35,435	5,636	1,046	-3,743	0	0				
					3	30/06/2038	327.0	35,564	5,408	1,079	-2,908	0	0				
					3	31/07/2038	327.1	35,721	4,896	895	-3,320	0	0				
					3	31/08/2038	327.2	35,828	4,394	890	-4,572	0	0				
					3	30/09/2038	327.2	35,859	4,437	513	-5,978	0	0				
					3	31/10/2038	327.2	35,814	4,438	603	-8,199	0	0				
					3	30/11/2038	327.1	35,677	5,038	616	-8,646	0	0				
					3	31/12/2038	327.0	35,547	5,464	640	-7,019	0	0				
					3	31/01/2039	327.0	35,507	5,052	876	-6,582	0	0				
					3	28/02/2039	326.9	35,478	5,686	1,028	-8,393	0	0				
					3	31/03/2039	326.9	35,404	5,731	944	-7,150	0	0				
					3	30/04/2039	326.9	35,384	5,989	810	-5,631	0	0				
					3	31/05/2039	326.9	35,435	5,637	1,046	-3,743	0	0				
					3	30/06/2039	327.0	35,564	5,408	1,079	-2,908	0	0				
					3	31/07/2039	327.1	35,721	4,896	895	-3,320	0	0				
					3	31/08/2039	327.2	35,828	4,394	890	-4,572	0	0				
					3	30/09/2039	327.2	35,859	4,437	513	-5,978	0	0				
					3	31/10/2039	327.2	35,814	4,438	603	-8,199	0	0				
					3	30/11/2039	327.1	35,677	5,038	616	-8,646	0	0				
					3	31/12/2039	327.0	35,547	5,464	640	-7,019	0	0				
					3	31/01/2040	327.0	35,507	5,232	876	-6,582	0	0				
					3	29/02/2040	326.9	35,486	5,660	1,028	-8,395	0	0				
					3	31/03/2040	326.9	35,411	5,710	944	-7,151	0	0				
					3	30/04/2040	326.9	35,389	5,970	810	-5,632	0	0				
					3	31/05/2040	326.9	35,440	5,621	1,046	-3,744	0	0				
					3	30/06/2040	327.0	35,568	5,394	1,079	-2,908	0	0				
					3	31/07/2040	327.1	35,724	4,884	895	-3,320	0	0				
					3	31/08/2040	327.2	35,831	4,384	890	-4,573	0	0				
					3	30/09/2040	327.2	35,862	4,429	513	-5,979	0	0				
					3	31/10/2040	327.2	35,817	4,431	603	-8,200	0	0				
					3	30/11/2040	327.1	35,679	5,032	616	-8,647	0	0				
					3	31/12/2040	327.0	35,548	5,458	640	-7,019	0	0				
					3	31/01/2041	327.0	35,508	5,048	876	-6,582	0	0				
					3	28/02/2041	326.9	35,479	5,682	1,028	-8,394	0	0				
					3	31/03/2041	326.9	35,405	5,728	944	-7,150	0	0				
					3	30/04/2041	326.9	35,384	5,986	810	-5,631	0	0				
					3	31/05/2041	326.9	35,436	5,634	1,046	-3,744	0	0				
					3	30/06/2041	327.0	35,565	5,406	1,079	-2,908	0	0				

Stage, m	AREA, IN m	Volume, m^3	Lateral Area, m^2		row	DATE	STAGE, IN	AREA, IN m SQUARED	GW, m^3	precip,m^3	PET, m^3	Extraction, m^3	Catchment Run-off, m^3		Month	precip,m	PET, m
					3	31/07/2041	327.1	35,721	4,894	895	-3,320	0	0				
					3	31/08/2041	327.2	35,829	4,392	890	-4,572	0	0				
					3	30/09/2041	327.2	35,859	4,436	513	-5,979	0	0				
					3	31/10/2041	327.2	35,815	4,437	603	-8,199	0	0				
					3	30/11/2041	327.1	35,678	5,037	616	-8,646	0	0				
					3	31/12/2041	327.0	35,547	5,463	640	-7,019	0	0				
					3	31/01/2042	327.0	35,507	5,051	876	-6,582	0	0				
					3	28/02/2042	326.9	35,478	5,685	1,028	-8,393	0	0				
					3	31/03/2042	326.9	35,405	5,731	944	-7,150	0	0				
					3	30/04/2042	326.9	35,384	5,988	810	-5,631	0	0				
					3	31/05/2042	326.9	35,435	5,636	1,046	-3,743	0	0				
					3	30/06/2042	327.0	35,564	5,408	1,079	-2,908	0	0				
					3	31/07/2042	327.1	35,721	4,896	895	-3,320	0	0				
					3	31/08/2042	327.2	35,828	4,394	890	-4,572	0	0				
					3	30/09/2042	327.2	35,859	4,437	513	-5,978	0	0				
					3	31/10/2042	327.2	35,814	4,438	603	-8,199	0	0				
					3	30/11/2042	327.1	35,677	5,038	616	-8,646	0	0				
					3	31/12/2042	327.0	35,547	5,464	640	-7,019	0	0				
					3	31/01/2043	327.0	35,507	5,052	876	-6,582	0	0				
					3	28/02/2043	326.9	35,478	5,686	1,028	-8,393	0	0				
					3	31/03/2043	326.9	35,404	5,731	944	-7,150	0	0				
					3	30/04/2043	326.9	35,384	5,989	810	-5,631	0	0				
					3	31/05/2043	326.9	35,435	5,637	1,046	-3,743	0	0				
					3	30/06/2043	327.0	35,564	5,408	1,079	-2,908	0	0				
					3	31/07/2043	327.1	35,721	4,896	895	-3,320	0	0				
					3	31/08/2043	327.2	35,828	4,394	890	-4,572	0	0				
					3	30/09/2043	327.2	35,859	4,437	513	-5,978	0	0				
					3	31/10/2043	327.2	35,814	4,438	603	-8,199	0	0				
					3	30/11/2043	327.1	35,677	5,038	616	-8,646	0	0				
					3	31/12/2043	327.0	35,547	5,464	640	-7,019	0	0				
					3	31/01/2044	327.0	35,507	5,232	876	-6,582	0	0				
					3	29/02/2044	326.9	35,486	5,660	1,028	-8,395	0	0				
					3	31/03/2044	326.9	35,411	5,710	944	-7,151	0	0				
					3	30/04/2044	326.9	35,389	5,970	810	-5,632	0	0				
					3	31/05/2044	326.9	35,440	5,621	1,046	-3,744	0	0				
					3	30/06/2044	327.0	35,568	5,394	1,079	-2,908	0	0				
					3	31/07/2044	327.1	35,724	4,884	895	-3,320	0	0				
					3	31/08/2044	327.2	35,831	4,384	890	-4,573	0	0				
					3	30/09/2044	327.2	35,862	4,429	513	-5,979	0	0				
					3	31/10/2044	327.2	35,817	4,431	603	-8,200	0	0				
					3	30/11/2044	327.1	35,679	5,032	616	-8,647	0	0				
					3	31/12/2044	327.0	35,548	5,458	640	-7,019	0	0				
					3	31/01/2045	327.0	35,508	5,048	876	-6,582	0	0				
					3	28/02/2045	326.9	35,479	5,682	1,028	-8,394	0	0				
					3	31/03/2045	326.9	35,405	5,728	944	-7,150	0	0				
					3	30/04/2045	326.9	35,384	5,986	810	-5,631	0	0				
					3	31/05/2045	326.9	35,436	5,634	1,046	-3,744	0	0				
					3	30/06/2045	327.0	35,565	5,406	1,079	-2,908	0	0				
					3	31/07/2045	327.1	35,721	4,894	895	-3,320	0	0				
					3	31/08/2045	327.2	35,829	4,392	890	-4,572	0	0				
					3	30/09/2045	327.2	35,859	4,436	513	-5,979	0	0				
					3	31/10/2045	327.2	35,815	4,437	603	-8,199	0	0				
					3	30/11/2045	327.1	35,678	5,037	616	-8,646	0	0				
					3	31/12/2045	327.0	35,547	5,463	640	-7,019	0	0				
					3	31/01/2046	327.0	35,507	5,051	876	-6,582	0	0				
					3	28/02/2046	326.9	35,478	5,685	1,028	-8,393	0	0				
					3	31/03/2046	326.9	35,405	5,731	944	-7,150	0	0				
					3	30/04/2046	326.9	35,384	5,988	810	-5,631	0	0				
					3	31/05/2046	326.9	35,435	5,636	1,046	-3,743	0	0				
					3	30/06/2046	327.0	35,564	5,408	1,079	-2,908	0	0				
					3	31/07/2046	327.1	35,721	4,896	895	-3,320	0	0				

Stage, m	AREA, IN m	Volume, m^3	Lateral Area, m^2		row	DATE	STAGE, IN	AREA, IN m SQUARED	GW, m^3	precip,m^3	PET, m^3	Extraction, m^3	Catchment Run-off, m^3		Month	precip,m	PET, m
					3	31/08/2046	327.2	35,828	4,394	890	-4,572	0	0				
					3	30/09/2046	327.2	35,859	4,437	513	-5,978	0	0				
					3	31/10/2046	327.2	35,814	4,438	603	-8,199	0	0				
					3	30/11/2046	327.1	35,677	5,038	616	-8,646	0	0				
					3	31/12/2046	327.0	35,547	5,464	640	-7,019	0	0				
					3	31/01/2047	327.0	35,507	5,052	876	-6,582	0	0				
					3	28/02/2047	326.9	35,478	5,686	1,028	-8,393	0	0				
					3	31/03/2047	326.9	35,404	5,731	944	-7,150	0	0				
					3	30/04/2047	326.9	35,384	5,989	810	-5,631	0	0				
					3	31/05/2047	326.9	35,435	5,637	1,046	-3,743	0	0				
					3	30/06/2047	327.0	35,564	5,408	1,079	-2,908	0	0				
					3	31/07/2047	327.1	35,721	4,896	895	-3,320	0	0				
					3	31/08/2047	327.2	35,828	4,394	890	-4,572	0	0				
					3	30/09/2047	327.2	35,859	4,437	513	-5,978	0	0				
					3	31/10/2047	327.2	35,814	4,438	603	-8,199	0	0				
					3	30/11/2047	327.1	35,677	5,038	616	-8,646	0	0				
					3	31/12/2047	327.0	35,547	5,464	640	-7,019	0	0				
					3	31/01/2048	327.0	35,507	5,232	876	-6,582	0	0				
					3	29/02/2048	326.9	35,486	5,660	1,028	-8,395	0	0				
					3	31/03/2048	326.9	35,411	5,710	944	-7,151	0	0				
					3	30/04/2048	326.9	35,389	5,970	810	-5,632	0	0				
					3	31/05/2048	326.9	35,440	5,621	1,046	-3,744	0	0				
					3	30/06/2048	327.0	35,568	5,394	1,079	-2,908	0	0				
					3	31/07/2048	327.1	35,724	4,884	895	-3,320	0	0				
					3	31/08/2048	327.2	35,831	4,384	890	-4,573	0	0				
					3	30/09/2048	327.2	35,862	4,429	513	-5,979	0	0				
					3	31/10/2048	327.2	35,817	4,431	603	-8,200	0	0				
					3	30/11/2048	327.1	35,679	5,032	616	-8,647	0	0				
					3	31/12/2048	327.0	35,548	5,458	640	-7,019	0	0				
					3	31/01/2049	327.0	35,508	5,048	876	-6,582	0	0				
					3	28/02/2049	326.9	35,479	5,682	1,028	-8,394	0	0				
					3	31/03/2049	326.9	35,405	5,728	944	-7,150	0	0				
					3	30/04/2049	326.9	35,384	5,986	810	-5,631	0	0				
					3	31/05/2049	326.9	35,436	5,634	1,046	-3,744	0	0				
					3	30/06/2049	327.0	35,565	5,406	1,079	-2,908	0	0				
					3	31/07/2049	327.1	35,721	4,894	895	-3,320	0	0				
					3	31/08/2049	327.2	35,829	4,392	890	-4,572	0	0				
					3	30/09/2049	327.2	35,859	4,436	513	-5,979	0	0				
					3	31/10/2049	327.2	35,815	4,437	603	-8,199	0	0				
					3	30/11/2049	327.1	35,678	5,037	616	-8,646	0	0				
					3	31/12/2049	327.0	35,547	5,463	640	-7,019	0	0				
					3	31/01/2050	327.0	35,507	5,051	876	-6,582	0	0				
					3	28/02/2050	326.9	35,478	5,685	1,028	-8,393	0	0				
					3	31/03/2050	326.9	35,405	5,731	944	-7,150	0	0				
					3	30/04/2050	326.9	35,384	5,988	810	-5,631	0	0				
					3	31/05/2050	326.9	35,435	5,636	1,046	-3,743	0	0				
					3	30/06/2050	327.0	35,564	5,408	1,079	-2,908	0	0				
					3	31/07/2050	327.1	35,721	4,896	895	-3,320	0	0				
					3	31/08/2050	327.2	35,828	4,394	890	-4,572	0	0				
					3	30/09/2050	327.2	35,859	4,437	513	-5,978	0	0				
					3	31/10/2050	327.2	35,814	4,438	603	-8,199	0	0				
					3	30/11/2050	327.1	35,677	5,038	616	-8,646	0	0				
					3	31/12/2050	327.0	35,547	-9,720,454	640	-7,019	0	0				

	ALTITUDE, IN M							VOLUMETRIC CHANGE, IN MILLONS OF CUBIC M per MONTH								0.27	-2.03
Stage, m	, IN m SQU	Volume, m^3	Lateral Area, m^2		row	DATE	TAGE, IN r	AREA, IN m SQUARED	GW, m^3	precip,m^3	PET, m^3	Extraction, m^3	Pumped water (BakersFlat), m^3		Month	precip,m	PET, m
200	0	0	0		3	31/01/2006	225.0	189	2,024	206	-35	0	0		1	0.02	-0.19
210	0	0	0		4	28/02/2006	236.6	1,326	10,241	270	-314	0	0		2	0.03	-0.24
220	0	0	0		5	31/03/2006	244.3	2,552	17,482	277	-515	0	0		3	0.03	-0.20
230	377	2,315	487		6	30/04/2006	251.1	3,728	25,208	260	-593	0	0		4	0.02	-0.16
240	1,806	13,223	1,658		6	31/05/2006	257.8	4,957	31,407	367	-524	0	0		5	0.03	-0.11
250	3,528	40,691	3,489		7	30/06/2006	264.1	6,644	38,779	421	-543	0	0		6	0.03	-0.08
260	5,370	86,311	5,854		7	31/07/2006	269.9	8,469	43,382	387	-787	0	0		7	0.02	-0.09
270	8,506	154,251	8,806		8	31/08/2006	275.0	10,126	45,690	419	-1,292	0	0		8	0.02	-0.13
280	11,774	256,955	12,376		8	30/09/2006	279.4	11,572	49,161	259	-1,929	0	0		9	0.01	-0.17
290	15,442	391,818	16,511		9	31/10/2006	283.5	13,053	48,873	326	-2,988	0	0		10	0.02	-0.23
300	20,421	579,533	21,258		9	30/11/2006	287.0	14,351	50,718	354	-3,478	0	0		11	0.02	-0.24
310	26,384	824,584	26,681		10	31/12/2006	290.3	15,613	50,092	388	-3,083	0	0		12	0.02	-0.20
320	35,749	1,152,920	32,929		10	31/01/2007	293.4	17,124	44,441	563	-3,174	0	0				
330	47,433	1,554,984	40,159		10	28/02/2007	295.8	18,341	47,884	692	-4,339	0	0				
340	58,940	2,028,105	48,334		10	31/03/2007	298.2	19,542	44,569	664	-3,946	0	0				
350	76,166	2,830,808	57,548		11	30/04/2007	300.3	20,628	44,069	590	-3,283	0	0				
360	86,412	3,253,750	67,655		11	31/05/2007	302.4	21,824	40,660	792	-2,306	0	0				
					11	30/06/2007	304.1	22,893	39,828	842	-1,872	0	0				
					11	31/07/2007	305.8	23,904	37,457	718	-2,222	0	0				
					11	31/08/2007	307.3	24,801	33,972	731	-3,165	0	0				
					11	30/09/2007	308.6	25,559	32,935	430	-4,261	0	0				
					11	31/10/2007	309.8	26,238	29,855	516	-6,007	0	0				
					12	30/11/2007	310.7	27,024	29,112	541	-6,549	0	0				
					12	31/12/2007	311.5	27,825	27,443	576	-5,494	0	0				
					12	31/01/2008	312.3	28,583	24,119	804	-5,299	0	0				
					12	29/02/2008	313.0	29,226	24,314	961	-6,914	0	0				
					12	31/03/2008	313.7	29,814	22,181	897	-6,021	0	0				
					12	30/04/2008	314.2	30,350	21,611	780	-4,830	0	0				
					12	31/05/2008	314.8	30,892	19,594	1,020	-3,264	0	0				
					12	30/06/2008	315.4	31,418	18,885	1,063	-2,569	0	0				
					12	31/07/2008	315.9	31,936	17,508	890	-2,968	0	0				
					12	31/08/2008	316.4	32,388	15,750	892	-4,133	0	0				
					12	30/09/2008	316.8	32,750	15,269	518	-5,460	0	0				
					12	31/10/2008	317.1	33,045	13,969	614	-7,565	0	0				
					12	30/11/2008	317.3	33,244	13,867	632	-8,057	0	0				
					12	31/12/2008	317.5	33,426	13,343	662	-6,600	0	0				
					12	31/01/2009	317.7	33,633	11,507	911	-6,235	0	0				
					12	28/02/2009	317.9	33,805	12,234	1,074	-7,998	0	0				
					12	31/03/2009	318.1	33,952	11,418	992	-6,857	0	0				
					12	30/04/2009	318.2	34,105	11,343	854	-5,427	0	0				
					12	31/05/2009	318.4	34,291	10,437	1,106	-3,623	0	0				
					12	30/06/2009	318.7	34,508	10,130	1,143	-2,822	0	0				
					12	31/07/2009	318.9	34,737	9,429	950	-3,229	0	0				
					12	31/08/2009	319.1	34,930	8,549	946	-4,458	0	0				
					12	30/09/2009	319.3	35,065	8,414	547	-5,846	0	0				
					12	31/10/2009	319.4	35,148	7,891	644	-8,047	0	0				
					12	30/11/2009	319.4	35,161	8,113	661	-8,521	0	0				
					12	31/12/2009	319.4	35,168	8,092	689	-6,944	0	0				
					12	31/01/2010	319.4	35,217	7,171	944	-6,528	0	0				
					12	28/02/2010	319.5	35,259	7,806	1,110	-8,341	0	0				
					12	31/03/2010	319.5	35,274	7,508	1,022	-7,124	0	0				
					12	30/04/2010	319.5	35,311	7,641	877	-5,619	0	0				
					12	31/05/2010	319.6	35,388	7,160	1,134	-3,739	0	0				
					12	30/06/2010	319.7	35,509	7,016	1,169	-2,904	0	0				
					12	31/07/2010	319.9	35,648	6,572	969	-3,313	0	0				
					13	31/08/2010	320.0	35,762	6,016	964	-4,564	0	0				
					13	30/09/2010	320.1	35,841	6,014	556	-5,975	0	0				
					13	31/10/2010	320.1	35,860	5,772	655	-8,210	0	0				
					13	30/11/2010	320.0	35,802	6,113	670	-8,677	0	0				
					12	31/12/2010	320.0	35,742	6,272	698	-7,057	0	0				

Stage, m	, IN m SQU	Volume, m³	Lateral Area, m²		row	DATE	TAGE, IN r	AREA, IN m SQUARED	GW, m³	precip,m³	PET, m³	Extraction, m³	Pumped water (BakersFlat), m³		Month	precip,m	PET, m
					12	31/01/2011	320.0	35,740	5,671	955	-6,625	0	0				
					12	28/02/2011	320.0	35,740	6,279	1,122	-8,455	0	0				
					12	31/03/2011	320.0	35,712	6,162	1,032	-7,212	0	0				
					12	30/04/2011	320.0	35,712	6,369	885	-5,683	0	0				
					13	31/05/2011	320.0	35,754	6,036	1,143	-3,777	0	0				
					13	30/06/2011	320.1	35,865	5,952	1,178	-2,933	0	0				
					13	31/07/2011	320.2	36,002	5,600	977	-3,346	0	0				
					13	31/08/2011	320.3	36,107	5,157	971	-4,608	0	0				
					13	30/09/2011	320.3	36,156	5,201	560	-6,028	0	0				
					13	31/10/2011	320.3	36,147	5,055	659	-8,275	0	0				
					13	30/11/2011	320.3	36,064	5,438	674	-8,740	0	0				
					13	31/12/2011	320.2	35,979	5,658	701	-7,104	0	0				
					13	31/01/2012	320.2	35,955	5,351	959	-6,665	0	0				
					13	29/02/2012	320.2	35,943	5,750	1,127	-8,503	0	0				
					13	31/03/2012	320.1	35,891	5,696	1,036	-7,248	0	0				
					13	30/04/2012	320.1	35,874	5,929	888	-5,709	0	0				
					13	31/05/2012	320.1	35,910	5,648	1,147	-3,794	0	0				
					13	30/06/2012	320.2	36,008	5,585	1,182	-2,944	0	0				
					13	31/07/2012	320.3	36,132	5,264	980	-3,358	0	0				
					13	31/08/2012	320.4	36,225	4,859	973	-4,623	0	0				
					13	30/09/2012	320.4	36,264	4,919	561	-6,046	0	0				
					13	31/10/2012	320.4	36,246	4,807	660	-8,298	0	0				
					13	30/11/2012	320.3	36,154	5,204	675	-8,762	0	0				
					13	31/12/2012	320.3	36,061	5,446	703	-7,120	0	0				
					13	31/01/2013	320.2	36,030	4,992	961	-6,679	0	0				
					13	28/02/2013	320.2	36,006	5,588	1,129	-8,518	0	0				
					13	31/03/2013	320.2	35,948	5,554	1,037	-7,260	0	0				
					13	30/04/2013	320.2	35,926	5,795	889	-5,717	0	0				
					13	31/05/2013	320.2	35,957	5,530	1,148	-3,799	0	0				
					13	30/06/2013	320.3	36,051	5,472	1,183	-2,948	0	0				
					13	31/07/2013	320.4	36,171	5,161	980	-3,362	0	0				
					13	31/08/2013	320.4	36,261	4,768	974	-4,628	0	0				
					13	30/09/2013	320.5	36,297	4,833	562	-6,051	0	0				
					13	31/10/2013	320.5	36,276	4,731	661	-8,305	0	0				
					13	30/11/2013	320.4	36,182	5,133	676	-8,769	0	0				
					13	31/12/2013	320.3	36,086	5,381	703	-7,125	0	0				
					13	31/01/2014	320.3	36,053	4,939	961	-6,683	0	0				
					13	28/02/2014	320.2	36,027	5,534	1,129	-8,523	0	0				
					13	31/03/2014	320.2	35,967	5,506	1,038	-7,264	0	0				
					13	30/04/2014	320.2	35,944	5,750	889	-5,720	0	0				
					13	31/05/2014	320.2	35,973	5,490	1,148	-3,800	0	0				
					13	30/06/2014	320.3	36,066	5,435	1,184	-2,949	0	0				
					13	31/07/2014	320.4	36,184	5,126	981	-3,363	0	0				
					13	31/08/2014	320.4	36,273	4,737	974	-4,629	0	0				
					13	30/09/2014	320.5	36,308	4,804	562	-6,053	0	0				
					13	31/10/2014	320.5	36,286	4,705	661	-8,307	0	0				
					13	30/11/2014	320.4	36,191	5,109	676	-8,771	0	0				
					13	31/12/2014	320.3	36,095	5,359	703	-7,127	0	0				
					13	31/01/2015	320.3	36,060	4,921	962	-6,685	0	0				
					13	28/02/2015	320.2	36,034	5,516	1,129	-8,525	0	0				
					13	31/03/2015	320.2	35,973	5,490	1,038	-7,265	0	0				
					13	30/04/2015	320.2	35,949	5,735	890	-5,721	0	0				
					13	31/05/2015	320.2	35,979	5,477	1,149	-3,801	0	0				
					13	30/06/2015	320.3	36,070	5,422	1,184	-2,950	0	0				
					13	31/07/2015	320.4	36,189	5,115	981	-3,364	0	0				
					13	31/08/2015	320.5	36,277	4,727	974	-4,630	0	0				
					13	30/09/2015	320.5	36,312	4,795	562	-6,054	0	0				
					13	31/10/2015	320.5	36,289	4,697	661	-8,308	0	0				
					13	30/11/2015	320.4	36,194	5,101	676	-8,772	0	0				
					13	31/12/2015	320.3	36,098	5,352	703	-7,127	0	0				
					13	31/01/2016	320.3	36,063	5,091	962	-6,685	0	0				

Stage, m	, IN m SQU	Volume, m³	Lateral Area, m²		row	DATE	TAGE, IN r	AREA, IN m SQUARED	GW, m³	precip,m³	PET, m³	Extraction, m³	Pumped water (BakersFlat), m³		Month	precip,m	PET, m
					13	29/02/2016	320.3	36,042	5,495	1,130	-8,527	0	0				
					13	31/03/2016	320.2	35,981	5,472	1,038	-7,266	0	0				
					13	30/04/2016	320.2	35,956	5,718	890	-5,722	0	0				
					13	31/05/2016	320.2	35,985	5,461	1,149	-3,802	0	0				
					13	30/06/2016	320.3	36,076	5,408	1,184	-2,950	0	0				
					13	31/07/2016	320.4	36,194	5,101	981	-3,364	0	0				
					13	31/08/2016	320.5	36,282	4,716	975	-4,630	0	0				
					13	30/09/2016	320.5	36,316	4,784	562	-6,055	0	0				
					13	31/10/2016	320.5	36,293	4,687	661	-8,309	0	0				
					13	30/11/2016	320.4	36,198	5,092	676	-8,772	0	0				
					13	31/12/2016	320.3	36,101	5,344	703	-7,128	0	0				
					13	31/01/2017	320.3	36,066	4,908	962	-6,686	0	0				
					13	28/02/2017	320.2	36,039	5,503	1,130	-8,526	0	0				
					13	31/03/2017	320.2	35,978	5,479	1,038	-7,266	0	0				
					13	30/04/2017	320.2	35,954	5,724	890	-5,722	0	0				
					13	31/05/2017	320.2	35,983	5,467	1,149	-3,801	0	0				
					13	30/06/2017	320.3	36,074	5,413	1,184	-2,950	0	0				
					13	31/07/2017	320.4	36,192	5,106	981	-3,364	0	0				
					13	31/08/2017	320.5	36,280	4,720	975	-4,630	0	0				
					13	30/09/2017	320.5	36,314	4,788	562	-6,054	0	0				
					13	31/10/2017	320.5	36,292	4,691	661	-8,308	0	0				
					13	30/11/2017	320.4	36,196	5,095	676	-8,772	0	0				
					13	31/12/2017	320.3	36,100	5,347	703	-7,128	0	0				
					13	31/01/2018	320.3	36,065	4,911	962	-6,685	0	0				
					13	28/02/2018	320.2	36,038	5,505	1,130	-8,526	0	0				
					13	31/03/2018	320.2	35,977	5,481	1,038	-7,266	0	0				
					13	30/04/2018	320.2	35,953	5,726	890	-5,721	0	0				
					13	31/05/2018	320.2	35,982	5,469	1,149	-3,801	0	0				
					13	30/06/2018	320.3	36,073	5,415	1,184	-2,950	0	0				
					13	31/07/2018	320.4	36,191	5,108	981	-3,364	0	0				
					13	31/08/2018	320.5	36,279	4,721	975	-4,630	0	0				
					13	30/09/2018	320.5	36,314	4,789	562	-6,054	0	0				
					13	31/10/2018	320.5	36,291	4,692	661	-8,308	0	0				
					13	30/11/2018	320.4	36,196	5,096	676	-8,772	0	0				
					13	31/12/2018	320.3	36,099	5,348	703	-7,128	0	0				
					13	31/01/2019	320.3	36,064	4,912	962	-6,685	0	0				
					13	28/02/2019	320.2	36,038	5,506	1,130	-8,526	0	0				
					13	31/03/2019	320.2	35,977	5,482	1,038	-7,266	0	0				
					13	30/04/2019	320.2	35,952	5,727	890	-5,721	0	0				
					13	31/05/2019	320.2	35,982	5,470	1,149	-3,801	0	0				
					13	30/06/2019	320.3	36,073	5,415	1,184	-2,950	0	0				
					13	31/07/2019	320.4	36,191	5,109	981	-3,364	0	0				
					13	31/08/2019	320.5	36,279	4,722	975	-4,630	0	0				
					13	30/09/2019	320.5	36,314	4,790	562	-6,054	0	0				
					13	31/10/2019	320.5	36,291	4,692	661	-8,308	0	0				
					13	30/11/2019	320.4	36,196	5,097	676	-8,772	0	0				
					13	31/12/2019	320.3	36,099	5,348	703	-7,128	0	0				
					13	31/01/2020	320.3	36,064	5,087	962	-6,685	0	0				
					13	29/02/2020	320.3	36,044	5,492	1,130	-8,527	0	0				
					13	31/03/2020	320.2	35,982	5,469	1,038	-7,267	0	0				
					13	30/04/2020	320.2	35,957	5,715	890	-5,722	0	0				
					13	31/05/2020	320.2	35,986	5,459	1,149	-3,802	0	0				
					13	30/06/2020	320.3	36,077	5,405	1,184	-2,950	0	0				
					13	31/07/2020	320.4	36,195	5,099	981	-3,364	0	0				
					13	31/08/2020	320.5	36,282	4,714	975	-4,630	0	0				
					13	30/09/2020	320.5	36,316	4,782	562	-6,055	0	0				
					13	31/10/2020	320.5	36,294	4,685	661	-8,309	0	0				
					13	30/11/2020	320.4	36,198	5,090	676	-8,773	0	0				
					13	31/12/2020	320.3	36,101	5,342	703	-7,128	0	0				
					13	31/01/2021	320.3	36,066	4,907	962	-6,686	0	0				
					13	28/02/2021	320.2	36,040	5,502	1,130	-8,526	0	0				

Stage, m	, IN m SQU	Volume, m³	Lateral Area, m²		row	DATE	TAGE, IN r	AREA, IN m SQUARED	GW, m³	precip,m³	PET, m³	Extraction, m³	Pumped water (BakersFlat), m³		Month	precip,m	PET, m
					13	31/03/2021	320.2	35,978	5,478	1,038	-7,266	0	0				
					13	30/04/2021	320.2	35,954	5,723	890	-5,722	0	0				
					13	31/05/2021	320.2	35,983	5,466	1,149	-3,801	0	0				
					13	30/06/2021	320.3	36,074	5,412	1,184	-2,950	0	0				
					13	31/07/2021	320.4	36,192	5,106	981	-3,364	0	0				
					13	31/08/2021	320.5	36,280	4,719	975	-4,630	0	0				
					13	30/09/2021	320.5	36,314	4,787	562	-6,054	0	0				
					13	31/10/2021	320.5	36,292	4,690	661	-8,308	0	0				
					13	30/11/2021	320.4	36,197	5,095	676	-8,772	0	0				
					13	31/12/2021	320.3	36,100	5,346	703	-7,128	0	0				
					13	31/01/2022	320.3	36,065	4,911	962	-6,686	0	0				
					13	28/02/2022	320.2	36,038	5,505	1,130	-8,526	0	0				
					13	31/03/2022	320.2	35,977	5,481	1,038	-7,266	0	0				
					13	30/04/2022	320.2	35,953	5,726	890	-5,721	0	0				
					13	31/05/2022	320.2	35,982	5,469	1,149	-3,801	0	0				
					13	30/06/2022	320.3	36,073	5,415	1,184	-2,950	0	0				
					13	31/07/2022	320.4	36,192	5,108	981	-3,364	0	0				
					13	31/08/2022	320.5	36,279	4,721	975	-4,630	0	0				
					13	30/09/2022	320.5	36,314	4,789	562	-6,054	0	0				
					13	31/10/2022	320.5	36,291	4,692	661	-8,308	0	0				
					13	30/11/2022	320.4	36,196	5,096	676	-8,772	0	0				
					13	31/12/2022	320.3	36,099	5,348	703	-7,128	0	0				
					13	31/01/2023	320.3	36,064	4,912	962	-6,685	0	0				
					13	28/02/2023	320.2	36,038	5,506	1,130	-8,526	0	0				
					13	31/03/2023	320.2	35,977	5,482	1,038	-7,266	0	0				
					13	30/04/2023	320.2	35,953	5,727	890	-5,721	0	0				
					13	31/05/2023	320.2	35,982	5,469	1,149	-3,801	0	0				
					13	30/06/2023	320.3	36,073	5,415	1,184	-2,950	0	0				
					13	31/07/2023	320.4	36,191	5,108	981	-3,364	0	0				
					13	31/08/2023	320.5	36,279	4,722	975	-4,630	0	0				
					13	30/09/2023	320.5	36,314	4,789	562	-6,054	0	0				
					13	31/10/2023	320.5	36,291	4,692	661	-8,308	0	0				
					13	30/11/2023	320.4	36,196	5,097	676	-8,772	0	0				
					13	31/12/2023	320.3	36,099	5,348	703	-7,128	0	0				
					13	31/01/2024	320.3	36,064	5,087	962	-6,685	0	0				
					13	29/02/2024	320.3	36,044	5,492	1,130	-8,527	0	0				
					13	31/03/2024	320.2	35,982	5,469	1,038	-7,267	0	0				
					13	30/04/2024	320.2	35,957	5,715	890	-5,722	0	0				
					13	31/05/2024	320.2	35,986	5,459	1,149	-3,802	0	0				
					13	30/06/2024	320.3	36,077	5,405	1,184	-2,950	0	0				
					13	31/07/2024	320.4	36,195	5,099	981	-3,364	0	0				
					13	31/08/2024	320.5	36,282	4,714	975	-4,630	0	0				
					13	30/09/2024	320.5	36,317	4,782	562	-6,055	0	0				
					13	31/10/2024	320.5	36,294	4,685	661	-8,309	0	0				
					13	30/11/2024	320.4	36,198	5,090	676	-8,773	0	0				
					13	31/12/2024	320.3	36,101	5,342	703	-7,128	0	0				
					13	31/01/2025	320.3	36,066	4,907	962	-6,686	0	0				
					13	28/02/2025	320.2	36,040	5,502	1,130	-8,526	0	0				
					13	31/03/2025	320.2	35,978	5,478	1,038	-7,266	0	0				
					13	30/04/2025	320.2	35,954	5,723	890	-5,722	0	0				
					13	31/05/2025	320.2	35,983	5,466	1,149	-3,801	0	0				
					13	30/06/2025	320.3	36,074	5,412	1,184	-2,950	0	0				
					13	31/07/2025	320.4	36,192	5,106	981	-3,364	0	0				
					13	31/08/2025	320.5	36,280	4,719	975	-4,630	0	0				
					13	30/09/2025	320.5	36,314	4,787	562	-6,054	0	0				
					13	31/10/2025	320.5	36,292	4,690	661	-8,308	0	0				
					13	30/11/2025	320.4	36,197	5,095	676	-8,772	0	0				
					13	31/12/2025	320.3	36,100	5,346	703	-7,128	0	0				
					13	31/01/2026	320.3	36,065	4,911	962	-6,686	0	0				
					13	28/02/2026	320.2	36,038	5,505	1,130	-8,526	0	0				
					13	31/03/2026	320.2	35,977	5,481	1,038	-7,266	0	0				

Stage, m	, IN m SQU	Volume, m³	Lateral Area, m²		row	DATE	TAGE, IN r	AREA, IN m SQUARED	GW, m³	precip,m³	PET, m³	Extraction, m³	Pumped water (BakersFlat), m³		Month	precip,m	PET, m
					13	30/04/2026	320.2	35,953	5,726	890	-5,721	0	0				
					13	31/05/2026	320.2	35,982	5,469	1,149	-3,801	0	0				
					13	30/06/2026	320.3	36,073	5,415	1,184	-2,950	0	0				
					13	31/07/2026	320.4	36,192	5,108	981	-3,364	0	0				
					13	31/08/2026	320.5	36,279	4,721	975	-4,630	0	0				
					13	30/09/2026	320.5	36,314	4,789	562	-6,054	0	0				
					13	31/10/2026	320.5	36,291	4,692	661	-8,308	0	0				
					13	30/11/2026	320.4	36,196	5,096	676	-8,772	0	0				
					13	31/12/2026	320.3	36,099	5,348	703	-7,128	0	0				
					13	31/01/2027	320.3	36,064	4,912	962	-6,685	0	0				
					13	28/02/2027	320.2	36,038	5,506	1,130	-8,526	0	0				
					13	31/03/2027	320.2	35,977	5,482	1,038	-7,266	0	0				
					13	30/04/2027	320.2	35,953	5,727	890	-5,721	0	0				
					13	31/05/2027	320.2	35,982	5,469	1,149	-3,801	0	0				
					13	30/06/2027	320.3	36,073	5,415	1,184	-2,950	0	0				
					13	31/07/2027	320.4	36,191	5,108	981	-3,364	0	0				
					13	31/08/2027	320.5	36,279	4,722	975	-4,630	0	0				
					13	30/09/2027	320.5	36,314	4,789	562	-6,054	0	0				
					13	31/10/2027	320.5	36,291	4,692	661	-8,308	0	0				
					13	30/11/2027	320.4	36,196	5,097	676	-8,772	0	0				
					13	31/12/2027	320.3	36,099	5,348	703	-7,128	0	0				
					13	31/01/2028	320.3	36,064	5,087	962	-6,685	0	0				
					13	29/02/2028	320.3	36,044	5,492	1,130	-8,527	0	0				
					13	31/03/2028	320.2	35,982	5,469	1,038	-7,267	0	0				
					13	30/04/2028	320.2	35,957	5,715	890	-5,722	0	0				
					13	31/05/2028	320.2	35,986	5,459	1,149	-3,802	0	0				
					13	30/06/2028	320.3	36,077	5,405	1,184	-2,950	0	0				
					13	31/07/2028	320.4	36,195	5,099	981	-3,364	0	0				
					13	31/08/2028	320.5	36,282	4,714	975	-4,630	0	0				
					13	30/09/2028	320.5	36,317	4,782	562	-6,055	0	0				
					13	31/10/2028	320.5	36,294	4,685	661	-8,309	0	0				
					13	30/11/2028	320.4	36,198	5,090	676	-8,773	0	0				
					13	31/12/2028	320.3	36,101	5,342	703	-7,128	0	0				
					13	31/01/2029	320.3	36,066	4,907	962	-6,686	-86,400	0	pit dewatering			
					12	28/02/2029	317.9	33,739	12,430	1,073	-7,982	-86,400	0				
					12	31/03/2029	315.5	31,494	18,083	936	-6,360	-86,400	0				
					12	30/04/2029	313.1	29,301	24,138	760	-4,663	-86,400	0				
					12	31/05/2029	310.9	27,186	27,852	927	-2,872	-86,400	0				
					11	30/06/2029	308.6	25,568	32,907	912	-2,091	-86,400	0				
					11	31/07/2029	306.5	24,293	36,464	726	-2,258	-86,400	0				
					11	31/08/2029	304.4	23,030	38,250	693	-2,939	-86,400	0				
					11	30/09/2029	302.2	21,725	42,201	383	-3,622	-86,400	0				
					11	31/10/2029	300.0	20,423	42,948	432	-4,675	-86,400	0				
					10	30/11/2029	297.7	19,260	46,531	426	-4,668	-86,400	0				
					10	31/12/2029	295.4	18,119	48,164	427	-3,578	-86,400	0				
					10	31/01/2030	293.1	16,982	44,549	560	-3,148	-86,400	0				
					10	28/02/2030	290.5	15,679	50,070	626	-3,709	-86,400	0				
					9	31/03/2030	288.0	14,695	48,979	553	-2,968	-86,400	0				
					9	30/04/2030	285.3	13,700	50,733	455	-2,180	-86,400	0				
					9	31/05/2030	282.5	12,699	48,651	562	-1,342	-86,400	0				
					8	30/06/2030	279.5	11,607	49,191	550	-949	-86,400	0				
					8	31/07/2030	276.2	10,548	47,919	432	-980	-86,400	0				
					8	31/08/2030	272.5	9,339	44,125	402	-1,192	-86,400	0				
					7	30/09/2030	267.9	7,859	42,055	214	-1,310	-86,400	0				
					7	31/10/2030	262.2	6,045	35,667	225	-1,384	-86,400	0				
					6	30/11/2030	253.6	4,186	28,140	203	-1,014	-86,400	0				
					4	31/12/2030	239.5	1,729	12,492	174	-341	-38,000	0				
					3	31/01/2031	224.6	174	1,873	206	-32	-2,046	0	collection of groundwater inflows!			
					3	28/02/2031	224.6	174	2,073	242	-41	-2,274	0				
					3	31/03/2031	224.6	174	2,006	223	-35	-2,194	0				
					3	30/04/2031	224.6	174	2,073	191	-28	-2,236	0				

Stage, m	, IN m SQU	Volume, m³	Lateral Area, m²		row	DATE	TAGE, IN r	AREA, IN m SQUARED	GW, m³	precip,m³	PET, m³	Extraction, m³	Pumped water (BakersFlat), m³		Month	precip,m	PET, m
					3	31/05/2031	224.6	174	2,006	246	-18	-2,234	0				
					3	30/06/2031	224.6	174	2,073	253	-14	-2,312	0				
					3	31/07/2031	224.6	174	2,073	209	-16	-2,266	0				
					3	31/08/2031	224.6	174	2,006	208	-22	-2,192	0				
					3	30/09/2031	224.6	174	2,073	120	-29	-2,164	0				
					3	31/10/2031	224.6	174	2,006	141	-40	-2,107	0				
					3	30/11/2031	224.6	174	2,073	144	-42	-2,175	0				
					3	31/12/2031	224.6	174	2,073	150	-34	-2,189	0				
					3	31/01/2032	224.6	174	1,939	206	-32	-2,113	0				
					3	29/02/2032	224.6	174	2,073	242	-41	-2,274	0				
					3	31/03/2032	224.6	174	2,006	223	-35	-2,194	0				
					3	30/04/2032	224.6	174	2,073	191	-28	-2,236	0				
					3	31/05/2032	224.6	174	2,006	246	-18	-2,234	0				
					3	30/06/2032	224.6	174	2,073	253	-14	-2,312	0				
					3	31/07/2032	224.6	174	2,073	209	-16	-2,266	0				
					3	31/08/2032	224.6	174	2,006	208	-22	-2,192	0				
					3	30/09/2032	224.6	174	2,073	120	-29	-2,164	0				
					3	31/10/2032	224.6	174	2,006	141	-40	-2,107	0				
					3	30/11/2032	224.6	174	2,073	144	-42	-2,175	0				
					3	31/12/2032	224.6	174	2,073	150	-34	-2,189	0				
					3	31/01/2033	224.6	174	1,873	206	-32	-2,046	0				
					3	28/02/2033	224.6	174	2,073	242	-41	-2,274	0				
					3	31/03/2033	224.6	174	2,006	223	-35	-2,194	0				
					3	30/04/2033	224.6	174	2,073	191	-28	-2,236	0				
					3	31/05/2033	224.6	174	2,006	246	-18	-2,234	0				
					3	30/06/2033	224.6	174	2,073	253	-14	-2,312	0				
					3	31/07/2033	224.6	174	2,073	209	-16	-2,266	0				
					3	31/08/2033	224.6	174	2,006	208	-22	-2,192	0				
					3	30/09/2033	224.6	174	2,073	120	-29	-2,164	0				
					3	31/10/2033	224.6	174	2,006	141	-40	-2,107	0				
					3	30/11/2033	224.6	174	2,073	144	-42	-2,175	0				
					3	31/12/2033	224.6	174	2,073	150	-34	-2,189	0				
					3	31/01/2034	224.6	174	1,873	206	-32	-2,046	0				
					3	28/02/2034	224.6	174	2,073	242	-41	-2,274	0				
					3	31/03/2034	224.6	174	2,006	223	-35	-2,194	0				
					3	30/04/2034	224.6	174	2,073	191	-28	-2,236	0				
					3	31/05/2034	224.6	174	2,006	246	-18	-2,234	0				
					3	30/06/2034	224.6	174	2,073	253	-14	-2,312	0				
					3	31/07/2034	224.6	174	2,073	209	-16	-2,266	0				
					3	31/08/2034	224.6	174	2,006	208	-22	-2,192	0				
					3	30/09/2034	224.6	174	2,073	120	-29	-2,164	0				
					3	31/10/2034	224.6	174	2,006	141	-40	-2,107	0				
					3	30/11/2034	224.6	174	2,073	144	-42	-2,175	0				
					3	31/12/2034	224.6	174	2,073	150	-34	-2,189	0				
					3	31/01/2035	224.6	174	1,873	206	-32	-2,046	0				
					3	28/02/2035	224.6	174	2,073	242	-41	-2,274	0				
					3	31/03/2035	224.6	174	2,006	223	-35	-2,194	0				
					3	30/04/2035	224.6	174	2,073	191	-28	-2,236	0				
					3	31/05/2035	224.6	174	2,006	246	-18	-2,234	0				
					3	30/06/2035	224.6	174	2,073	253	-14	-2,312	0				
					3	31/07/2035	224.6	174	2,073	209	-16	-2,266	0				
					3	31/08/2035	224.6	174	2,006	208	-22	-2,192	0				
					3	30/09/2035	224.6	174	2,073	120	-29	-2,164	0				
					3	31/10/2035	224.6	174	2,006	141	-40	-2,107	0				
					3	30/11/2035	224.6	174	2,073	144	-42	-2,175	0				
					3	31/12/2035	224.6	174	2,073	150	-34	-2,189	0				
					3	31/01/2036	224.6	174	1,939	206	-32	-2,113	0				
					3	29/02/2036	224.6	174	2,073	242	-41	-2,274	0				
					3	31/03/2036	224.6	174	2,006	223	-35	0	0				
					4	30/04/2036	237.2	1,410	10,727	215	-224	0	0				
					5	31/05/2036	244.8	2,638	18,016	308	-279	0	0				

Stage, m	, IN m SQU	Volume, m³	Lateral Area, m²		row	DATE	TAGE, IN r	AREA, IN m SQUARED	GW, m³	precip,m³	PET, m³	Extraction, m³	Pumped water (BakersFlat), m³		Month	precip,m	PET, m
					6	30/06/2036	251.7	3,836	25,921	348	-314	0	0				
					6	31/07/2036	258.4	5,082	33,079	315	-472	0	0				
					7	31/08/2036	264.9	6,911	38,295	351	-882	0	0				
					8	30/09/2036	270.4	8,630	43,802	223	-1,439	0	0				
					8	31/10/2036	275.3	10,243	45,890	286	-2,345	0	0				
					8	30/11/2036	279.6	11,641	49,220	314	-2,821	0	0				
					9	31/12/2036	283.6	13,097	50,525	349	-2,586	0	0				
					9	31/01/2037	287.3	14,449	45,789	507	-2,678	0	0				
					10	28/02/2037	290.3	15,597	50,097	624	-3,690	0	0				
					10	31/03/2037	293.3	17,098	47,637	608	-3,453	0	0				
					10	30/04/2037	295.9	18,403	47,802	547	-2,929	0	0				
					10	31/05/2037	298.4	19,632	44,415	737	-2,074	0	0				
					11	30/06/2037	300.6	20,784	43,824	788	-1,700	0	0				
					11	31/07/2037	302.7	22,015	41,648	677	-2,046	0	0				
					11	31/08/2037	304.5	23,106	38,083	695	-2,949	0	0				
					11	30/09/2037	306.1	24,031	37,138	412	-4,006	0	0				
					11	31/10/2037	307.4	24,863	33,805	496	-5,692	0	0				
					11	30/11/2037	308.6	25,549	32,963	519	-6,192	0	0				
					11	31/12/2037	309.7	26,186	31,013	551	-5,170	0	0				
					12	31/01/2038	310.7	27,017	26,307	771	-5,008	0	0				
					12	28/02/2038	311.5	27,782	27,534	925	-6,573	0	0				
					12	31/03/2038	312.3	28,520	25,087	868	-5,760	0	0				
					12	30/04/2038	313.0	29,183	24,413	757	-4,644	0	0				
					12	31/05/2038	313.7	29,842	22,117	994	-3,153	0	0				
					12	30/06/2038	314.4	30,468	21,317	1,039	-2,491	0	0				
					12	31/07/2038	315.0	31,079	19,768	871	-2,889	0	0				
					12	31/08/2038	315.6	31,614	17,777	875	-4,035	0	0				
					12	30/09/2038	316.0	32,047	17,209	510	-5,343	0	0				
					12	31/10/2038	316.4	32,408	15,697	605	-7,419	0	0				
					12	30/11/2038	316.7	32,665	15,507	624	-7,916	0	0				
					12	31/12/2038	317.0	32,900	14,846	654	-6,496	0	0				
					12	31/01/2039	317.2	33,157	12,751	900	-6,146	0	0				
					12	28/02/2039	317.5	33,369	13,508	1,064	-7,894	0	0				
					12	31/03/2039	317.7	33,556	12,546	983	-6,777	0	0				
					12	30/04/2039	317.9	33,744	12,413	847	-5,370	0	0				
					12	31/05/2039	318.1	33,963	11,387	1,098	-3,588	0	0				
					12	30/06/2039	318.4	34,209	11,034	1,136	-2,797	0	0				
					12	31/07/2039	318.6	34,465	10,259	944	-3,203	0	0				
					12	31/08/2039	318.9	34,683	9,286	941	-4,426	0	0				
					12	30/09/2039	319.0	34,839	9,114	544	-5,808	0	0				
					12	31/10/2039	319.1	34,943	8,510	641	-8,000	0	0				
					12	30/11/2039	319.2	34,974	8,698	658	-8,476	0	0				
					12	31/12/2039	319.2	34,997	8,625	686	-6,910	0	0				
					12	31/01/2040	319.3	35,061	7,881	941	-6,500	0	0				
					12	29/02/2040	319.3	35,123	8,231	1,107	-8,309	0	0				
					12	31/03/2040	319.4	35,151	7,883	1,019	-7,099	0	0				
					12	30/04/2040	319.4	35,199	7,995	875	-5,601	0	0				
					12	31/05/2040	319.5	35,286	7,473	1,131	-3,728	0	0				
					12	30/06/2040	319.6	35,415	7,313	1,167	-2,896	0	0				
					12	31/07/2040	319.8	35,563	6,844	967	-3,305	0	0				
					12	31/08/2040	319.9	35,681	6,257	962	-4,554	0	0				
					13	30/09/2040	320.0	35,752	6,241	555	-5,961	0	0				
					13	31/10/2040	320.0	35,779	5,972	653	-8,191	0	0				
					12	30/11/2040	320.0	35,732	6,302	669	-8,660	0	0				
					12	31/12/2040	319.9	35,688	6,444	697	-7,047	0	0				
					12	31/01/2041	319.9	35,691	5,813	954	-6,616	0	0				
					12	28/02/2041	319.9	35,695	6,424	1,121	-8,445	0	0				
					12	31/03/2041	319.9	35,671	6,290	1,031	-7,204	0	0				
					12	30/04/2041	319.9	35,674	6,489	884	-5,677	0	0				
					12	31/05/2041	320.0	35,719	6,142	1,142	-3,773	0	0				
					13	30/06/2041	320.1	35,826	6,052	1,177	-2,930	0	0				

Stage, m	, IN m SQU	Volume, m³	Lateral Area, m²		row	DATE	TAGE, IN r	AREA, IN m SQUARED	GW, m³	precip,m³	PET, m³	Extraction, m³	Pumped water (BakersFlat), m³		Month	precip,m	PET, m
					13	31/07/2041	320.2	35,966	5,692	976	-3,343	0	0				
					13	31/08/2041	320.3	36,074	5,238	970	-4,604	0	0				
					13	30/09/2041	320.3	36,126	5,278	560	-6,023	0	0				
					13	31/10/2041	320.3	36,120	5,123	658	-8,269	0	0				
					13	30/11/2041	320.2	36,040	5,502	674	-8,734	0	0				
					13	31/12/2041	320.2	35,957	5,716	701	-7,100	0	0				
					13	31/01/2042	320.2	35,935	5,214	959	-6,661	0	0				
					13	28/02/2042	320.1	35,919	5,814	1,127	-8,498	0	0				
					13	31/03/2042	320.1	35,868	5,752	1,035	-7,244	0	0				
					13	30/04/2042	320.1	35,853	5,982	888	-5,706	0	0				
					13	31/05/2042	320.1	35,891	5,695	1,146	-3,792	0	0				
					13	30/06/2042	320.2	35,990	5,629	1,182	-2,943	0	0				
					13	31/07/2042	320.3	36,116	5,304	979	-3,357	0	0				
					13	31/08/2042	320.4	36,211	4,895	973	-4,621	0	0				
					13	30/09/2042	320.4	36,251	4,953	561	-6,044	0	0				
					13	31/10/2042	320.4	36,234	4,837	660	-8,295	0	0				
					13	30/11/2042	320.3	36,144	5,232	675	-8,759	0	0				
					13	31/12/2042	320.3	36,051	5,471	703	-7,118	0	0				
					13	31/01/2043	320.2	36,021	5,013	961	-6,677	0	0				
					13	28/02/2043	320.2	35,998	5,609	1,129	-8,516	0	0				
					13	31/03/2043	320.2	35,940	5,573	1,037	-7,258	0	0				
					13	30/04/2043	320.1	35,919	5,813	889	-5,716	0	0				
					13	31/05/2043	320.2	35,951	5,545	1,148	-3,798	0	0				
					13	30/06/2043	320.3	36,045	5,487	1,183	-2,947	0	0				
					13	31/07/2043	320.4	36,166	5,174	980	-3,361	0	0				
					13	31/08/2043	320.4	36,256	4,780	974	-4,627	0	0				
					13	30/09/2043	320.5	36,293	4,845	562	-6,051	0	0				
					13	31/10/2043	320.4	36,272	4,741	661	-8,304	0	0				
					13	30/11/2043	320.4	36,178	5,142	676	-8,768	0	0				
					13	31/12/2043	320.3	36,083	5,389	703	-7,124	0	0				
					13	31/01/2044	320.3	36,050	5,123	961	-6,683	0	0				
					13	29/02/2044	320.2	36,030	5,526	1,129	-8,524	0	0				
					13	31/03/2044	320.2	35,970	5,499	1,038	-7,264	0	0				
					13	30/04/2044	320.2	35,946	5,744	890	-5,720	0	0				
					13	31/05/2044	320.2	35,976	5,484	1,149	-3,801	0	0				
					13	30/06/2044	320.3	36,068	5,429	1,184	-2,949	0	0				
					13	31/07/2044	320.4	36,186	5,121	981	-3,363	0	0				
					13	31/08/2044	320.5	36,275	4,733	974	-4,629	0	0				
					13	30/09/2044	320.5	36,309	4,800	562	-6,054	0	0				
					13	31/10/2044	320.5	36,287	4,702	661	-8,307	0	0				
					13	30/11/2044	320.4	36,192	5,105	676	-8,771	0	0				
					13	31/12/2044	320.3	36,096	5,356	703	-7,127	0	0				
					13	31/01/2045	320.3	36,061	4,919	962	-6,685	0	0				
					13	28/02/2045	320.2	36,035	5,513	1,130	-8,525	0	0				
					13	31/03/2045	320.2	35,974	5,488	1,038	-7,265	0	0				
					13	30/04/2045	320.2	35,950	5,733	890	-5,721	0	0				
					13	31/05/2045	320.2	35,979	5,475	1,149	-3,801	0	0				
					13	30/06/2045	320.3	36,071	5,420	1,184	-2,950	0	0				
					13	31/07/2045	320.4	36,190	5,113	981	-3,364	0	0				
					13	31/08/2045	320.5	36,278	4,726	974	-4,630	0	0				
					13	30/09/2045	320.5	36,312	4,793	562	-6,054	0	0				
					13	31/10/2045	320.5	36,290	4,695	661	-8,308	0	0				
					13	30/11/2045	320.4	36,195	5,100	676	-8,772	0	0				
					13	31/12/2045	320.3	36,098	5,351	703	-7,127	0	0				
					13	31/01/2046	320.3	36,063	4,914	962	-6,685	0	0				
					13	28/02/2046	320.2	36,037	5,509	1,130	-8,526	0	0				
					13	31/03/2046	320.2	35,976	5,484	1,038	-7,265	0	0				
					13	30/04/2046	320.2	35,952	5,729	890	-5,721	0	0				
					13	31/05/2046	320.2	35,981	5,471	1,149	-3,801	0	0				
					13	30/06/2046	320.3	36,072	5,417	1,184	-2,950	0	0				
					13	31/07/2046	320.4	36,191	5,110	981	-3,364	0	0				

Stage, m	, IN m SQU	Volume, m³	Lateral Area, m²		row	DATE	TAGE, IN r	AREA, IN m SQUARED	GW, m³	precip,m³	PET, m³	Extraction, m³	Pumped water (BakersFlat), m³		Month	precip,m	PET, m
					13	31/08/2046	320.5	36,279	4,723	974	-4,630	0	0				
					13	30/09/2046	320.5	36,313	4,791	562	-6,054	0	0				
					13	31/10/2046	320.5	36,290	4,693	661	-8,308	0	0				
					13	30/11/2046	320.4	36,195	5,098	676	-8,772	0	0				
					13	31/12/2046	320.3	36,099	5,349	703	-7,128	0	0				
					13	31/01/2047	320.3	36,064	4,913	962	-6,685	0	0				
					13	28/02/2047	320.2	36,038	5,507	1,130	-8,526	0	0				
					13	31/03/2047	320.2	35,976	5,483	1,038	-7,266	0	0				
					13	30/04/2047	320.2	35,952	5,728	890	-5,721	0	0				
					13	31/05/2047	320.2	35,981	5,470	1,149	-3,801	0	0				
					13	30/06/2047	320.3	36,073	5,416	1,184	-2,950	0	0				
					13	31/07/2047	320.4	36,191	5,109	981	-3,364	0	0				
					13	31/08/2047	320.5	36,279	4,722	974	-4,630	0	0				
					13	30/09/2047	320.5	36,313	4,790	562	-6,054	0	0				
					13	31/10/2047	320.5	36,291	4,693	661	-8,308	0	0				
					13	30/11/2047	320.4	36,196	5,097	676	-8,772	0	0				
					13	31/12/2047	320.3	36,099	5,349	703	-7,128	0	0				
					13	31/01/2048	320.3	36,064	5,088	962	-6,685	0	0				
					13	29/02/2048	320.3	36,043	5,492	1,130	-8,527	0	0				
					13	31/03/2048	320.2	35,982	5,469	1,038	-7,267	0	0				
					13	30/04/2048	320.2	35,957	5,715	890	-5,722	0	0				
					13	31/05/2048	320.2	35,986	5,459	1,149	-3,802	0	0				
					13	30/06/2048	320.3	36,077	5,406	1,184	-2,950	0	0				
					13	31/07/2048	320.4	36,195	5,100	981	-3,364	0	0				
					13	31/08/2048	320.5	36,282	4,714	975	-4,630	0	0				
					13	30/09/2048	320.5	36,316	4,782	562	-6,055	0	0				
					13	31/10/2048	320.5	36,294	4,686	661	-8,309	0	0				
					13	30/11/2048	320.4	36,198	5,090	676	-8,773	0	0				
					13	31/12/2048	320.3	36,101	5,342	703	-7,128	0	0				
					13	31/01/2049	320.3	36,066	4,907	962	-6,686	0	0				
					13	28/02/2049	320.2	36,040	5,502	1,130	-8,526	0	0				
					13	31/03/2049	320.2	35,978	5,478	1,038	-7,266	0	0				
					13	30/04/2049	320.2	35,954	5,723	890	-5,722	0	0				
					13	31/05/2049	320.2	35,983	5,466	1,149	-3,801	0	0				
					13	30/06/2049	320.3	36,074	5,412	1,184	-2,950	0	0				
					13	31/07/2049	320.4	36,192	5,106	981	-3,364	0	0				
					13	31/08/2049	320.5	36,280	4,719	975	-4,630	0	0				
					13	30/09/2049	320.5	36,314	4,787	562	-6,054	0	0				
					13	31/10/2049	320.5	36,292	4,690	661	-8,308	0	0				
					13	30/11/2049	320.4	36,197	5,095	676	-8,772	0	0				
					13	31/12/2049	320.3	36,100	5,346	703	-7,128	0	0				
					13	31/01/2050	320.3	36,065	4,911	962	-6,686	0	0				
					13	28/02/2050	320.2	36,038	5,505	1,130	-8,526	0	0				
					13	31/03/2050	320.2	35,977	5,481	1,038	-7,266	0	0				
					13	30/04/2050	320.2	35,953	5,726	890	-5,721	0	0				
					13	31/05/2050	320.2	35,982	5,469	1,149	-3,801	0	0				
					13	30/06/2050	320.3	36,073	5,415	1,184	-2,950	0	0				
					13	31/07/2050	320.4	36,192	5,108	981	-3,364	0	0				
					13	31/08/2050	320.5	36,279	4,721	975	-4,630	0	0				
					13	30/09/2050	320.5	36,314	4,789	562	-6,054	0	0				
					13	31/10/2050	320.5	36,291	4,692	661	-8,308	0	0				
					13	30/11/2050	320.4	36,196	5,096	676	-8,772	0	0				
					13	31/12/2050	320.3	36,099	5,348	703	-7,128	0	0				
					13	31/01/2051	320.3	36,064	4,912	962	-6,685	0	0				
					13	28/02/2051	320.2	36,038	5,506	1,130	-8,526	0	0				
					13	31/03/2051	320.2	35,977	5,482	1,038	-7,266	0	0				
					13	30/04/2051	320.2	35,952	5,727	890	-5,721	0	0				
					13	31/05/2051	320.2	35,982	5,469	1,149	-3,801	0	0				
					13	30/06/2051	320.3	36,073	5,415	1,184	-2,950	0	0				
					13	31/07/2051	320.4	36,191	5,108	981	-3,364	0	0				
					13	31/08/2051	320.5	36,279	4,722	975	-4,630	0	0				

Stage, m	, IN m SQU	Volume, m³	Lateral Area, m²		row	DATE	TAGE, IN r	AREA, IN m SQUARED	GW, m³	precip,m³	PET, m³	Extraction, m³	Pumped water (BakersFlat), m³		Month	precip,m	PET, m
					13	30/09/2051	320.5	36,314	4,789	562	-6,054	0	0				
					13	31/10/2051	320.5	36,291	4,692	661	-8,308	0	0				
					13	30/11/2051	320.4	36,196	5,097	676	-8,772	0	0				
					13	31/12/2051	320.3	36,099	5,348	703	-7,128	0	0				
					13	31/01/2052	320.3	36,064	5,087	962	-6,685	0	0				
					13	29/02/2052	320.3	36,044	5,492	1,130	-8,527	0	0				
					13	31/03/2052	320.2	35,982	5,469	1,038	-7,267	0	0				
					13	30/04/2052	320.2	35,957	5,715	890	-5,722	0	0				
					13	31/05/2052	320.2	35,986	5,459	1,149	-3,802	0	0				
					13	30/06/2052	320.3	36,077	5,405	1,184	-2,950	0	0				
					13	31/07/2052	320.4	36,195	5,099	981	-3,364	0	0				
					13	31/08/2052	320.5	36,282	4,714	975	-4,630	0	0				
					13	30/09/2052	320.5	36,317	4,782	562	-6,055	0	0				
					13	31/10/2052	320.5	36,294	4,685	661	-8,309	0	0				
					13	30/11/2052	320.4	36,198	5,090	676	-8,773	0	0				
					13	31/12/2052	320.3	36,101	5,342	703	-7,128	0	0				
					13	31/01/2053	320.3	36,066	4,907	962	-6,686	0	0				
					13	28/02/2053	320.2	36,040	5,502	1,130	-8,526	0	0				
					13	31/03/2053	320.2	35,978	5,478	1,038	-7,266	0	0				
					13	30/04/2053	320.2	35,954	5,723	890	-5,722	0	0				
					13	31/05/2053	320.2	35,983	5,466	1,149	-3,801	0	0				
					13	30/06/2053	320.3	36,074	5,412	1,184	-2,950	0	0				
					13	31/07/2053	320.4	36,192	5,106	981	-3,364	0	0				
					13	31/08/2053	320.5	36,280	4,719	975	-4,630	0	0				
					13	30/09/2053	320.5	36,314	4,787	562	-6,054	0	0				
					13	31/10/2053	320.5	36,292	4,690	661	-8,308	0	0				
					13	30/11/2053	320.4	36,197	5,095	676	-8,772	0	0				
					13	31/12/2053	320.3	36,100	5,346	703	-7,128	0	0				
					13	31/01/2054	320.3	36,065	4,911	962	-6,686	0	0				
					13	28/02/2054	320.2	36,038	5,505	1,130	-8,526	0	0				
					13	31/03/2054	320.2	35,977	5,481	1,038	-7,266	0	0				
					13	30/04/2054	320.2	35,953	5,726	890	-5,721	0	0				
					13	31/05/2054	320.2	35,982	5,469	1,149	-3,801	0	0				
					13	30/06/2054	320.3	36,073	5,415	1,184	-2,950	0	0				
					13	31/07/2054	320.4	36,192	5,108	981	-3,364	0	0				
					13	31/08/2054	320.5	36,279	4,721	975	-4,630	0	0				
					13	30/09/2054	320.5	36,314	4,789	562	-6,054	0	0				
					13	31/10/2054	320.5	36,291	4,692	661	-8,308	0	0				
					13	30/11/2054	320.4	36,196	5,096	676	-8,772	0	0				
					13	31/12/2054	320.3	36,099	5,348	703	-7,128	0	0				
					13	31/01/2055	320.3	36,064	4,912	962	-6,685	0	0				
					13	28/02/2055	320.2	36,038	5,506	1,130	-8,526	0	0				
					13	31/03/2055	320.2	35,977	5,482	1,038	-7,266	0	0				
					13	30/04/2055	320.2	35,953	5,727	890	-5,721	0	0				
					13	31/05/2055	320.2	35,982	5,469	1,149	-3,801	0	0				
					13	30/06/2055	320.3	36,073	5,415	1,184	-2,950	0	0				
					13	31/07/2055	320.4	36,191	5,108	981	-3,364	0	0				
					13	31/08/2055	320.5	36,279	4,722	975	-4,630	0	0				
					13	30/09/2055	320.5	36,314	4,789	562	-6,054	0	0				
					13	31/10/2055	320.5	36,291	4,692	661	-8,308	0	0				
					13	30/11/2055	320.4	36,196	5,097	676	-8,772	0	0				
					13	31/12/2055	320.3	36,099	5,348	703	-7,128	0	0				
					13	31/01/2056	320.3	36,064	5,087	962	-6,685	0	0				
					13	29/02/2056	320.3	36,044	5,492	1,130	-8,527	0	0				
					13	31/03/2056	320.2	35,982	5,469	1,038	-7,267	0	0				
					13	30/04/2056	320.2	35,957	5,715	890	-5,722	0	0				
					13	31/05/2056	320.2	35,986	5,459	1,149	-3,802	0	0				
					13	30/06/2056	320.3	36,077	5,405	1,184	-2,950	0	0				
					13	31/07/2056	320.4	36,195	5,099	981	-3,364	0	0				
					13	31/08/2056	320.5	36,282	4,714	975	-4,630	0	0				
					13	30/09/2056	320.5	36,317	4,782	562	-6,055	0	0				

Stage, m	, IN m SQU	Volume, m³	Lateral Area, m²		row	DATE	TAGE, IN r	AREA, IN m SQUARED	GW, m³	precip,m³	PET, m³	Extraction, m³	Pumped water (BakersFlat), m³		Month	precip,m	PET, m
					13	31/10/2056	320.5	36,294	4,685	661	-8,309	0	0				
					13	30/11/2056	320.4	36,198	5,090	676	-8,773	0	0				
					13	31/12/2056	320.3	36,101	5,342	703	-7,128	0	0				
					13	31/01/2057	320.3	36,066	4,907	962	-6,686	0	0				
					13	28/02/2057	320.2	36,040	5,502	1,130	-8,526	0	0				
					13	31/03/2057	320.2	35,978	5,478	1,038	-7,266	0	0				
					13	30/04/2057	320.2	35,954	5,723	890	-5,722	0	0				
					13	31/05/2057	320.2	35,983	5,466	1,149	-3,801	0	0				
					13	30/06/2057	320.3	36,074	5,412	1,184	-2,950	0	0				
					13	31/07/2057	320.4	36,192	5,106	981	-3,364	0	0				
					13	31/08/2057	320.5	36,280	4,719	975	-4,630	0	0				
					13	30/09/2057	320.5	36,314	4,787	562	-6,054	0	0				
					13	31/10/2057	320.5	36,292	4,690	661	-8,308	0	0				
					13	30/11/2057	320.4	36,197	5,095	676	-8,772	0	0				
					13	31/12/2057	320.3	36,100	5,346	703	-7,128	0	0				
					13	31/01/2058	320.3	36,065	4,911	962	-6,686	0	0				
					13	28/02/2058	320.2	36,038	5,505	1,130	-8,526	0	0				
					13	31/03/2058	320.2	35,977	5,481	1,038	-7,266	0	0				
					13	30/04/2058	320.2	35,953	5,726	890	-5,721	0	0				
					13	31/05/2058	320.2	35,982	5,469	1,149	-3,801	0	0				
					13	30/06/2058	320.3	36,073	5,415	1,184	-2,950	0	0				
					13	31/07/2058	320.4	36,192	5,108	981	-3,364	0	0				
					13	31/08/2058	320.5	36,279	4,721	975	-4,630	0	0				
					13	30/09/2058	320.5	36,314	4,789	562	-6,054	0	0				
					13	31/10/2058	320.5	36,291	4,692	661	-8,308	0	0				
					13	30/11/2058	320.4	36,196	5,096	676	-8,772	0	0				
					13	31/12/2058	320.3	36,099	5,348	703	-7,128	0	0				
					13	31/01/2059	320.3	36,064	4,912	962	-6,685	0	0				
					13	28/02/2059	320.2	36,038	5,506	1,130	-8,526	0	0				
					13	31/03/2059	320.2	35,977	5,482	1,038	-7,266	0	0				
					13	30/04/2059	320.2	35,953	5,727	890	-5,721	0	0				
					13	31/05/2059	320.2	35,982	5,469	1,149	-3,801	0	0				
					13	30/06/2059	320.3	36,073	5,415	1,184	-2,950	0	0				
					13	31/07/2059	320.4	36,191	5,108	981	-3,364	0	0				
					13	31/08/2059	320.5	36,279	4,722	975	-4,630	0	0				
					13	30/09/2059	320.5	36,314	4,789	562	-6,054	0	0				
					13	31/10/2059	320.5	36,291	4,692	661	-8,308	0	0				
					13	30/11/2059	320.4	36,196	5,097	676	-8,772	0	0				
					13	31/12/2059	320.3	36,099	5,348	703	-7,128	0	0				
					13	31/01/2060	320.3	36,064	5,087	962	-6,685	0	0				
					13	29/02/2060	320.3	36,044	5,492	1,130	-8,527	0	0				
					13	31/03/2060	320.2	35,982	5,469	1,038	-7,267	0	0				
					13	30/04/2060	320.2	35,957	5,715	890	-5,722	0	0				
					13	31/05/2060	320.2	35,986	5,459	1,149	-3,802	0	0				
					13	30/06/2060	320.3	36,077	5,405	1,184	-2,950	0	0				
					13	31/07/2060	320.4	36,195	5,099	981	-3,364	0	0				
					13	31/08/2060	320.5	36,282	4,714	975	-4,630	0	0				
					13	30/09/2060	320.5	36,317	4,782	562	-6,055	0	0				
					13	31/10/2060	320.5	36,294	4,685	661	-8,309	0	0				
					13	30/11/2060	320.4	36,198	5,090	676	-8,773	0	0				
					13	31/12/2060	320.3	36,101	5,342	703	-7,128	0	0				
					13	31/01/2061	320.3	36,066	4,907	962	-6,686	0	0				
					13	28/02/2061	320.2	36,040	5,502	1,130	-8,526	0	0				
					13	31/03/2061	320.2	35,978	5,478	1,038	-7,266	0	0				
					13	30/04/2061	320.2	35,954	5,723	890	-5,722	0	0				
					13	31/05/2061	320.2	35,983	5,466	1,149	-3,801	0	0				
					13	30/06/2061	320.3	36,074	5,412	1,184	-2,950	0	0				
					13	31/07/2061	320.4	36,192	5,106	981	-3,364	0	0				
					13	31/08/2061	320.5	36,280	4,719	975	-4,630	0	0				
					13	30/09/2061	320.5	36,314	4,787	562	-6,054	0	0				
					13	31/10/2061	320.5	36,292	4,690	661	-8,308	0	0				

Stage, m	, IN m SQU	Volume, m³	Lateral Area, m²		row	DATE	TAGE, IN r	AREA, IN m SQUARED	GW, m³	precip,m³	PET, m³	Extraction, m³	Pumped water (BakersFlat), m³		Month	precip,m	PET, m
					13	30/11/2061	320.4	36,197	5,095	676	-8,772	0	0				
					13	31/12/2061	320.3	36,100	5,346	703	-7,128	0	0				
					13	31/01/2062	320.3	36,065	4,911	962	-6,686	0	0				
					13	28/02/2062	320.2	36,038	5,505	1,130	-8,526	0	0				
					13	31/03/2062	320.2	35,977	5,481	1,038	-7,266	0	0				
					13	30/04/2062	320.2	35,953	5,726	890	-5,721	0	0				
					13	31/05/2062	320.2	35,982	5,469	1,149	-3,801	0	0				
					13	30/06/2062	320.3	36,073	5,415	1,184	-2,950	0	0				
					13	31/07/2062	320.4	36,192	5,108	981	-3,364	0	0				
					13	31/08/2062	320.5	36,279	4,721	975	-4,630	0	0				
					13	30/09/2062	320.5	36,314	4,789	562	-6,054	0	0				
					13	31/10/2062	320.5	36,291	4,692	661	-8,308	0	0				
					13	30/11/2062	320.4	36,196	5,096	676	-8,772	0	0				
					13	31/12/2062	320.3	36,099	5,348	703	-7,128	0	0				
					13	31/01/2063	320.3	36,064	4,912	962	-6,685	0	0				
					13	28/02/2063	320.2	36,038	5,506	1,130	-8,526	0	0				
					13	31/03/2063	320.2	35,977	5,482	1,038	-7,266	0	0				
					13	30/04/2063	320.2	35,953	5,727	890	-5,721	0	0				
					13	31/05/2063	320.2	35,982	5,469	1,149	-3,801	0	0				
					13	30/06/2063	320.3	36,073	5,415	1,184	-2,950	0	0				
					13	31/07/2063	320.4	36,191	5,108	981	-3,364	0	0				
					13	31/08/2063	320.5	36,279	4,722	975	-4,630	0	0				
					13	30/09/2063	320.5	36,314	4,789	562	-6,054	0	0				
					13	31/10/2063	320.5	36,291	4,692	661	-8,308	0	0				
					13	30/11/2063	320.4	36,196	5,097	676	-8,772	0	0				
					13	31/12/2063	320.3	36,099	5,348	703	-7,128	0	0				
					13	31/01/2064	320.3	36,064	5,087	962	-6,685	0	0				
					13	29/02/2064	320.3	36,044	5,492	1,130	-8,527	0	0				
					13	31/03/2064	320.2	35,982	5,469	1,038	-7,267	0	0				
					13	30/04/2064	320.2	35,957	5,715	890	-5,722	0	0				
					13	31/05/2064	320.2	35,986	5,459	1,149	-3,802	0	0				
					13	30/06/2064	320.3	36,077	5,405	1,184	-2,950	0	0				
					13	31/07/2064	320.4	36,195	5,099	981	-3,364	0	0				
					13	31/08/2064	320.5	36,282	4,714	975	-4,630	0	0				
					13	30/09/2064	320.5	36,317	4,782	562	-6,055	0	0				
					13	31/10/2064	320.5	36,294	4,685	661	-8,309	0	0				
					13	30/11/2064	320.4	36,198	5,090	676	-8,773	0	0				
					13	31/12/2064	320.3	36,101	5,342	703	-7,128	0	0				
					13	31/01/2065	320.3	36,066	4,907	962	-6,686	0	0				
					13	28/02/2065	320.2	36,040	5,502	1,130	-8,526	0	0				
					13	31/03/2065	320.2	35,978	5,478	1,038	-7,266	0	0				
					13	30/04/2065	320.2	35,954	5,723	890	-5,722	0	0				
					13	31/05/2065	320.2	35,983	5,466	1,149	-3,801	0	0				
					13	30/06/2065	320.3	36,074	5,412	1,184	-2,950	0	0				
					13	31/07/2065	320.4	36,192	5,106	981	-3,364	0	0				
					13	31/08/2065	320.5	36,280	4,719	975	-4,630	0	0				
					13	30/09/2065	320.5	36,314	4,787	562	-6,054	0	0				
					13	31/10/2065	320.5	36,292	4,690	661	-8,308	0	0				
					13	30/11/2065	320.4	36,197	5,095	676	-8,772	0	0				
					13	31/12/2065	320.3	36,100	5,346	703	-7,128	0	0				
					13	31/01/2066	320.3	36,065	4,911	962	-6,686	0	0				
					13	28/02/2066	320.2	36,038	5,505	1,130	-8,526	0	0				
					13	31/03/2066	320.2	35,977	5,481	1,038	-7,266	0	0				
					13	30/04/2066	320.2	35,953	5,726	890	-5,721	0	0				
					13	31/05/2066	320.2	35,982	5,469	1,149	-3,801	0	0				
					13	30/06/2066	320.3	36,073	5,415	1,184	-2,950	0	0				
					13	31/07/2066	320.4	36,192	5,108	981	-3,364	0	0				
					13	31/08/2066	320.5	36,279	4,721	975	-4,630	0	0				
					13	30/09/2066	320.5	36,314	4,789	562	-6,054	0	0				
					13	31/10/2066	320.5	36,291	4,692	661	-8,308	0	0				
					13	30/11/2066	320.4	36,196	5,096	676	-8,772	0	0				

Stage, m	, IN m SQU	Volume, m³	Lateral Area, m²		row	DATE	TAGE, IN r	AREA, IN m SQUARED	GW, m³	precip,m³	PET, m³	Extraction, m³	Pumped water (BakersFlat), m³		Month	precip,m	PET, m
					13	31/12/2066	320.3	36,099	5,348	703	-7,128	0	0				
					13	31/01/2067	320.3	36,064	4,912	962	-6,685	0	0				
					13	28/02/2067	320.2	36,038	5,506	1,130	-8,526	0	0				
					13	31/03/2067	320.2	35,977	5,482	1,038	-7,266	0	0				
					13	30/04/2067	320.2	35,953	5,727	890	-5,721	0	0				
					13	31/05/2067	320.2	35,982	5,469	1,149	-3,801	0	0				
					13	30/06/2067	320.3	36,073	5,415	1,184	-2,950	0	0				
					13	31/07/2067	320.4	36,191	5,108	981	-3,364	0	0				
					13	31/08/2067	320.5	36,279	4,722	975	-4,630	0	0				
					13	30/09/2067	320.5	36,314	4,789	562	-6,054	0	0				
					13	31/10/2067	320.5	36,291	4,692	661	-8,308	0	0				
					13	30/11/2067	320.4	36,196	5,097	676	-8,772	0	0				
					13	31/12/2067	320.3	36,099	5,348	703	-7,128	0	0				
					13	31/01/2068	320.3	36,064	5,087	962	-6,685	0	0				
					13	29/02/2068	320.3	36,044	5,492	1,130	-8,527	0	0				
					13	31/03/2068	320.2	35,982	5,469	1,038	-7,267	0	0				
					13	30/04/2068	320.2	35,957	5,715	890	-5,722	0	0				
					13	31/05/2068	320.2	35,986	5,459	1,149	-3,802	0	0				
					13	30/06/2068	320.3	36,077	5,405	1,184	-2,950	0	0				
					13	31/07/2068	320.4	36,195	5,099	981	-3,364	0	0				
					13	31/08/2068	320.5	36,282	4,714	975	-4,630	0	0				
					13	30/09/2068	320.5	36,317	4,782	562	-6,055	0	0				
					13	31/10/2068	320.5	36,294	4,685	661	-8,309	0	0				
					13	30/11/2068	320.4	36,198	5,090	676	-8,773	0	0				
					13	31/12/2068	320.3	36,101	5,342	703	-7,128	0	0				
					13	31/01/2069	320.3	36,066	4,907	962	-6,686	0	0				
					13	28/02/2069	320.2	36,040	5,502	1,130	-8,526	0	0				
					13	31/03/2069	320.2	35,978	5,478	1,038	-7,266	0	0				
					13	30/04/2069	320.2	35,954	5,723	890	-5,722	0	0				
					13	31/05/2069	320.2	35,983	5,466	1,149	-3,801	0	0				
					13	30/06/2069	320.3	36,074	5,412	1,184	-2,950	0	0				
					13	31/07/2069	320.4	36,192	5,106	981	-3,364	0	0				
					13	31/08/2069	320.5	36,280	4,719	975	-4,630	0	0				
					13	30/09/2069	320.5	36,314	4,787	562	-6,054	0	0				
					13	31/10/2069	320.5	36,292	4,690	661	-8,308	0	0				
					13	30/11/2069	320.4	36,197	5,095	676	-8,772	0	0				
					13	31/12/2069	320.3	36,100	5,346	703	-7,128	0	0				
					13	31/01/2070	320.3	36,065	4,911	962	-6,686	0	0				
					13	28/02/2070	320.2	36,038	5,505	1,130	-8,526	0	0				
					13	31/03/2070	320.2	35,977	5,481	1,038	-7,266	0	0				
					13	30/04/2070	320.2	35,953	5,726	890	-5,721	0	0				
					13	31/05/2070	320.2	35,982	5,469	1,149	-3,801	0	0				
					13	30/06/2070	320.3	36,073	5,415	1,184	-2,950	0	0				
					13	31/07/2070	320.4	36,192	5,108	981	-3,364	0	0				
					13	31/08/2070	320.5	36,279	4,721	975	-4,630	0	0				
					13	30/09/2070	320.5	36,314	4,789	562	-6,054	0	0				
					13	31/10/2070	320.5	36,291	4,692	661	-8,308	0	0				
					13	30/11/2070	320.4	36,196	5,096	676	-8,772	0	0				
					13	31/12/2070	320.3	36,099	5,348	703	-7,128	0	0				
					13	31/01/2071	320.3	36,064	4,912	962	-6,685	0	0				
					13	28/02/2071	320.2	36,038	5,506	1,130	-8,526	0	0				
					13	31/03/2071	320.2	35,977	5,482	1,038	-7,266	0	0				
					13	30/04/2071	320.2	35,953	5,727	890	-5,721	0	0				
					13	31/05/2071	320.2	35,982	5,469	1,149	-3,801	0	0				
					13	30/06/2071	320.3	36,073	5,415	1,184	-2,950	0	0				
					13	31/07/2071	320.4	36,191	5,108	981	-3,364	0	0				
					13	31/08/2071	320.5	36,279	4,722	975	-4,630	0	0				
					13	30/09/2071	320.5	36,314	4,789	562	-6,054	0	0				
					13	31/10/2071	320.5	36,291	4,692	661	-8,308	0	0				
					13	30/11/2071	320.4	36,196	5,097	676	-8,772	0	0				
					13	31/12/2071	320.3	36,099	5,348	703	-7,128	0	0				

Stage, m	, IN m SQU	Volume, m³	Lateral Area, m²		row	DATE	TAGE, IN r	AREA, IN m SQUARED	GW, m³	precip,m³	PET, m³	Extraction, m³	Pumped water (BakersFlat), m³		Month	precip,m	PET, m
					13	31/01/2072	320.3	36,064	5,087	962	-6,685	0	0				
					13	29/02/2072	320.3	36,044	5,492	1,130	-8,527	0	0				
					13	31/03/2072	320.2	35,982	5,469	1,038	-7,267	0	0				
					13	30/04/2072	320.2	35,957	5,715	890	-5,722	0	0				
					13	31/05/2072	320.2	35,986	5,459	1,149	-3,802	0	0				
					13	30/06/2072	320.3	36,077	5,405	1,184	-2,950	0	0				
					13	31/07/2072	320.4	36,195	5,099	981	-3,364	0	0				
					13	31/08/2072	320.5	36,282	4,714	975	-4,630	0	0				
					13	30/09/2072	320.5	36,317	4,782	562	-6,055	0	0				
					13	31/10/2072	320.5	36,294	4,685	661	-8,309	0	0				
					13	30/11/2072	320.4	36,198	5,090	676	-8,773	0	0				
					13	31/12/2072	320.3	36,101	5,342	703	-7,128	0	0				
					13	31/01/2073	320.3	36,066	4,907	962	-6,686	0	0				
					13	28/02/2073	320.2	36,040	5,502	1,130	-8,526	0	0				
					13	31/03/2073	320.2	35,978	5,478	1,038	-7,266	0	0				
					13	30/04/2073	320.2	35,954	5,723	890	-5,722	0	0				
					13	31/05/2073	320.2	35,983	5,466	1,149	-3,801	0	0				
					13	30/06/2073	320.3	36,074	5,412	1,184	-2,950	0	0				
					13	31/07/2073	320.4	36,192	5,106	981	-3,364	0	0				
					13	31/08/2073	320.5	36,280	4,719	975	-4,630	0	0				
					13	30/09/2073	320.5	36,314	4,787	562	-6,054	0	0				
					13	31/10/2073	320.5	36,292	4,690	661	-8,308	0	0				
					13	30/11/2073	320.4	36,197	5,095	676	-8,772	0	0				
					13	31/12/2073	320.3	36,100	-10,960,502	703	-7,128	0	0				

	ALTITUDE, IN M								VOLUMETRIC CHANGE, IN MILLONS OF CUBIC M per MONTH								0.27	-2.03
Stage, m	**AREA, IN m SQUARED**	**Volume, m^3**	**Lateral Area, m^2**		**row**	**DATE**	**STAGE, IN m**	**AREA, IN m SQUARED**	**GW, m^3**	**precip,m^3**	**PET, m^3**	**Water Supply to Processing Plant, m^3**	**Pumped water, m^3**		**Month**	**precip,m**	**PET, m**
310	0	0	0		1	31/01/2006	312.0	560	878	90	-104	0	0		1	0.02	-0.19
320	2,802	15,354	1,327		1	28/02/2006	313.5	993	1,518	117	-235	0	0		2	0.03	-0.24
330	7,588	64,711	3,882		1	31/03/2006	315.0	1,388	1,801	116	-280	0	0		3	0.03	-0.20
340	19,130	205,225	7,979		1	30/04/2006	316.1	1,718	2,033	106	-273	0	0		4	0.02	-0.16
350	28,978	440,819	13,477		1	31/05/2006	317.2	2,022	2,033	145	-214	0	0		5	0.03	-0.11
355	33,445	618,016	16,608		1	30/06/2006	318.2	2,294	2,086	156	-188	0	0		6	0.03	-0.08
					1	31/07/2006	319.1	2,545	2,010	134	-237	0	0		7	0.02	-0.09
	applied formula change				1	31/08/2006	319.8	2,755	1,839	137	-352	0	0		8	0.02	-0.13
					2	30/09/2006	320.4	3,004	1,851	82	-501	0	0		9	0.01	-0.17
					2	31/10/2006	320.9	3,232	1,741	100	-740	0	0		10	0.02	-0.23
					2	30/11/2006	321.2	3,395	1,742	105	-823	0	0		11	0.02	-0.24
					2	31/12/2006	321.5	3,540	1,677	112	-699	0	0		12	0.02	-0.20
					2	31/01/2007	321.8	3,687	1,443	156	-683	0	0				
					2	28/02/2007	322.1	3,806	1,524	186	-900	0	0				
					2	31/03/2007	322.3	3,908	1,406	174	-789	0	0				
					2	30/04/2007	322.5	4,004	1,380	151	-637	0	0				
					2	31/05/2007	322.7	4,111	1,251	197	-434	0	0				
					2	30/06/2007	323.0	4,229	1,188	206	-346	0	0				
					2	31/07/2007	323.2	4,348	1,073	173	-404	0	0				
					2	31/08/2007	323.4	4,440	946	173	-567	0	0				
					2	30/09/2007	323.5	4,500	914	101	-750	0	0				
					2	31/10/2007	323.6	4,528	854	119	-1,037	0	0				
					2	30/11/2007	323.6	4,521	890	122	-1,096	0	0				
					2	31/12/2007	323.6	4,513	900	127	-891	0	0				
					2	31/01/2008	323.6	4,527	827	174	-839	0	0				
					2	29/02/2008	323.6	4,544	865	204	-1,075	0	0				
					2	31/03/2008	323.6	4,543	838	188	-918	0	0				
					2	30/04/2008	323.7	4,555	853	162	-725	0	0				
					2	31/05/2008	323.7	4,585	792	209	-484	0	0				
					2	30/06/2008	323.8	4,639	755	217	-379	0	0				
					2	31/07/2008	324.0	4,700	682	180	-437	0	0				
					2	31/08/2008	324.1	4,743	608	180	-605	0	0				
					2	30/09/2008	324.1	4,762	605	104	-794	0	0				
					2	31/10/2008	324.1	4,753	596	122	-1,088	0	0				
					2	30/11/2008	324.0	4,716	662	124	-1,143	0	0				
					2	31/12/2008	323.9	4,680	706	129	-924	0	0				
					2	31/01/2009	323.9	4,671	648	177	-866	0	0				
					2	28/02/2009	323.9	4,667	722	207	-1,104	0	0				
					2	31/03/2009	323.9	4,649	720	190	-939	0	0				
					2	30/04/2009	323.9	4,646	747	163	-739	0	0				
					2	31/05/2009	323.9	4,663	703	211	-493	0	0				
					2	30/06/2009	324.0	4,707	674	218	-385	0	0				
					2	31/07/2009	324.1	4,758	610	182	-442	0	0				
					2	31/08/2009	324.2	4,793	547	181	-612	0	0				
					2	30/09/2009	324.2	4,805	550	104	-801	0	0				
					2	31/10/2009	324.2	4,790	551	122	-1,097	0	0				
					2	30/11/2009	324.1	4,748	623	125	-1,151	0	0				
					2	31/12/2009	324.0	4,707	673	130	-929	0	0				
					2	31/01/2010	324.0	4,694	622	177	-870	0	0				
					2	28/02/2010	323.9	4,687	697	208	-1,109	0	0				
					2	31/03/2010	323.9	4,666	699	191	-942	0	0				
					2	30/04/2010	323.9	4,661	729	164	-742	0	0				
					2	31/05/2010	323.9	4,676	687	211	-494	0	0				
					2	30/06/2010	324.0	4,718	660	219	-386	0	0				
					2	31/07/2010	324.1	4,768	597	182	-443	0	0				
					2	31/08/2010	324.2	4,802	536	181	-613	0	0				
					2	30/09/2010	324.2	4,812	541	104	-802	0	0				
					2	31/10/2010	324.2	4,796	543	123	-1,098	0	0				

Stage, m	AREA, IN m SQUARED	Volume, m^3	Lateral Area, m^2		row	DATE	STAGE, IN m	AREA, IN m SQUARED	GW, m^3	precip,m^3	PET, m^3	Water Supply to Processing Plant, m^3	Pumped water, m^3		Month	precip,m	PET, m
					2	30/11/2010	324.1	4,753	616	125	-1,152	0	0				
					2	31/12/2010	324.0	4,712	667	130	-930	0	0				
					2	31/01/2011	324.0	4,698	618	177	-871	0	0				
					2	28/02/2011	323.9	4,691	693	208	-1,110	0	0				
					2	31/03/2011	323.9	4,669	696	191	-943	0	0				
					2	30/04/2011	323.9	4,664	726	164	-742	0	0				
					2	31/05/2011	323.9	4,679	685	212	-494	0	0				
					2	30/06/2011	324.0	4,720	657	219	-386	0	0				
					2	31/07/2011	324.1	4,770	595	182	-443	0	0				
					2	31/08/2011	324.2	4,803	535	181	-613	0	0				
					2	30/09/2011	324.2	4,813	539	104	-802	0	0				
					2	31/10/2011	324.2	4,797	542	123	-1,098	0	0				
					2	30/11/2011	324.1	4,754	615	125	-1,152	0	0				
					2	31/12/2011	324.0	4,713	666	130	-930	0	0				
					2	31/01/2012	324.0	4,699	639	177	-871	0	0				
					2	29/02/2012	324.0	4,693	690	208	-1,110	0	0				
					2	31/03/2012	323.9	4,672	693	191	-943	0	0				
					2	30/04/2012	323.9	4,666	723	164	-742	0	0				
					2	31/05/2012	323.9	4,680	683	212	-494	0	0				
					2	30/06/2012	324.0	4,721	656	219	-386	0	0				
					2	31/07/2012	324.1	4,771	594	182	-443	0	0				
					2	31/08/2012	324.2	4,804	533	181	-613	0	0				
					2	30/09/2012	324.2	4,814	538	104	-803	0	0				
					2	31/10/2012	324.2	4,798	541	123	-1,098	0	0				
					2	30/11/2012	324.1	4,755	614	125	-1,152	0	0				
					2	31/12/2012	324.0	4,713	666	130	-931	0	0				
					2	31/01/2013	324.0	4,700	616	177	-871	0	0				
					2	28/02/2013	323.9	4,692	692	208	-1,110	0	0				
					2	31/03/2013	323.9	4,670	695	191	-943	0	0				
					2	30/04/2013	323.9	4,664	725	164	-742	0	0				
					2	31/05/2013	323.9	4,679	684	212	-494	0	0				
					2	30/06/2013	324.0	4,720	657	219	-386	0	0				
					2	31/07/2013	324.1	4,770	595	182	-443	0	0				
					2	31/08/2013	324.2	4,803	534	181	-613	0	0				
					2	30/09/2013	324.2	4,814	539	104	-803	0	0				
					2	31/10/2013	324.2	4,798	541	123	-1,098	0	0				
					2	30/11/2013	324.1	4,754	614	125	-1,152	0	0				
					2	31/12/2013	324.0	4,713	666	130	-931	0	0				
					2	31/01/2014	324.0	4,699	617	177	-871	0	0				
					2	28/02/2014	323.9	4,691	692	208	-1,110	0	0				
					2	31/03/2014	323.9	4,670	695	191	-943	0	0				
					2	30/04/2014	323.9	4,664	725	164	-742	0	0				
					2	31/05/2014	323.9	4,679	684	212	-494	0	0				
					2	30/06/2014	324.0	4,720	657	219	-386	0	0				
					2	31/07/2014	324.1	4,770	595	182	-443	0	0				
					2	31/08/2014	324.2	4,803	534	181	-613	0	0				
					2	30/09/2014	324.2	4,813	539	104	-803	0	0				
					2	31/10/2014	324.2	4,798	541	123	-1,098	0	0				
					2	30/11/2014	324.1	4,754	614	125	-1,152	0	0				
					2	31/12/2014	324.0	4,713	666	130	-931	0	0				
					2	31/01/2015	324.0	4,699	617	177	-871	0	0				
					2	28/02/2015	323.9	4,691	692	208	-1,110	0	0				
					2	31/03/2015	323.9	4,670	695	191	-943	0	0				
					2	30/04/2015	323.9	4,664	725	164	-742	0	0				
					2	31/05/2015	323.9	4,679	684	212	-494	0	0				
					2	30/06/2015	324.0	4,720	657	219	-386	0	0				
					2	31/07/2015	324.1	4,770	595	182	-443	0	0				
					2	31/08/2015	324.2	4,803	534	181	-613	0	0				
					2	30/09/2015	324.2	4,813	539	104	-803	0	0				

Stage, m	AREA, IN m SQUARED	Volume, m^3	Lateral Area, m^2		row	DATE	STAGE, IN m	AREA, IN m SQUARED	GW, m^3	precip,m^3	PET, m^3	Water Supply to Processing Plant, m^3	Pumped water, m^3		Month	precip,m	PET, m
					2	31/10/2015	324.2	4,798	541	123	-1,098	0	0				
					2	30/11/2015	324.1	4,754	614	125	-1,152	0	0				
					2	31/12/2015	324.0	4,713	666	130	-931	0	0				
					2	31/01/2016	324.0	4,699	639	177	-871	0	0				
					2	29/02/2016	324.0	4,694	690	208	-1,110	0	0				
					2	31/03/2016	323.9	4,672	693	191	-943	0	0				
					2	30/04/2016	323.9	4,666	723	164	-742	0	0				
					2	31/05/2016	323.9	4,681	683	212	-494	0	0				
					2	30/06/2016	324.0	4,721	655	219	-386	0	0				
					2	31/07/2016	324.1	4,771	594	182	-443	0	0				
					2	31/08/2016	324.2	4,804	533	181	-613	0	0				
					2	30/09/2016	324.2	4,814	538	104	-803	0	0				
					2	31/10/2016	324.2	4,798	541	123	-1,098	0	0				
					2	30/11/2016	324.1	4,755	614	125	-1,152	0	0				
					2	31/12/2016	324.0	4,713	665	130	-931	0	0				
					2	31/01/2017	324.0	4,700	616	177	-871	0	0				
					2	28/02/2017	323.9	4,692	692	208	-1,110	0	0				
					2	31/03/2017	323.9	4,670	695	191	-943	0	0				
					2	30/04/2017	323.9	4,664	725	164	-742	0	0				
					2	31/05/2017	323.9	4,679	684	212	-494	0	0				
					2	30/06/2017	324.0	4,720	657	219	-386	0	0				
					2	31/07/2017	324.1	4,770	595	182	-443	0	0				
					2	31/08/2017	324.2	4,803	534	181	-613	0	0				
					2	30/09/2017	324.2	4,814	539	104	-803	0	0				
					2	31/10/2017	324.2	4,798	541	123	-1,098	0	0				
					2	30/11/2017	324.1	4,754	614	125	-1,152	0	0				
					2	31/12/2017	324.0	4,713	666	130	-931	0	0				
					2	31/01/2018	324.0	4,699	617	177	-871	0	0				
					2	28/02/2018	323.9	4,691	692	208	-1,110	0	0				
					2	31/03/2018	323.9	4,670	695	191	-943	0	0				
					2	30/04/2018	323.9	4,664	725	164	-742	0	0				
					2	31/05/2018	323.9	4,679	684	212	-494	0	0				
					2	30/06/2018	324.0	4,720	657	219	-386	0	0				
					2	31/07/2018	324.1	4,770	595	182	-443	0	0				
					2	31/08/2018	324.2	4,803	534	181	-613	0	0				
					2	30/09/2018	324.2	4,813	539	104	-803	0	0				
					2	31/10/2018	324.2	4,798	541	123	-1,098	0	0				
					2	30/11/2018	324.1	4,754	614	125	-1,152	0	0				
					2	31/12/2018	324.0	4,713	666	130	-931	0	0				
					2	31/01/2019	324.0	4,699	617	177	-871	0	0				
					2	28/02/2019	323.9	4,691	692	208	-1,110	0	0				
					2	31/03/2019	323.9	4,670	695	191	-943	0	0				
					2	30/04/2019	323.9	4,664	725	164	-742	0	0				
					2	31/05/2019	323.9	4,679	684	212	-494	0	0				
					2	30/06/2019	324.0	4,720	657	219	-386	0	0				
					2	31/07/2019	324.1	4,770	595	182	-443	0	0				
					2	31/08/2019	324.2	4,803	534	181	-613	0	0				
					2	30/09/2019	324.2	4,813	539	104	-803	0	0				
					2	31/10/2019	324.2	4,798	541	123	-1,098	0	0				
					2	30/11/2019	324.1	4,754	614	125	-1,152	0	0				
					2	31/12/2019	324.0	4,713	666	130	-931	0	0				
					2	31/01/2020	324.0	4,699	639	177	-871	0	0				
					2	29/02/2020	324.0	4,694	690	208	-1,110	0	0				
					2	31/03/2020	323.9	4,672	693	191	-943	0	0				
					2	30/04/2020	323.9	4,666	723	164	-742	0	0				
					2	31/05/2020	323.9	4,681	683	212	-494	0	0				
					2	30/06/2020	324.0	4,721	655	219	-386	0	0				
					2	31/07/2020	324.1	4,771	594	182	-443	0	0				
					2	31/08/2020	324.2	4,804	533	181	-613	0	0				

Stage, m	AREA, IN m SQUARED	Volume, m^3	Lateral Area, m^2		row	DATE	STAGE, IN m	AREA, IN m SQUARED	GW, m^3	precip,m^3	PET, m^3	Water Supply to Processing Plant, m^3	Pumped water, m^3		Month	precip,m	PET, m
					2	30/09/2020	324.2	4,814	538	104	-803	0	0				
					2	31/10/2020	324.2	4,798	541	123	-1,098	0	0				
					2	30/11/2020	324.1	4,755	614	125	-1,152	0	0				
					2	31/12/2020	324.0	4,713	665	130	-931	0	0				
					2	31/01/2021	324.0	4,700	616	177	-871	0	0				
					2	28/02/2021	323.9	4,692	692	208	-1,110	0	0				
					2	31/03/2021	323.9	4,670	695	191	-943	0	0				
					2	30/04/2021	323.9	4,664	725	164	-742	0	0				
					2	31/05/2021	323.9	4,679	684	212	-494	0	0				
					2	30/06/2021	324.0	4,720	657	219	-386	0	0				
					2	31/07/2021	324.1	4,770	595	182	-443	0	0				
					2	31/08/2021	324.2	4,803	534	181	-613	0	0				
					2	30/09/2021	324.2	4,814	539	104	-803	0	0				
					2	31/10/2021	324.2	4,798	541	123	-1,098	0	0				
					2	30/11/2021	324.1	4,754	614	125	-1,152	0	0				
					2	31/12/2021	324.0	4,713	666	130	-931	0	0				
					2	31/01/2022	324.0	4,699	617	177	-871	0	0				
					2	28/02/2022	323.9	4,691	692	208	-1,110	0	0				
					2	31/03/2022	323.9	4,670	695	191	-943	0	0				
					2	30/04/2022	323.9	4,664	725	164	-742	0	0				
					2	31/05/2022	323.9	4,679	684	212	-494	0	0				
					2	30/06/2022	324.0	4,720	657	219	-386	0	0				
					2	31/07/2022	324.1	4,770	595	182	-443	0	0				
					2	31/08/2022	324.2	4,803	534	181	-613	0	0				
					2	30/09/2022	324.2	4,813	539	104	-803	0	0				
					2	31/10/2022	324.2	4,798	541	123	-1,098	0	0				
					2	30/11/2022	324.1	4,754	614	125	-1,152	0	0				
					2	31/12/2022	324.0	4,713	666	130	-931	0	0				
					2	31/01/2023	324.0	4,699	617	177	-871	0	0				
					2	28/02/2023	323.9	4,691	692	208	-1,110	0	0				
					2	31/03/2023	323.9	4,670	695	191	-943	0	0				
					2	30/04/2023	323.9	4,664	725	164	-742	0	0				
					2	31/05/2023	323.9	4,679	684	212	-494	0	0				
					2	30/06/2023	324.0	4,720	657	219	-386	0	0				
					2	31/07/2023	324.1	4,770	595	182	-443	0	0				
					2	31/08/2023	324.2	4,803	534	181	-613	0	0				
					2	30/09/2023	324.2	4,813	539	104	-803	0	0				
					2	31/10/2023	324.2	4,798	541	123	-1,098	0	0				
					2	30/11/2023	324.1	4,754	614	125	-1,152	0	0				
					2	31/12/2023	324.0	4,713	666	130	-931	0	0				
					2	31/01/2024	324.0	4,699	639	177	-871	0	0				
					2	29/02/2024	324.0	4,694	690	208	-1,110	0	0				
					2	31/03/2024	323.9	4,672	693	191	-943	0	0				
					2	30/04/2024	323.9	4,666	723	164	-742	0	0				
					2	31/05/2024	323.9	4,681	683	212	-494	0	0				
					2	30/06/2024	324.0	4,721	655	219	-386	0	0				
					2	31/07/2024	324.1	4,771	594	182	-443	0	0				
					2	31/08/2024	324.2	4,804	533	181	-613	0	0				
					2	30/09/2024	324.2	4,814	538	104	-803	0	0				
					2	31/10/2024	324.2	4,798	541	123	-1,098	0	0				
					2	30/11/2024	324.1	4,755	614	125	-1,152	0	0				
					2	31/12/2024	324.0	4,713	665	130	-931	0	0				
					2	31/01/2025	324.0	4,700	616	177	-871	0	0				
					2	28/02/2025	323.9	4,692	692	208	-1,110	0	0				
					2	31/03/2025	323.9	4,670	695	191	-943	0	0				
					2	30/04/2025	323.9	4,664	725	164	-742	0	0				
					2	31/05/2025	323.9	4,679	684	212	-494	0	0				
					2	30/06/2025	324.0	4,720	657	219	-386	0	0				
					2	31/07/2025	324.1	4,770	595	182	-443	0	0				

Stage, m	AREA, IN m SQUARED	Volume, m^3	Lateral Area, m^2		row	DATE	STAGE, IN m	AREA, IN m SQUARED	GW, m^3	precip,m^3	PET, m^3	Water Supply to Processing Plant, m^3	Pumped water, m^3		Month	precip,m	PET, m
					2	31/08/2025	324.2	4,803	534	181	-613	0	0				
					2	30/09/2025	324.2	4,814	539	104	-803	0	0				
					2	31/10/2025	324.2	4,798	541	123	-1,098	0	0				
					2	30/11/2025	324.1	4,754	614	125	-1,152	0	0				
					2	31/12/2025	324.0	4,713	666	130	-931	0	0				
					2	31/01/2026	324.0	4,699	617	177	-871	-72,000	216000	input from Bakers Flat!			
					3	28/02/2026	338.0	16,803	-26,172	508	-3,975	-72,000	173000	input from Bakers Flat!			
					3	31/03/2026	340.0	19,073	-32,453	519	-3,852	-72,000	0	transfer to Greenfields dam			
					3	30/04/2026	334.3	12,551	-14,791	318	-1,997	-72,000	0				
					2	31/05/2026	327.3	6,272	-1,952	252	-663	-72,000	0				
					1	30/06/2026	315.4	1,511	1,938	135	-124	-1,949	0	collection of groundwater inflows!			
					1	31/07/2026	315.4	1,511	1,938	112	-140	-1,909	0				
					1	31/08/2026	315.4	1,511	1,875	111	-193	-1,793	0				
					1	30/09/2026	315.4	1,511	1,938	64	-252	-1,750	0				
					1	31/10/2026	315.4	1,511	1,875	75	-346	-1,604	0				
					1	30/11/2026	315.4	1,511	1,938	77	-366	-1,648	0				
					1	31/12/2026	315.4	1,511	1,938	80	-298	-1,720	0				
					1	31/01/2027	315.4	1,511	1,750	110	-280	-1,580	0				
					1	28/02/2027	315.4	1,511	1,938	129	-358	-1,709	0				
					1	31/03/2027	315.4	1,511	1,875	119	-305	-1,689	0				
					1	30/04/2027	315.4	1,511	1,938	102	-241	-1,799	0				
					1	31/05/2027	315.4	1,511	1,875	132	-160	-1,847	0				
					1	30/06/2027	315.4	1,511	1,938	135	-124	-1,949	0				
					1	31/07/2027	315.4	1,511	1,938	112	-140	-1,909	0				
					1	31/08/2027	315.4	1,511	1,875	111	-193	-1,793	0				
					1	30/09/2027	315.4	1,511	1,938	64	-252	-1,750	0				
					1	31/10/2027	315.4	1,511	1,875	75	-346	-1,604	0				
					1	30/11/2027	315.4	1,511	1,938	77	-366	-1,648	0				
					1	31/12/2027	315.4	1,511	1,938	80	-298	-1,720	0				
					1	31/01/2028	315.4	1,511	1,813	110	-280	-1,642	0				
					1	29/02/2028	315.4	1,511	1,938	129	-358	-1,709	0				
					1	31/03/2028	315.4	1,511	1,875	119	-305	-1,689	0				
					1	30/04/2028	315.4	1,511	1,938	102	-241	-1,799	0				
					1	31/05/2028	315.4	1,511	1,875	132	-160	-1,847	0				
					1	30/06/2028	315.4	1,511	1,938	135	-124	-1,949	0				
					1	31/07/2028	315.4	1,511	1,938	112	-140	-1,909	0				
					1	31/08/2028	315.4	1,511	1,875	111	-193	-1,793	0				
					1	30/09/2028	315.4	1,511	1,938	64	-252	-1,750	0				
					1	31/10/2028	315.4	1,511	1,875	75	-346	-1,604	0				
					1	30/11/2028	315.4	1,511	1,938	77	-366	-1,648	0				
					1	31/12/2028	315.4	1,511	1,938	80	-298	-1,720	0				
					1	31/01/2029	315.4	1,511	1,750	110	-280	-72,000	86400	input from Shirl!			
					2	28/02/2029	322.0	3,781	1,540	186	-894	-72,000	86400				
					2	31/03/2029	326.2	5,778	-970	216	-1,167	-72,000	86400				
					2	30/04/2029	328.7	6,950	-3,660	208	-1,106	-72,000	86400				
					2	31/05/2029	329.3	7,274	-4,401	277	-768	-72,000	86400				
					3	30/06/2029	330.3	7,965	-6,029	303	-651	-72,000	86400				
					3	31/07/2029	331.2	8,972	-7,640	272	-834	-72,000	86400				
					3	31/08/2029	332.1	9,995	-9,153	291	-1,276	-72,000	86400				
					3	30/09/2029	333.0	11,034	-11,489	181	-1,840	-72,000	86400				
					3	31/10/2029	332.8	10,829	-10,717	209	-2,479	-72,000	86400				
					3	30/11/2029	332.8	10,820	-11,057	215	-2,622	-72,000	86400				
					3	31/12/2029	332.8	10,768	-10,952	223	-2,126	-72,000	86400				
					3	31/01/2030	332.8	10,827	-9,998	306	-2,007	-72,000	86400				
					3	28/02/2030	332.9	10,957	-11,333	363	-2,592	-72,000	86400				
					3	31/03/2030	332.8	10,776	-10,614	330	-2,176	-72,000	86400				
					3	30/04/2030	332.8	10,870	-11,156	285	-1,730	-72,000	86400				
					3	31/05/2030	332.8	10,866	-10,790	367	-1,148	-72,000	86400				
					3	30/06/2030	332.9	10,976	-11,370	381	-897	-72,000	86400				

Stage, m	AREA, IN m SQUARED	Volume, m^3	Lateral Area, m^2		row	DATE	STAGE, IN m	AREA, IN m SQUARED	GW, m^3	precip,m^3	PET, m^3	Water Supply to Processing Plant, m^3	Pumped water, m^3		Month	precip,m	PET, m
					3	31/07/2030	332.9	10,954	-11,327	314	-1,018	-72,000	86400				
					3	31/08/2030	332.9	10,937	-10,927	311	-1,396	-72,000	86400				
					3	30/09/2030	332.9	10,937	-11,292	179	-1,823	-72,000	86400				
					3	31/10/2030	332.8	10,839	-10,737	210	-2,481	-72,000	86400				
					3	30/11/2030	332.8	10,819	-11,054	215	-2,622	-72,000	86400				
					3	31/12/2030	332.8	10,768	-10,952	223	-2,126	-72,000	38000				
					2	31/01/2031	327.8	6,538	-2,372	216	-1,212	0	0	transfer to Greenfields dam			
					2	28/02/2031	327.3	6,291	-2,059	248	-1,488	0	0				
					2	31/03/2031	326.8	6,040	-1,472	222	-1,220	0	0				
					2	30/04/2031	326.4	5,844	-1,129	187	-930	0	0				
					2	31/05/2031	326.0	5,691	-812	237	-601	0	0				
					2	30/06/2031	325.8	5,592	-659	241	-457	0	0				
					2	31/07/2031	325.7	5,517	-527	198	-513	0	0				
					2	31/08/2031	325.5	5,444	-389	195	-695	0	0				
					2	30/09/2031	325.4	5,366	-272	111	-895	0	0				
					2	31/10/2031	325.2	5,272	-116	129	-1,207	0	0				
					2	30/11/2031	324.9	5,164	48	131	-1,251	0	0				
					2	31/12/2031	324.7	5,064	195	135	-1,000	0	0				
					2	31/01/2032	324.6	5,001	267	184	-927	0	0				
					2	29/02/2032	324.5	4,955	349	215	-1,172	0	0				
					2	31/03/2032	324.4	4,896	416	196	-989	0	0				
					2	30/04/2032	324.3	4,860	479	167	-773	0	0				
					2	31/05/2032	324.3	4,847	479	216	-512	0	0				
					2	30/06/2032	324.3	4,865	471	222	-398	0	0				
					2	31/07/2032	324.4	4,894	432	184	-455	0	0				
					2	31/08/2032	324.4	4,910	398	183	-627	0	0				
					2	30/09/2032	324.4	4,906	417	106	-818	0	0				
					2	31/10/2032	324.3	4,877	441	124	-1,116	0	0				
					2	30/11/2032	324.2	4,823	527	126	-1,169	0	0				
					2	31/12/2032	324.1	4,772	593	131	-942	0	0				
					2	31/01/2033	324.1	4,750	560	178	-880	0	0				
					2	28/02/2033	324.0	4,735	638	209	-1,120	0	0				
					2	31/03/2033	324.0	4,708	651	192	-951	0	0				
					2	30/04/2033	324.0	4,697	686	164	-747	0	0				
					2	31/05/2033	324.0	4,707	651	212	-497	0	0				
					2	30/06/2033	324.1	4,744	627	219	-388	0	0				
					2	31/07/2033	324.2	4,791	568	182	-445	0	0				
					2	31/08/2033	324.2	4,821	512	181	-615	0	0				
					2	30/09/2033	324.2	4,829	519	105	-805	0	0				
					2	31/10/2033	324.2	4,811	525	123	-1,101	0	0				
					2	30/11/2033	324.1	4,766	600	125	-1,155	0	0				
					2	31/12/2033	324.0	4,723	654	130	-932	0	0				
					2	31/01/2034	324.0	4,708	607	177	-873	0	0				
					2	28/02/2034	324.0	4,699	683	208	-1,112	0	0				
					2	31/03/2034	323.9	4,676	688	191	-944	0	0				
					2	30/04/2034	323.9	4,670	719	164	-743	0	0				
					2	31/05/2034	323.9	4,684	679	212	-495	0	0				
					2	30/06/2034	324.0	4,724	652	219	-386	0	0				
					2	31/07/2034	324.1	4,773	590	182	-444	0	0				
					2	31/08/2034	324.2	4,806	531	181	-613	0	0				
					2	30/09/2034	324.2	4,816	536	104	-803	0	0				
					2	31/10/2034	324.2	4,800	539	123	-1,099	0	0				
					2	30/11/2034	324.1	4,756	612	125	-1,153	0	0				
					2	31/12/2034	324.0	4,714	664	130	-931	0	0				
					2	31/01/2035	324.0	4,701	615	177	-871	0	0				
					2	28/02/2035	324.0	4,692	691	208	-1,110	0	0				
					2	31/03/2035	323.9	4,671	694	191	-943	0	0				
					2	30/04/2035	323.9	4,665	724	164	-742	0	0				
					2	31/05/2035	323.9	4,680	683	212	-494	0	0				

Stage, m	AREA, IN m SQUARED	Volume, m^3	Lateral Area, m^2		row	DATE	STAGE, IN m	AREA, IN m SQUARED	GW, m^3	precip,m^3	PET, m^3	Water Supply to Processing Plant, m^3	Pumped water, m^3		Month	precip,m	PET, m
					2	30/06/2035	324.0	4,721	656	219	-386	0	0				
					2	31/07/2035	324.1	4,770	594	182	-443	0	0				
					2	31/08/2035	324.2	4,804	534	181	-613	0	0				
					2	30/09/2035	324.2	4,814	538	104	-803	0	0				
					2	31/10/2035	324.2	4,798	541	123	-1,098	0	0				
					2	30/11/2035	324.1	4,755	614	125	-1,152	0	0				
					2	31/12/2035	324.0	4,713	666	130	-931	0	0				
					2	31/01/2036	324.0	4,699	639	177	-871	0	0				
					2	29/02/2036	324.0	4,694	689	208	-1,110	0	0				
					2	31/03/2036	323.9	4,672	693	191	-944	0	0				
					2	30/04/2036	323.9	4,666	723	164	-743	0	0				
					2	31/05/2036	323.9	4,681	683	212	-494	0	0				
					2	30/06/2036	324.0	4,722	655	219	-386	0	0				
					2	31/07/2036	324.1	4,771	593	182	-443	0	0				
					2	31/08/2036	324.2	4,804	533	181	-613	0	0				
					2	30/09/2036	324.2	4,814	538	104	-803	0	0				
					2	31/10/2036	324.2	4,798	540	123	-1,099	0	0				
					2	30/11/2036	324.1	4,755	614	125	-1,152	0	0				
					2	31/12/2036	324.0	4,713	665	130	-931	0	0				
					2	31/01/2037	324.0	4,700	616	177	-871	0	0				
					2	28/02/2037	323.9	4,692	692	208	-1,110	0	0				
					2	31/03/2037	323.9	4,670	695	191	-943	0	0				
					2	30/04/2037	323.9	4,664	725	164	-742	0	0				
					2	31/05/2037	323.9	4,679	684	212	-494	0	0				
					2	30/06/2037	324.0	4,720	657	219	-386	0	0				
					2	31/07/2037	324.1	4,770	595	182	-443	0	0				
					2	31/08/2037	324.2	4,803	534	181	-613	0	0				
					2	30/09/2037	324.2	4,814	539	104	-803	0	0				
					2	31/10/2037	324.2	4,798	541	123	-1,098	0	0				
					2	30/11/2037	324.1	4,754	614	125	-1,152	0	0				
					2	31/12/2037	324.0	4,713	666	130	-931	0	0				
					2	31/01/2038	324.0	4,699	617	177	-871	0	0				
					2	28/02/2038	323.9	4,691	692	208	-1,110	0	0				
					2	31/03/2038	323.9	4,670	695	191	-943	0	0				
					2	30/04/2038	323.9	4,664	725	164	-742	0	0				
					2	31/05/2038	323.9	4,679	684	212	-494	0	0				
					2	30/06/2038	324.0	4,720	657	219	-386	0	0				
					2	31/07/2038	324.1	4,770	595	182	-443	0	0				
					2	31/08/2038	324.2	4,803	534	181	-613	0	0				
					2	30/09/2038	324.2	4,814	539	104	-803	0	0				
					2	31/10/2038	324.2	4,798	541	123	-1,098	0	0				
					2	30/11/2038	324.1	4,754	614	125	-1,152	0	0				
					2	31/12/2038	324.0	4,713	666	130	-931	0	0				
					2	31/01/2039	324.0	4,699	617	177	-871	0	0				
					2	28/02/2039	323.9	4,691	692	208	-1,110	0	0				
					2	31/03/2039	323.9	4,670	695	191	-943	0	0				
					2	30/04/2039	323.9	4,664	725	164	-742	0	0				
					2	31/05/2039	323.9	4,679	684	212	-494	0	0				
					2	30/06/2039	324.0	4,720	657	219	-386	0	0				
					2	31/07/2039	324.1	4,770	595	182	-443	0	0				
					2	31/08/2039	324.2	4,803	534	181	-613	0	0				
					2	30/09/2039	324.2	4,813	539	104	-803	0	0				
					2	31/10/2039	324.2	4,798	541	123	-1,098	0	0				
					2	30/11/2039	324.1	4,754	614	125	-1,152	0	0				
					2	31/12/2039	324.0	4,713	666	130	-931	0	0				
					2	31/01/2040	324.0	4,699	639	177	-871	0	0				
					2	29/02/2040	324.0	4,694	690	208	-1,110	0	0				
					2	31/03/2040	323.9	4,672	693	191	-943	0	0				
					2	30/04/2040	323.9	4,666	723	164	-742	0	0				

Stage, m	AREA, IN m SQUARED	Volume, m^3	Lateral Area, m^2		row	DATE	STAGE, IN m	AREA, IN m SQUARED	GW, m^3	precip,m^3	PET, m^3	Water Supply to Processing Plant, m^3	Pumped water, m^3		Month	precip,m	PET, m
					2	31/05/2040	323.9	4,681	683	212	-494	0	0				
					2	30/06/2040	324.0	4,721	655	219	-386	0	0				
					2	31/07/2040	324.1	4,771	594	182	-443	0	0				
					2	31/08/2040	324.2	4,804	533	181	-613	0	0				
					2	30/09/2040	324.2	4,814	538	104	-803	0	0				
					2	31/10/2040	324.2	4,798	541	123	-1,098	0	0				
					2	30/11/2040	324.1	4,755	614	125	-1,152	0	0				
					2	31/12/2040	324.0	4,713	665	130	-931	0	0				
					2	31/01/2041	324.0	4,700	616	177	-871	0	0				
					2	28/02/2041	323.9	4,692	692	208	-1,110	0	0				
					2	31/03/2041	323.9	4,670	695	191	-943	0	0				
					2	30/04/2041	323.9	4,664	725	164	-742	0	0				
					2	31/05/2041	323.9	4,679	684	212	-494	0	0				
					2	30/06/2041	324.0	4,720	657	219	-386	0	0				
					2	31/07/2041	324.1	4,770	595	182	-443	0	0				
					2	31/08/2041	324.2	4,803	534	181	-613	0	0				
					2	30/09/2041	324.2	4,814	539	104	-803	0	0				
					2	31/10/2041	324.2	4,798	541	123	-1,098	0	0				
					2	30/11/2041	324.1	4,754	614	125	-1,152	0	0				
					2	31/12/2041	324.0	4,713	666	130	-931	0	0				
					2	31/01/2042	324.0	4,699	617	177	-871	0	0				
					2	28/02/2042	323.9	4,691	692	208	-1,110	0	0				
					2	31/03/2042	323.9	4,670	695	191	-943	0	0				
					2	30/04/2042	323.9	4,664	725	164	-742	0	0				
					2	31/05/2042	323.9	4,679	684	212	-494	0	0				
					2	30/06/2042	324.0	4,720	657	219	-386	0	0				
					2	31/07/2042	324.1	4,770	595	182	-443	0	0				
					2	31/08/2042	324.2	4,803	534	181	-613	0	0				
					2	30/09/2042	324.2	4,813	539	104	-803	0	0				
					2	31/10/2042	324.2	4,798	541	123	-1,098	0	0				
					2	30/11/2042	324.1	4,754	614	125	-1,152	0	0				
					2	31/12/2042	324.0	4,713	666	130	-931	0	0				
					2	31/01/2043	324.0	4,699	617	177	-871	0	0				
					2	28/02/2043	323.9	4,691	692	208	-1,110	0	0				
					2	31/03/2043	323.9	4,670	695	191	-943	0	0				
					2	30/04/2043	323.9	4,664	725	164	-742	0	0				
					2	31/05/2043	323.9	4,679	684	212	-494	0	0				
					2	30/06/2043	324.0	4,720	657	219	-386	0	0				
					2	31/07/2043	324.1	4,770	595	182	-443	0	0				
					2	31/08/2043	324.2	4,803	534	181	-613	0	0				
					2	30/09/2043	324.2	4,813	539	104	-803	0	0				
					2	31/10/2043	324.2	4,798	541	123	-1,098	0	0				
					2	30/11/2043	324.1	4,754	614	125	-1,152	0	0				
					2	31/12/2043	324.0	4,713	666	130	-931	0	0				
					2	31/01/2044	324.0	4,699	639	177	-871	0	0				
					2	29/02/2044	324.0	4,694	690	208	-1,110	0	0				
					2	31/03/2044	323.9	4,672	693	191	-943	0	0				
					2	30/04/2044	323.9	4,666	723	164	-742	0	0				
					2	31/05/2044	323.9	4,681	683	212	-494	0	0				
					2	30/06/2044	324.0	4,721	655	219	-386	0	0				
					2	31/07/2044	324.1	4,771	594	182	-443	0	0				
					2	31/08/2044	324.2	4,804	533	181	-613	0	0				
					2	30/09/2044	324.2	4,814	538	104	-803	0	0				
					2	31/10/2044	324.2	4,798	541	123	-1,098	0	0				
					2	30/11/2044	324.1	4,755	614	125	-1,152	0	0				
					2	31/12/2044	324.0	4,713	665	130	-931	0	0				
					2	31/01/2045	324.0	4,700	616	177	-871	0	0				
					2	28/02/2045	323.9	4,692	692	208	-1,110	0	0				
					2	31/03/2045	323.9	4,670	695	191	-943	0	0				

Stage, m	AREA, IN m SQUARED	Volume, m^3	Lateral Area, m^2		row	DATE	STAGE, IN m	AREA, IN m SQUARED	GW, m^3	precip,m^3	PET, m^3	Water Supply to Processing Plant, m^3	Pumped water, m^3		Month	precip,m	PET, m
					2	30/04/2045	323.9	4,664	725	164	-742	0	0				
					2	31/05/2045	323.9	4,679	684	212	-494	0	0				
					2	30/06/2045	324.0	4,720	657	219	-386	0	0				
					2	31/07/2045	324.1	4,770	595	182	-443	0	0				
					2	31/08/2045	324.2	4,803	534	181	-613	0	0				
					2	30/09/2045	324.2	4,814	539	104	-803	0	0				
					2	31/10/2045	324.2	4,798	541	123	-1,098	0	0				
					2	30/11/2045	324.1	4,754	614	125	-1,152	0	0				
					2	31/12/2045	324.0	4,713	666	130	-931	0	0				
					2	31/01/2046	324.0	4,699	617	177	-871	0	0				
					2	28/02/2046	323.9	4,691	692	208	-1,110	0	0				
					2	31/03/2046	323.9	4,670	695	191	-943	0	0				
					2	30/04/2046	323.9	4,664	725	164	-742	0	0				
					2	31/05/2046	323.9	4,679	684	212	-494	0	0				
					2	30/06/2046	324.0	4,720	657	219	-386	0	0				
					2	31/07/2046	324.1	4,770	595	182	-443	0	0				
					2	31/08/2046	324.2	4,803	534	181	-613	0	0				
					2	30/09/2046	324.2	4,813	539	104	-803	0	0				
					2	31/10/2046	324.2	4,798	541	123	-1,098	0	0				
					2	30/11/2046	324.1	4,754	614	125	-1,152	0	0				
					2	31/12/2046	324.0	4,713	666	130	-931	0	0				
					2	31/01/2047	324.0	4,699	617	177	-871	0	0				
					2	28/02/2047	323.9	4,691	692	208	-1,110	0	0				
					2	31/03/2047	323.9	4,670	695	191	-943	0	0				
					2	30/04/2047	323.9	4,664	725	164	-742	0	0				
					2	31/05/2047	323.9	4,679	684	212	-494	0	0				
					2	30/06/2047	324.0	4,720	657	219	-386	0	0				
					2	31/07/2047	324.1	4,770	595	182	-443	0	0				
					2	31/08/2047	324.2	4,803	534	181	-613	0	0				
					2	30/09/2047	324.2	4,813	539	104	-803	0	0				
					2	31/10/2047	324.2	4,798	541	123	-1,098	0	0				
					2	30/11/2047	324.1	4,754	614	125	-1,152	0	0				
					2	31/12/2047	324.0	4,713	666	130	-931	0	0				
					2	31/01/2048	324.0	4,699	639	177	-871	0	0				
					2	29/02/2048	324.0	4,694	690	208	-1,110	0	0				
					2	31/03/2048	323.9	4,672	693	191	-943	0	0				
					2	30/04/2048	323.9	4,666	723	164	-742	0	0				
					2	31/05/2048	323.9	4,681	683	212	-494	0	0				
					2	30/06/2048	324.0	4,721	655	219	-386	0	0				
					2	31/07/2048	324.1	4,771	594	182	-443	0	0				
					2	31/08/2048	324.2	4,804	533	181	-613	0	0				
					2	30/09/2048	324.2	4,814	538	104	-803	0	0				
					2	31/10/2048	324.2	4,798	541	123	-1,098	0	0				
					2	30/11/2048	324.1	4,755	614	125	-1,152	0	0				
					2	31/12/2048	324.0	4,713	665	130	-931	0	0				
					2	31/01/2049	324.0	4,700	616	177	-871	0	0				
					2	28/02/2049	323.9	4,692	692	208	-1,110	0	0				
					2	31/03/2049	323.9	4,670	695	191	-943	0	0				
					2	30/04/2049	323.9	4,664	725	164	-742	0	0				
					2	31/05/2049	323.9	4,679	684	212	-494	0	0				
					2	30/06/2049	324.0	4,720	657	219	-386	0	0				
					2	31/07/2049	324.1	4,770	595	182	-443	0	0				
					2	31/08/2049	324.2	4,803	534	181	-613	0	0				
					2	30/09/2049	324.2	4,814	539	104	-803	0	0				
					2	31/10/2049	324.2	4,798	541	123	-1,098	0	0				
					2	30/11/2049	324.1	4,754	614	125	-1,152	0	0				
					2	31/12/2049	324.0	4,713	666	130	-931	0	0				
					2	31/01/2050	324.0	4,699	617	177	-871	0	0				
					2	28/02/2050	323.9	4,691	692	208	-1,110	0	0				

Stage, m	AREA, IN m SQUARED	Volume, m^3	Lateral Area, m^2		row	DATE	STAGE, IN m	AREA, IN m SQUARED	GW, m^3	precip,m^3	PET, m^3	Water Supply to Processing Plant, m^3	Pumped water, m^3		Month	precip,m	PET, m
					2	31/03/2050	323.9	4,670	695	191	-943	0	0				
					2	30/04/2050	323.9	4,664	725	164	-742	0	0				
					2	31/05/2050	323.9	4,679	684	212	-494	0	0				
					2	30/06/2050	324.0	4,720	657	219	-386	0	0				
					2	31/07/2050	324.1	4,770	595	182	-443	0	0				
					2	31/08/2050	324.2	4,803	534	181	-613	0	0				
					2	30/09/2050	324.2	4,813	539	104	-803	0	0				
					2	31/10/2050	324.2	4,798	541	123	-1,098	0	0				
					2	30/11/2050	324.1	4,754	614	125	-1,152	0	0				
					2	31/12/2050	324.0	4,713	666	130	-931	0	0				
					2	31/01/2051	324.0	4,699	617	177	-871	0	0				
					2	28/02/2051	323.9	4,691	692	208	-1,110	0	0				
					2	31/03/2051	323.9	4,670	695	191	-943	0	0				
					2	30/04/2051	323.9	4,664	725	164	-742	0	0				
					2	31/05/2051	323.9	4,679	684	212	-494	0	0				
					2	30/06/2051	324.0	4,720	657	219	-386	0	0				
					2	31/07/2051	324.1	4,770	595	182	-443	0	0				
					2	31/08/2051	324.2	4,803	534	181	-613	0	0				
					2	30/09/2051	324.2	4,813	539	104	-803	0	0				
					2	31/10/2051	324.2	4,798	541	123	-1,098	0	0				
					2	30/11/2051	324.1	4,754	614	125	-1,152	0	0				
					2	31/12/2051	324.0	4,713	666	130	-931	0	0				
					2	31/01/2052	324.0	4,699	639	177	-871	0	0				
					2	29/02/2052	324.0	4,694	690	208	-1,110	0	0				
					2	31/03/2052	323.9	4,672	693	191	-943	0	0				
					2	30/04/2052	323.9	4,666	723	164	-742	0	0				
					2	31/05/2052	323.9	4,681	683	212	-494	0	0				
					2	30/06/2052	324.0	4,721	655	219	-386	0	0				
					2	31/07/2052	324.1	4,771	594	182	-443	0	0				
					2	31/08/2052	324.2	4,804	533	181	-613	0	0				
					2	30/09/2052	324.2	4,814	538	104	-803	0	0				
					2	31/10/2052	324.2	4,798	541	123	-1,098	0	0				
					2	30/11/2052	324.1	4,755	614	125	-1,152	0	0				
					2	31/12/2052	324.0	4,713	665	130	-931	0	0				
					2	31/01/2053	324.0	4,700	616	177	-871	0	0				
					2	28/02/2053	323.9	4,692	692	208	-1,110	0	0				
					2	31/03/2053	323.9	4,670	695	191	-943	0	0				
					2	30/04/2053	323.9	4,664	725	164	-742	0	0				
					2	31/05/2053	323.9	4,679	684	212	-494	0	0				
					2	30/06/2053	324.0	4,720	657	219	-386	0	0				
					2	31/07/2053	324.1	4,770	595	182	-443	0	0				
					2	31/08/2053	324.2	4,803	534	181	-613	0	0				
					2	30/09/2053	324.2	4,814	539	104	-803	0	0				
					2	31/10/2053	324.2	4,798	541	123	-1,098	0	0				
					2	30/11/2053	324.1	4,754	614	125	-1,152	0	0				
					2	31/12/2053	324.0	4,713	666	130	-931	0	0				
					2	31/01/2054	324.0	4,699	617	177	-871	0	0				
					2	28/02/2054	323.9	4,691	692	208	-1,110	0	0				
					2	31/03/2054	323.9	4,670	695	191	-943	0	0				
					2	30/04/2054	323.9	4,664	725	164	-742	0	0				
					2	31/05/2054	323.9	4,679	684	212	-494	0	0				
					2	30/06/2054	324.0	4,720	657	219	-386	0	0				
					2	31/07/2054	324.1	4,770	595	182	-443	0	0				
					2	31/08/2054	324.2	4,803	534	181	-613	0	0				
					2	30/09/2054	324.2	4,813	539	104	-803	0	0				
					2	31/10/2054	324.2	4,798	541	123	-1,098	0	0				
					2	30/11/2054	324.1	4,754	614	125	-1,152	0	0				
					2	31/12/2054	324.0	4,713	666	130	-931	0	0				
					2	31/01/2055	324.0	4,699	617	177	-871	0	0				

Stage, m	AREA, IN m SQUARED	Volume, m^3	Lateral Area, m^2		row	DATE	STAGE, IN m	AREA, IN m SQUARED	GW, m^3	precip,m^3	PET, m^3	Water Supply to Processing Plant, m^3	Pumped water, m^3		Month	precip,m	PET, m
					2	28/02/2055	323.9	4,691	692	208	-1,110	0	0				
					2	31/03/2055	323.9	4,670	695	191	-943	0	0				
					2	30/04/2055	323.9	4,664	725	164	-742	0	0				
					2	31/05/2055	323.9	4,679	684	212	-494	0	0				
					2	30/06/2055	324.0	4,720	657	219	-386	0	0				
					2	31/07/2055	324.1	4,770	595	182	-443	0	0				
					2	31/08/2055	324.2	4,803	534	181	-613	0	0				
					2	30/09/2055	324.2	4,813	539	104	-803	0	0				
					2	31/10/2055	324.2	4,798	541	123	-1,098	0	0				
					2	30/11/2055	324.1	4,754	614	125	-1,152	0	0				
					2	31/12/2055	324.0	4,713	666	130	-931	0	0				
					2	31/01/2056	324.0	4,699	639	177	-871	0	0				
					2	29/02/2056	324.0	4,694	690	208	-1,110	0	0				
					2	31/03/2056	323.9	4,672	693	191	-943	0	0				
					2	30/04/2056	323.9	4,666	723	164	-742	0	0				
					2	31/05/2056	323.9	4,681	683	212	-494	0	0				
					2	30/06/2056	324.0	4,721	655	219	-386	0	0				
					2	31/07/2056	324.1	4,771	594	182	-443	0	0				
					2	31/08/2056	324.2	4,804	533	181	-613	0	0				
					2	30/09/2056	324.2	4,814	538	104	-803	0	0				
					2	31/10/2056	324.2	4,798	541	123	-1,098	0	0				
					2	30/11/2056	324.1	4,755	614	125	-1,152	0	0				
					2	31/12/2056	324.0	4,713	665	130	-931	0	0				
					2	31/01/2057	324.0	4,700	616	177	-871	0	0				
					2	28/02/2057	323.9	4,692	692	208	-1,110	0	0				
					2	31/03/2057	323.9	4,670	695	191	-943	0	0				
					2	30/04/2057	323.9	4,664	725	164	-742	0	0				
					2	31/05/2057	323.9	4,679	684	212	-494	0	0				
					2	30/06/2057	324.0	4,720	657	219	-386	0	0				
					2	31/07/2057	324.1	4,770	595	182	-443	0	0				
					2	31/08/2057	324.2	4,803	534	181	-613	0	0				
					2	30/09/2057	324.2	4,814	539	104	-803	0	0				
					2	31/10/2057	324.2	4,798	541	123	-1,098	0	0				
					2	30/11/2057	324.1	4,754	614	125	-1,152	0	0				
					2	31/12/2057	324.0	4,713	666	130	-931	0	0				
					2	31/01/2058	324.0	4,699	617	177	-871	0	0				
					2	28/02/2058	323.9	4,691	692	208	-1,110	0	0				
					2	31/03/2058	323.9	4,670	695	191	-943	0	0				
					2	30/04/2058	323.9	4,664	725	164	-742	0	0				
					2	31/05/2058	323.9	4,679	684	212	-494	0	0				
					2	30/06/2058	324.0	4,720	657	219	-386	0	0				
					2	31/07/2058	324.1	4,770	595	182	-443	0	0				
					2	31/08/2058	324.2	4,803	534	181	-613	0	0				
					2	30/09/2058	324.2	4,813	539	104	-803	0	0				
					2	31/10/2058	324.2	4,798	541	123	-1,098	0	0				
					2	30/11/2058	324.1	4,754	614	125	-1,152	0	0				
					2	31/12/2058	324.0	4,713	666	130	-931	0	0				
					2	31/01/2059	324.0	4,699	617	177	-871	0	0				
					2	28/02/2059	323.9	4,691	692	208	-1,110	0	0				
					2	31/03/2059	323.9	4,670	695	191	-943	0	0				
					2	30/04/2059	323.9	4,664	725	164	-742	0	0				
					2	31/05/2059	323.9	4,679	684	212	-494	0	0				
					2	30/06/2059	324.0	4,720	657	219	-386	0	0				
					2	31/07/2059	324.1	4,770	595	182	-443	0	0				
					2	31/08/2059	324.2	4,803	534	181	-613	0	0				
					2	30/09/2059	324.2	4,813	539	104	-803	0	0				
					2	31/10/2059	324.2	4,798	541	123	-1,098	0	0				
					2	30/11/2059	324.1	4,754	614	125	-1,152	0	0				
					2	31/12/2059	324.0	4,713	666	130	-931	0	0				

Stage, m	AREA, IN m SQUARED	Volume, m^3	Lateral Area, m^2		row	DATE	STAGE, IN m	AREA, IN m SQUARED	GW, m^3	precip,m^3	PET, m^3	Water Supply to Processing Plant, m^3	Pumped water, m^3		Month	precip,m	PET, m
					2	31/01/2060	324.0	4,699	639	177	-871	0	0				
					2	29/02/2060	324.0	4,694	690	208	-1,110	0	0				
					2	31/03/2060	323.9	4,672	693	191	-943	0	0				
					2	30/04/2060	323.9	4,666	723	164	-742	0	0				
					2	31/05/2060	323.9	4,681	683	212	-494	0	0				
					2	30/06/2060	324.0	4,721	655	219	-386	0	0				
					2	31/07/2060	324.1	4,771	594	182	-443	0	0				
					2	31/08/2060	324.2	4,804	533	181	-613	0	0				
					2	30/09/2060	324.2	4,814	538	104	-803	0	0				
					2	31/10/2060	324.2	4,798	541	123	-1,098	0	0				
					2	30/11/2060	324.1	4,755	614	125	-1,152	0	0				
					2	31/12/2060	324.0	4,713	665	130	-931	0	0				
					2	31/01/2061	324.0	4,700	616	177	-871	0	0				
					2	28/02/2061	323.9	4,692	692	208	-1,110	0	0				
					2	31/03/2061	323.9	4,670	695	191	-943	0	0				
					2	30/04/2061	323.9	4,664	725	164	-742	0	0				
					2	31/05/2061	323.9	4,679	684	212	-494	0	0				
					2	30/06/2061	324.0	4,720	657	219	-386	0	0				
					2	31/07/2061	324.1	4,770	595	182	-443	0	0				
					2	31/08/2061	324.2	4,803	534	181	-613	0	0				
					2	30/09/2061	324.2	4,814	539	104	-803	0	0				
					2	31/10/2061	324.2	4,798	541	123	-1,098	0	0				
					2	30/11/2061	324.1	4,754	614	125	-1,152	0	0				
					2	31/12/2061	324.0	4,713	666	130	-931	0	0				
					2	31/01/2062	324.0	4,699	617	177	-871	0	0				
					2	28/02/2062	323.9	4,691	692	208	-1,110	0	0				
					2	31/03/2062	323.9	4,670	695	191	-943	0	0				
					2	30/04/2062	323.9	4,664	725	164	-742	0	0				
					2	31/05/2062	323.9	4,679	684	212	-494	0	0				
					2	30/06/2062	324.0	4,720	657	219	-386	0	0				
					2	31/07/2062	324.1	4,770	595	182	-443	0	0				
					2	31/08/2062	324.2	4,803	534	181	-613	0	0				
					2	30/09/2062	324.2	4,813	539	104	-803	0	0				
					2	31/10/2062	324.2	4,798	541	123	-1,098	0	0				
					2	30/11/2062	324.1	4,754	614	125	-1,152	0	0				
					2	31/12/2062	324.0	4,713	666	130	-931	0	0				
					2	31/01/2063	324.0	4,699	617	177	-871	0	0				
					2	28/02/2063	323.9	4,691	692	208	-1,110	0	0				
					2	31/03/2063	323.9	4,670	695	191	-943	0	0				
					2	30/04/2063	323.9	4,664	725	164	-742	0	0				
					2	31/05/2063	323.9	4,679	684	212	-494	0	0				
					2	30/06/2063	324.0	4,720	657	219	-386	0	0				
					2	31/07/2063	324.1	4,770	595	182	-443	0	0				
					2	31/08/2063	324.2	4,803	534	181	-613	0	0				
					2	30/09/2063	324.2	4,813	539	104	-803	0	0				
					2	31/10/2063	324.2	4,798	541	123	-1,098	0	0				
					2	30/11/2063	324.1	4,754	614	125	-1,152	0	0				
					2	31/12/2063	324.0	4,713	666	130	-931	0	0				
					2	31/01/2064	324.0	4,699	639	177	-871	0	0				
					2	29/02/2064	324.0	4,694	690	208	-1,110	0	0				
					2	31/03/2064	323.9	4,672	693	191	-943	0	0				
					2	30/04/2064	323.9	4,666	723	164	-742	0	0				
					2	31/05/2064	323.9	4,681	683	212	-494	0	0				
					2	30/06/2064	324.0	4,721	655	219	-386	0	0				
					2	31/07/2064	324.1	4,771	594	182	-443	0	0				
					2	31/08/2064	324.2	4,804	533	181	-613	0	0				
					2	30/09/2064	324.2	4,814	538	104	-803	0	0				
					2	31/10/2064	324.2	4,798	541	123	-1,098	0	0				
					2	30/11/2064	324.1	4,755	614	125	-1,152	0	0				

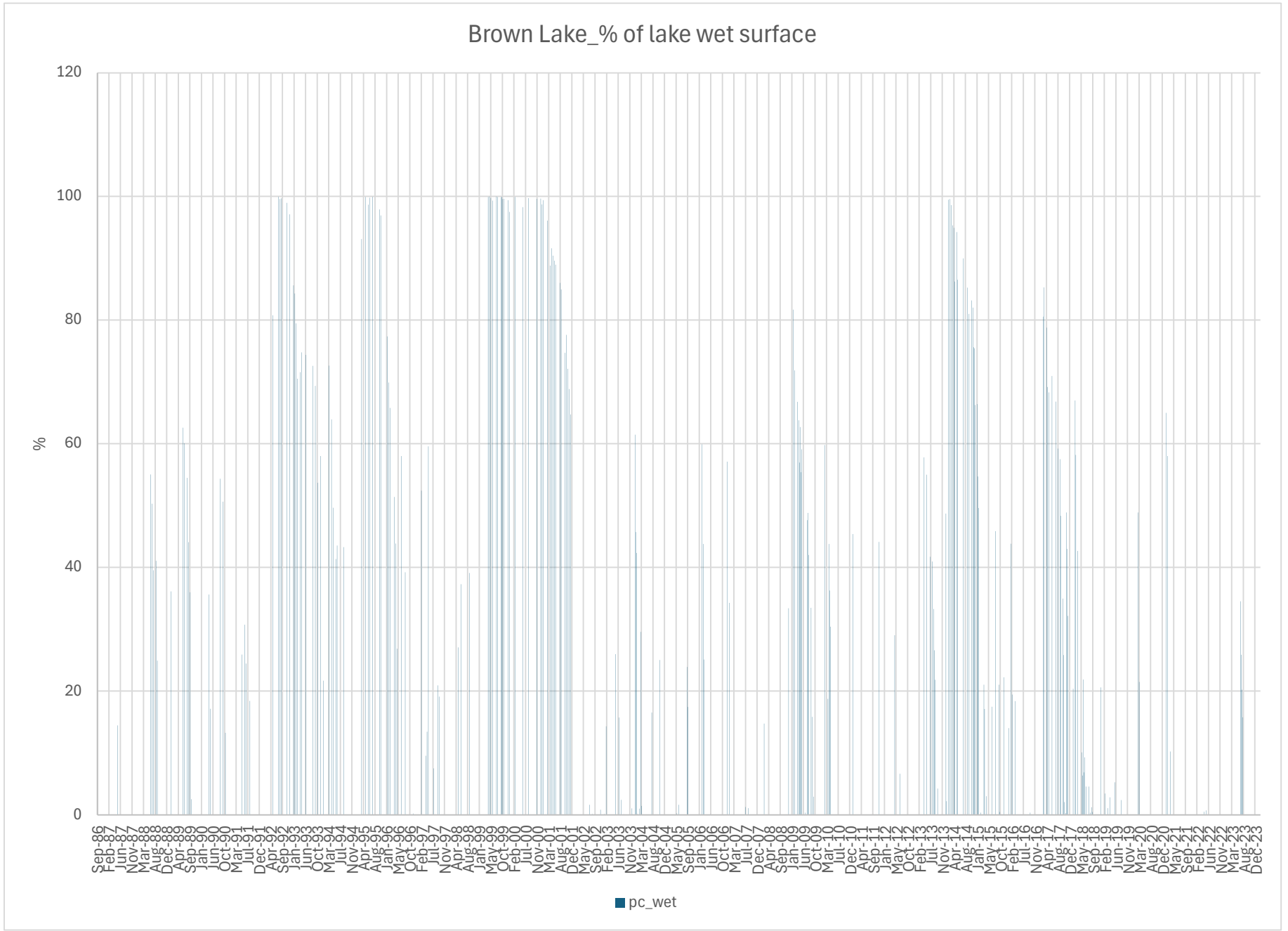
Stage, m	AREA, IN m SQUARED	Volume, m^3	Lateral Area, m^2		row	DATE	STAGE, IN m	AREA, IN m SQUARED	GW, m^3	precip,m^3	PET, m^3	Water Supply to Processing Plant, m^3	Pumped water, m^3		Month	precip,m	PET, m
					2	31/12/2064	324.0	4,713	665	130	-931	0	0				
					2	31/01/2065	324.0	4,700	616	177	-871	0	0				
					2	28/02/2065	323.9	4,692	692	208	-1,110	0	0				
					2	31/03/2065	323.9	4,670	695	191	-943	0	0				
					2	30/04/2065	323.9	4,664	725	164	-742	0	0				
					2	31/05/2065	323.9	4,679	684	212	-494	0	0				
					2	30/06/2065	324.0	4,720	657	219	-386	0	0				
					2	31/07/2065	324.1	4,770	595	182	-443	0	0				
					2	31/08/2065	324.2	4,803	534	181	-613	0	0				
					2	30/09/2065	324.2	4,814	539	104	-803	0	0				
					2	31/10/2065	324.2	4,798	541	123	-1,098	0	0				
					2	30/11/2065	324.1	4,754	614	125	-1,152	0	0				
					2	31/12/2065	324.0	4,713	666	130	-931	0	0				
					2	31/01/2066	324.0	4,699	617	177	-871	0	0				
					2	28/02/2066	323.9	4,691	692	208	-1,110	0	0				
					2	31/03/2066	323.9	4,670	695	191	-943	0	0				
					2	30/04/2066	323.9	4,664	725	164	-742	0	0				
					2	31/05/2066	323.9	4,679	684	212	-494	0	0				
					2	30/06/2066	324.0	4,720	657	219	-386	0	0				
					2	31/07/2066	324.1	4,770	595	182	-443	0	0				
					2	31/08/2066	324.2	4,803	534	181	-613	0	0				
					2	30/09/2066	324.2	4,813	539	104	-803	0	0				
					2	31/10/2066	324.2	4,798	541	123	-1,098	0	0				
					2	30/11/2066	324.1	4,754	614	125	-1,152	0	0				
					2	31/12/2066	324.0	4,713	666	130	-931	0	0				
					2	31/01/2067	324.0	4,699	617	177	-871	0	0				
					2	28/02/2067	323.9	4,691	692	208	-1,110	0	0				
					2	31/03/2067	323.9	4,670	695	191	-943	0	0				
					2	30/04/2067	323.9	4,664	725	164	-742	0	0				
					2	31/05/2067	323.9	4,679	684	212	-494	0	0				
					2	30/06/2067	324.0	4,720	657	219	-386	0	0				
					2	31/07/2067	324.1	4,770	595	182	-443	0	0				
					2	31/08/2067	324.2	4,803	534	181	-613	0	0				
					2	30/09/2067	324.2	4,813	539	104	-803	0	0				
					2	31/10/2067	324.2	4,798	541	123	-1,098	0	0				
					2	30/11/2067	324.1	4,754	614	125	-1,152	0	0				
					2	31/12/2067	324.0	4,713	666	130	-931	0	0				
					2	31/01/2068	324.0	4,699	639	177	-871	0	0				
					2	29/02/2068	324.0	4,694	690	208	-1,110	0	0				
					2	31/03/2068	323.9	4,672	693	191	-943	0	0				
					2	30/04/2068	323.9	4,666	723	164	-742	0	0				
					2	31/05/2068	323.9	4,681	683	212	-494	0	0				
					2	30/06/2068	324.0	4,721	655	219	-386	0	0				
					2	31/07/2068	324.1	4,771	594	182	-443	0	0				
					2	31/08/2068	324.2	4,804	533	181	-613	0	0				
					2	30/09/2068	324.2	4,814	538	104	-803	0	0				
					2	31/10/2068	324.2	4,798	541	123	-1,098	0	0				
					2	30/11/2068	324.1	4,755	614	125	-1,152	0	0				
					2	31/12/2068	324.0	4,713	665	130	-931	0	0				
					2	31/01/2069	324.0	4,700	616	177	-871	0	0				
					2	28/02/2069	323.9	4,692	692	208	-1,110	0	0				
					2	31/03/2069	323.9	4,670	695	191	-943	0	0				
					2	30/04/2069	323.9	4,664	725	164	-742	0	0				
					2	31/05/2069	323.9	4,679	684	212	-494	0	0				
					2	30/06/2069	324.0	4,720	657	219	-386	0	0				
					2	31/07/2069	324.1	4,770	595	182	-443	0	0				
					2	31/08/2069	324.2	4,803	534	181	-613	0	0				
					2	30/09/2069	324.2	4,814	539	104	-803	0	0				
					2	31/10/2069	324.2	4,798	541	123	-1,098	0	0				

Stage, m	AREA, IN m SQUARED	Volume, m^3	Lateral Area, m^2		row	DATE	STAGE, IN m	AREA, IN m SQUARED	GW, m^3	precip,m^3	PET, m^3	Water Supply to Processing Plant, m^3	Pumped water, m^3		Month	precip,m	PET, m
					2	30/11/2069	324.1	4,754	614	125	-1,152	0	0				
					2	31/12/2069	324.0	4,713	666	130	-931	0	0				
					2	31/01/2070	324.0	4,699	617	177	-871	0	0				
					2	28/02/2070	323.9	4,691	692	208	-1,110	0	0				
					2	31/03/2070	323.9	4,670	695	191	-943	0	0				
					2	30/04/2070	323.9	4,664	725	164	-742	0	0				
					2	31/05/2070	323.9	4,679	684	212	-494	0	0				
					2	30/06/2070	324.0	4,720	657	219	-386	0	0				
					2	31/07/2070	324.1	4,770	595	182	-443	0	0				
					2	31/08/2070	324.2	4,803	534	181	-613	0	0				
					2	30/09/2070	324.2	4,813	539	104	-803	0	0				
					2	31/10/2070	324.2	4,798	541	123	-1,098	0	0				
					2	30/11/2070	324.1	4,754	614	125	-1,152	0	0				
					2	31/12/2070	324.0	4,713	666	130	-931	0	0				
					2	31/01/2071	324.0	4,699	617	177	-871	0	0				
					2	28/02/2071	323.9	4,691	692	208	-1,110	0	0				
					2	31/03/2071	323.9	4,670	695	191	-943	0	0				
					2	30/04/2071	323.9	4,664	725	164	-742	0	0				
					2	31/05/2071	323.9	4,679	684	212	-494	0	0				
					2	30/06/2071	324.0	4,720	657	219	-386	0	0				
					2	31/07/2071	324.1	4,770	595	182	-443	0	0				
					2	31/08/2071	324.2	4,803	534	181	-613	0	0				
					2	30/09/2071	324.2	4,813	539	104	-803	0	0				
					2	31/10/2071	324.2	4,798	541	123	-1,098	0	0				
					2	30/11/2071	324.1	4,754	614	125	-1,152	0	0				
					2	31/12/2071	324.0	4,713	666	130	-931	0	0				
					2	31/01/2072	324.0	4,699	639	177	-871	0	0				
					2	29/02/2072	324.0	4,694	690	208	-1,110	0	0				
					2	31/03/2072	323.9	4,672	693	191	-943	0	0				
					2	30/04/2072	323.9	4,666	723	164	-742	0	0				
					2	31/05/2072	323.9	4,681	683	212	-494	0	0				
					2	30/06/2072	324.0	4,721	655	219	-386	0	0				
					2	31/07/2072	324.1	4,771	594	182	-443	0	0				
					2	31/08/2072	324.2	4,804	533	181	-613	0	0				
					2	30/09/2072	324.2	4,814	538	104	-803	0	0				
					2	31/10/2072	324.2	4,798	541	123	-1,098	0	0				
					2	30/11/2072	324.1	4,755	614	125	-1,152	0	0				
					2	31/12/2072	324.0	4,713	665	130	-931	0	0				
					2	31/01/2073	324.0	4,700	616	177	-871	0	0				
					2	28/02/2073	323.9	4,692	692	208	-1,110	0	0				
					2	31/03/2073	323.9	4,670	695	191	-943	0	0				
					2	30/04/2073	323.9	4,664	725	164	-742	0	0				
					2	31/05/2073	323.9	4,679	684	212	-494	0	0				
					2	30/06/2073	324.0	4,720	657	219	-386	0	0				
					2	31/07/2073	324.1	4,770	595	182	-443	0	0				
					2	31/08/2073	324.2	4,803	534	181	-613	0	0				
					2	30/09/2073	324.2	4,814	539	104	-803	0	0				
					2	31/10/2073	324.2	4,798	541	123	-1,098	0	0				
					2	30/11/2073	324.1	4,754	614	125	-1,152	0	0				
					2	31/12/2073	324.0	4,713		130	-931	0	0				

CMW Geosciences
Great People | Practical Solutions

APPENDIX C

Brown Lake – Wet Surface Area Histogram


Brown Lake_% of lake wet surface
120
100
80
60
40
20
0
%
Sep-86
Feb-87
Jun-87
Nov-87
Mar-88
Aug-88
Dec-88
Apr-89
Sep-89
Jan-90
Jun-90
Oct-90
Mar-91
Jul-91
Dec-91
Apr-92
Sep-92
Jan-93
Jun-93
Oct-93
Mar-94
Jul-94
Nov-94
Apr-95
Aug-95
Jan-96
May-96
Oct-96
Feb-97
Jul-97
Nov-97
Apr-98
Aug-98
Jan-99
May-99
Oct-99
Feb-00
Jul-00
Nov-00
Mar-01
Aug-01
Dec-01
May-02
Sep-02
Feb-03
Jun-03
Nov-03
Mar-04
Aug-04
Dec-04
May-05
Sep-05
Jan-06
Jun-06
Oct-06
Mar-07
Jul-07
Dec-07
Apr-08
Sep-08
Jan-09
Jun-09
Oct-09
Mar-10
Jul-10
Dec-10
Apr-11
Sep-11
Jan-12
May-12
Oct-12
Feb-13
Jul-13
Nov-13
Apr-14
Aug-14
Jan-15
May-15
Oct-15
Feb-16
Jul-16
Nov-16
Apr-17
Aug-17
Dec-17
May-18
Sep-18
Feb-19
Jun-19
Nov-19
Mar-20
Aug-20
Dec-20
May-21
Sep-21
Feb-22
Jun-22
Nov-22
Mar-23
Aug-23
Dec-23
pc_wet

CMW Geosciences
Great People | Practical Solutions

CMW GEOSCIENCES

12.2 Stakeholder Engagement Register


N
D

12.3 Risk Assessment

Emission	Activity	Project Phase		Risk Pathway	Potential Impacts	Environmental Factor	Likelihood	Consequence	Inherent Risk	Treatment	Likelihood	Consequence	Residual Risk
		Construction	Operation										
Waste and Leachate (Saline Water)	Spills and Leaks from Pipelines		Y	Direct Discharge	Decline in vegetation health/condition or vegetation death	Biodiversity	C	2	Medium	Locate the dewatering discharge pipelines within earthen bunded corridors to ensure leaks or spills are contained. Ensure that the discharge pipeline is located far enough over the Surprise Pit crest or down the pit ramp to reduce exposure to wind and prevent scouring of pit walls. Fit dewatering pipelines with isolation valves or automatic leak detection sensors. Undertake daily inspections (when in use) of the dewatering pipelines. Shutdown the required section of the pipeline system, if any leaks or spills from pumps or pipelines are detected, until the leak has been verified and/or repaired.	D	2	Medium
			Y		Soil or surface water contamination	Land and Soils	C	2	Medium		D	2	Medium
			Y			Water Resources	C	2	Medium		D	2	Medium
			Y		Groundwater contamination	Water Resources	D	1	Low		E	2	Low
Waste and Leachate (Saline Water)	Overtopping of Surprise Pit lake		Y	Direct Discharge	Decline in vegetation health/condition or vegetation death	Biodiversity	D	2	Medium	Ensure that the Surprise Pit lake is below the maximum water level of 350m AHD (i.e. 6m below the surrounding ground surface). Install flow meters and record the volume of water discharged each month. Monthly monitoring of pit lake water level (freeboard capacity) and quality. If required, reduce discharge volumes into Surprise Pit and/or prioritise abstraction from Surprise Pit.	E	2	Low
			Y		Soil or surface water contamination	Land and Soils	D	2	Medium		E	2	Low
			Y			Water Resources	D	2	Medium		E	2	Low
			Y		Groundwater contamination	Water Resources	D	1	Low		E	1	Low
Waste and Leachate (Saline Water)	Seepage from Surprise Pit Lake		Y	Infiltration	Decline in vegetation health/condition or vegetation death	Biodiversity	D	1	Low	Modelling indicates some outflow of Surprise Pit lake water to the surrounding groundwater is expected prior to pit lake levels being reduced via pumping to the Greenfields Site. Water will flow back into the pit lake once levels are below the pre-mining groundwater level. Water quality characteristics are similar across all three (3) pit lakes. Ensure that the Surprise Pit lake is below the maximum water level of 350m AHD (i.e. 6m below the surrounding ground surface).	E	1	Low
			Y		Groundwater contamination	Water Resources	D	1	Low		E	1	Low