WATER MANAGEMENT PLAN

HERA MINE AND FEDERATION MINE

18/06/2025

aurelia METALS

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Version	Date	Description	Author
V0.1	27/07/2023	Draft for Consultation	IEMA and Aurelia Metals
V0.2	27/09/2023	Final for DPE Submission	IEMA and Aurelia Metals
V.03	21/02/2024	Addresses regulator comments	IEMA and Aurelia Metals
V1.0	07/05/2025	Update to reflect changes from consent Modification 2	IEMA and Aurelia Metals

1. INTRODUCTION

1.1. Background

Hera Resources Pty Ltd (Hera Resources), a wholly owned subsidiary of Aurelia Metals Limited (Aurelia), owns and maintains Hera Mine, an underground metalliferous mine, approximately 100km southeast of Cobar and 4km south of Nymagee in the central west of New South Wales (NSW). Hera Resources operated Hera Mine from 2014 until it entered care and maintenance in early 2023.

Hera Mine is a State Significant Development (SSD) and commenced operations in 2012 under the former *Environmental Planning and Assessment Act 1979* (EP&A Act) Part 3A Major Project Approval development consent MP10_0191, which has been modified six times.

The Federation Project (the Project) is an underground metalliferous mine located in central-western NSW, approximately 15 kilometres (km) south of the Nymagee township and 10km south of Hera Mine. High grade mineral deposits were discovered at the Federation Mine site in 2019 with subsequent drilling operations identifying a substantial gold-lead-zinc-copper-silver mineral resource.

Following the mineral discovery, an Exploration Decline Program was approved for a bulk sample and supporting infrastructure at the Federation Site in August 2021 by the Resources Regulator under Part 5 of the EP&A Act and section 23A(4) of the *Mining Act 1992*.

Development consent ('the consent') for the Project (SSD 24319456) was granted on 2 March 2023 and has since been modified twice. Modification 1 was approved on 27 November 2023 regarding changes to biodiversity offset staging.

Modification 2 was approved on 27 March 2025 to allow options for:

- haulage between 7am and 10pm of up to 600ktpa of ore to Peak Gold Mine (PMG) for processing, throughout the life of mine;
- reclaim of tailings from the existing Hera Mine Tailings Storage Facility (TSF) for paste backfill at Federation Mine; and
- minor rearrangement of infrastructure at Federation Mine within the approved disturbance area, inclusive of new water tank.

The consent required that 'within 12 months of the date of physical commencement of development under this consent, or other timeframe agreed by the Planning Secretary, the Applicant must surrender development consent MP10_0191 for the Hera Gold Mine. The Hera Gold Mine consent was surrendered on 17 March 2025. The Project's consent includes the amalgamation of Hera Mine's development consent conditions with the consent conditions for the Project into a single consolidated consent for both Hera Mine and Federation Mine as well as connecting infrastructure, herein referred to as the Site. Within the Site, the consent authorises activities within the 'approved disturbance area'.

Key infrastructure approved via the consent for the Site is outlined in **Table 1.**

Table 1: Key Site Infrastructure

Project Element	Description
Mining Method	Underground mining via longitudinal retreat long hole stopping method.
Management of Waste Rock	During operations, waste rock is stored on designated pads or utilised for backfilling underground stopes. Post mining, potentially acid forming waste rock will be returned underground, and non-acid forming waste rock will be returned underground, used for backfilling the box cut or used for other rehabilitation purposes.
Processing Plant	The existing processing plant includes a Run of Mine (RoM) pad, Waste Rock Emplacement (WRE), crushing, grinding and screening operations, gravity separation, and flotation circuits capable of processing up to 505 ktpa of ore. The new processing plant is anticipated to be commissioned early to mid-2024 at Hera Mine capable of processing 750 ktpa of ore once at full operational capacity. Key elements of the proposed processing plant include: • three stages of crushing followed by ball milling with hydrocyclone classification; • gravity separation to recover gold from the milling circuit recirculating load, followed by cyanide leaching of the gravity concentrate; • sequential flotation to produce separate copper, lead and zinc concentrates; and • concentrate thickening and filtration. Tailings thickening and filtration, and disposal by both underground paste backfill at Federation Mine and surface storage in the approved Hera Mine TSF.
Management of Tailings	Tailings will be either placed into the approved Tailings Storage Facility at Hera Mine or returned to Federation Mine for placement underground as paste backfill. Only consolidated paste fill material will be used as tailings material to backfill stopes in both Federation Mine and Hera Mine. The tailings paste plant will be located adjacent to the stoping footprint to allow gravity reticulation of tailings paste fill down dedicated boreholes and laterally through an underground paste distribution system. The shotcrete batch plant will be co-located with the tailings paste fill plant. This plant will provide an ongoing supply of shotcrete for ground support requirements underground and concrete for miscellaneous construction works.
Power Generation	The preferred option for power generation at Federation Mine will be by a gas plant at Hera Mine with power transferred by overhead powerlines. A proposed solar farm to be constructed at Hera Mine will offset gas requirements. An option for a solar farm and gas generators at Federation Mine is also being considered if separate power generation is the preferred option in which case transmission lines will not be required. The Federation Mine will initially be powered by diesel generators while new power generation capacity is constructed.
General Infrastructure	Internal roads, ablutions block, administration buildings, workshop and stores, sewage treatment and treated effluent irrigation, diesel storage tanks, potable water treatment, waste rock storage, underground vents, sub station, paste plant, laydown area, topsoil stockpiles, ROM pad, box cut, magazines, haul roads, telecommunications tower, surface extraction areas, ventilation rises, access roads, heavy vehicle corridors, overhead transmission lines and concentrate stores.
Transport	Ore will be transported from Federation Mine to Hera Mine via Burthong Road and to Peak Mine via Priory Tank Road and Kidman Way. Tailings will be transported from Hera Mine to Federation Mine via Burthong Road. Concentrate will be transported via road from Hera Mine to Hermidale Siding with an average of approximately 12 vehicle trips per day at the peak of concentrate transport. At the peak of mining, concentrate, ore, and tailings transport is estimated to be an average of 61 vehicle trips (one-way movements) per day.

Project Element	Description
Water Management	The processing plants generate the majority of Site's water demand. Water will primarily be sourced from underground workings and pumped to the surface. A network of production bores will also be established which will supplement the existing production bores. The maximum groundwater extraction forecast by the site water balance model is 530 megalitres per year (ML/year), which is within the existing licenced volume of 543 ML/year. **Hera Mine** The water management system at the Hera Site includes the diversion of clean water runoff around upslope areas of the site, the collection of water from disturbed areas and the discharge of water to Box Creek. The key elements of the Hera water management system include: • clean water runoff from undisturbed catchment areas within and upslope of the site. These flows may be diverted and discharged off site without treatment or licensing; • the dirty water management system which consists of a series of dirty water drains. Sediment Basin 1 and Sediment Basin 2 were used as dirty water storages during construction and have since been combined into a larger contaminated water storage which collects runoff from the processing plant area; and • raw water system supplied from production bores around the site. The production bores transfer water to the Back Tank (located beside Back Dam). Water from the Back Tank is transferred to the Feed Water Tank. The House Dam receives surface water from the clean water catchment and the House Bore (production bore). **Federation Mine** A water management system will be implemented at the Federation Mine. Key elements include the diversion of clean water runoff around the mine, and the collection of water from disturbed areas and the underground. Dirty (sediment) water is captured in catch drains and collected in the sediment basin within the footprint of the Stormwater Retention Pond. Runoff from the PAF pads will drain to Lined Leachate Ponds. Runoff from the box cut will report down the decline and be dewatered as part of the underground dewatering system to the Dewater Pond. Water contained in the Lined Leachate Ponds, Stormwater Retention Pond and Dewater Pond will be recirculated for reuse within the Hera Mine water management system by the water pipeline between Federation Mine and Hera Mine.
Services Corridor	Linear infrastructure in the 23 m wide, 14.3 km long services corridor (see **Figure 2**) includes: • Electricity transmission lines (if required) • Water pipeline • Access track • Tailings pipeline and return water line (potentially) • Communication infrastructure (potentially).

Ore from Federation Mine will be trucked to the Peak Mine during the first four years of operations. Federation Mine is expected to produce up to 6.95 million tonnes of ore over a 12-to-14-year period.

The regional locality of Site is shown in **Figure 1** and a general site layout is in **Figure 2**. Detailed site layouts of Hera Mine and Federation Mine are shown in **Figure 3** and **Figure 4** respectively.

1.2. Purpose and Scope

This Water Management Plan (WMP) has been developed to provide an overview of water management activities undertaken at the Site. It has been prepared in accordance with Condition B43 of SSD 24319456 and guides the management and monitoring of water impacts at the Site.

1.2.1. Water Management Objectives

The objective of the Site water management system is to manage surface water and groundwater resources in a manner that meets the approval and licence conditions, and generally minimising the impacts to the water resources of neighbouring properties and the surrounding environment.

1.2.2. Preparation of WMP

Condition B43(a) of SSD 24319456 requires this WMP to be prepared by a suitably qualified and experienced person/s.

This plan has been prepared by Hera Resources in consultation with:

- Stuart Gray and Ian Gilmore of GHD Pty Ltd
- Jordan Murray and Chris Jones of IEMA

Babinda
Hillcrest
Kurrajong
Hartwood
Hermidale Nymagee Road
PANGEE STATE FOREST
Peisley Road
Nymagee Station Road
Box Creek
Rosevale Road
Hill Plain
Uambie
Glengary
Rosewood
Whitbarrow Way
Roset
Allandoone
Orange Grove
Priory Tank Road
Nymagee Copper Mine
Shuttleton Road
TIMBER RESERVE
CUMBINE STATE FOREST
Truganini
Pangee Creek
GRAHWAY STATE FOREST
Bullock Creek
Shuttleton
The Peak
Hera Mine
Beanbah
Yarranvale
Manuka Road
Four Corners
Burthong Road
Parkers Road
Pangee Road
Delby
Woorara
Norma Vale
Kidman Way
Vaucluse
Balowra Road
Overton
Wilgarwood
Glenwood Road
Federation Mine
The Overflow
Glenwood
BALOWRA STATE FOREST
Baledmund
TIMBER RESERVE
Etiwanda
Lowan
Sandy Creek Road
Balowra
Piney
Cauldwell Vale
Nangerybone Creek
Cobar Condo Road
Moothumbool Creek
Marigold
Pyramid
Avoca
NANGERYBONE STATE FOREST
Murrumbong
Bobadah Road
Sandy Creek
Brambah
Pretty View
Fords Road
Glenie
Parkvale
Oaklahoma
Nangerybone
Middle Creek
Vermont Hill Road
Moothumbil
Sunset

LEGEND

- Site Boundary
- Approved Disturbance Area
- Mine
- Community
- Minor road
- Track
- Watercourse
- Waterbody
- Forestry Reserve
- Forest or Shrub

0 2,000 4,000 6,000 8,000 m

Scale: 1:200,000

GDA 1994 MGA Zone 55

2/08/2023

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Hera Resources – Site Water Management Plan

Regional Locality

Figure 1

aurelia METALS Ltd.

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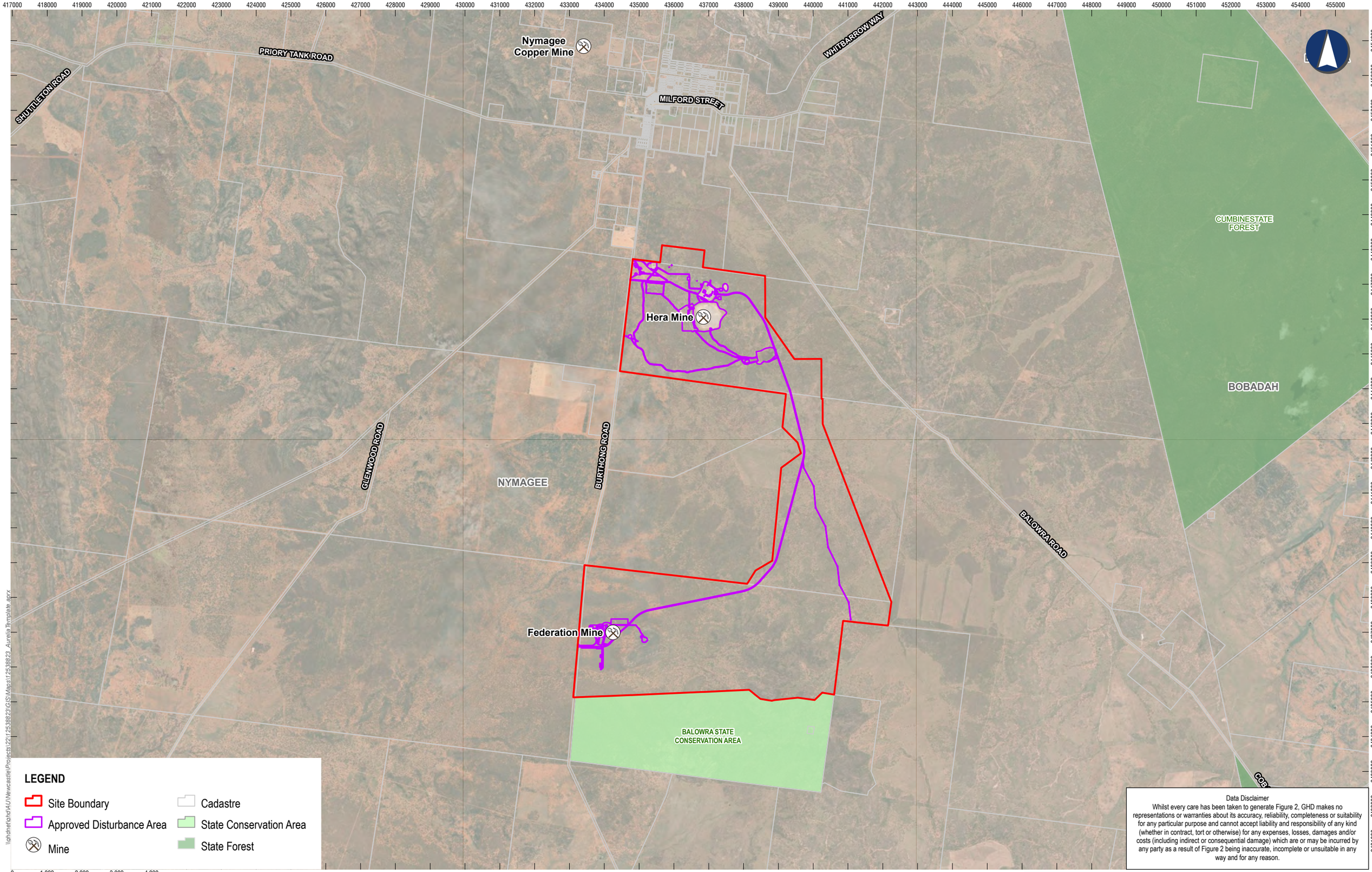
https://aureliametals.com/

Source: Resources and Energy: Mining Lease, 2016; Geoscience Australia: 250k Topographic Data Series 3, 2006; LPI: DTDB / DCDB, 2017; Created by: sperera2



Hera Resources – Site Water Management Plan

Site Layout

Figure 2

aurelia METALS Ltd.

Sheet Size : A3

https://aureliametals.com/

Source: LPI: DTDB / DCDB, 2017; NSW DPI: Seamless geology, 2020.World Imagery: Earthstar Geographics. Created by: sperera2

435000 436000 437000 438000 439000 440000

6447000

6446000

6445000

HOUSE DAM

EXISTING AND EXPANDED ACCOMODATION VILLAGE

EXISTING OVERHEAD TRANSMISSION LINE

HOUSE DAM

PROPOSED OVERHEAD TRANSMISSION LINE

HEADER TANK

EXISTING PROCESSING PLANT

PROPOSED HV CORRIDOR

SURFACE EXTRACTION AREA (QUARRY LOCATION (MOD 6))

WREA DAM

SWITCH GEAR

GENSETS

TAILINGS AND CONCENTRATE SHED

SERVICES CORRIDOR

NEW PROCESS PLANT

APPROVED MINE SITE INFRASTRUCTURE

THREE GATES DAM

PROCESS WATER DAM

RELOCATED MAGAZINE

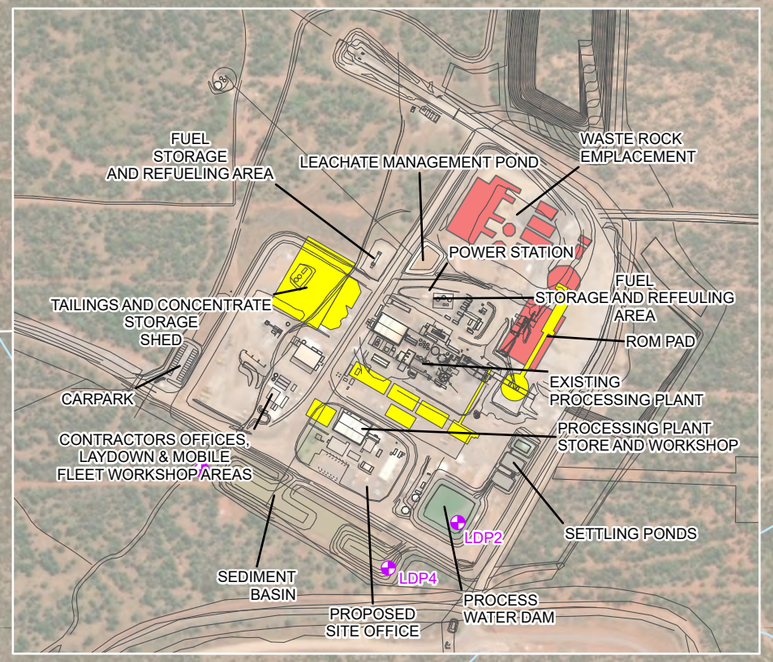
TAILINGS STORAGE FACILITY

LDP1

SEDIMENT BASIN

PETES DAM

WATER MANAGEMENT DAM



LEGEND

- Site Boundary
- Approved Disturbance Area
- Licensed discharge point
- Hera mine infrastructure
- Proposed new processing plant
- Existing processing plant
- Watercourse

0 190 380 570 760 m

Scale: 1:16,000

GDA 1994 MGA Zone 55

2/08/2023

Data Disclaimer

Whilst every care has been taken to generate Figure 3, GHD makes no representations or warranties about its accuracy, reliability, completeness or suitability for any particular purpose and cannot accept liability and responsibility of any kind (whether in contract, tort or otherwise) for any expenses, losses, damages and/or costs (including indirect or consequential damage) which are or may be incurred by any party as a result of Figure 3 being inaccurate, incomplete or unsuitable in any way and for any reason.

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Hera Resources – Site Water Management Plan

Hera Mine

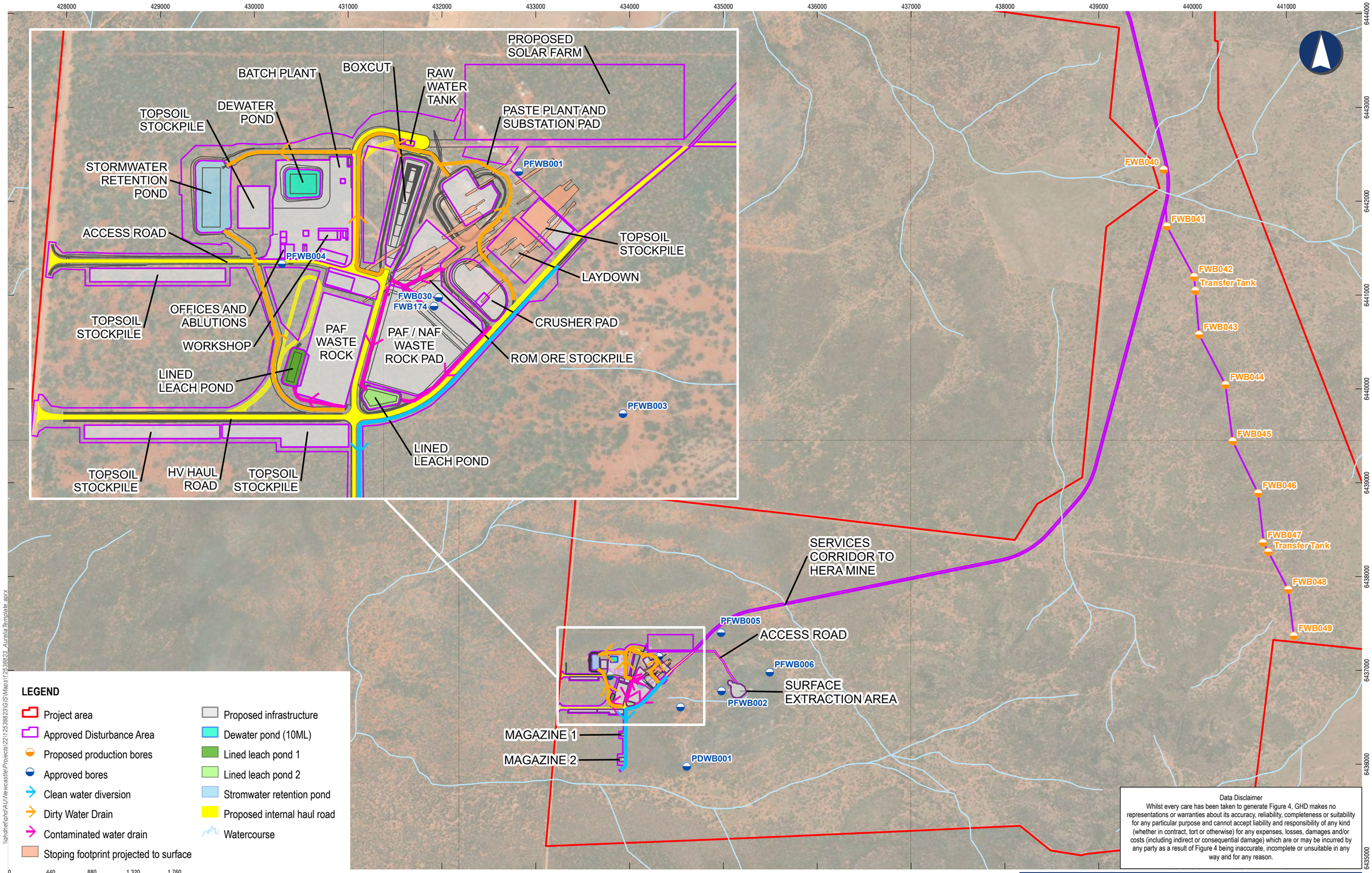
Figure 3

aurelia METALS Ltd.

https://aureliametals.com/

Sheet Size : A3

Source: NSW Trade & Investment Resources and Energy: Mining Lease, 2016; LPI: DTDB / DCDB, 2017 World Imagery: Maxar. Created by: sperera2



Hera Resources – Site Water Management Plan

Federation Mine

Figure 4

Sheet Size : A3

https://aureliametals.com/

Source: NSW Trade & Investment Resources and Energy: Mining Lease, 2016; LPI: DTDB / DCDB, 2017 World Imagery: Earthstar Geographics, World Imagery: Maxar. Created by: sperera2

2. LEGAL AND OTHER REQUIREMENTS

2.1. SSD 24319456

SSD 24319456 stipulates the required criteria that the construction and operational activities of Site must comply with and sets out the core requirements of this WMP. Relevant conditions associated with this approval (including Statement of Commitments) and where they have been addressed in this document are reproduced in **Table 2.**

Table 2: Relevant SSD 24319456 Conditions

Condition No.	Condition	Where Addressed
OBLIGATION TO MINIMISE HARM TO THE ENVIRONMENT		
A1	In addition to meeting the specific performance measures and criteria established under this consent, the Applicant must implement all reasonable and feasible measures to prevent, and if prevention is not reasonable and feasible, minimise, any material harm to the environment that may result from the construction and operation of the development, and any rehabilitation required under this consent.	Section 4
A2	The development may only be carried out: (a) in compliance with the conditions of this consent; (b) in accordance with all written directions of the Planning Secretary; (c) generally in accordance with the EIS; and (d) generally in accordance with the Development Layout.	Section 1.1
A4	The conditions of this consent and directions of the Planning Secretary prevail to the extent of any inconsistency, ambiguity or conflict between them and the document/s listed in condition A2(c). In the event of an inconsistency, ambiguity or conflict between any of the document/s listed in condition A2(c), the most recent document prevails to the extent of the inconsistency, ambiguity or conflict.	Section 1.1
WATER		
Water Discharges		
B30	The Applicant must ensure that: (a) all surface discharges from the development comply with discharge limits (both volume and quality) set for the development in any EPL or the relevant provisions of the POEO Act;	Section 2.2, Section 6.2
	(b) the concentration of Weak Acid Dissociable (WAD) cyanide in tailings discharged from the discharge point to the tailings storage facility does not exceed 20 mg/L (90th percentile) and 30mg/L (maximum);	Section Chapter 3
	(c) the concentration of Weak Acid Dissociable (WAD) cyanide at the discharge point to the process water dam does not exceed 20 mg/L (90th percentile) or 30 mg/L (maximum).	Section Chapter 3
Water Supply		
B31	The Applicant must ensure that it has sufficient water for all stages of the development, and if necessary, adjust the scale of the development to match its available water supply.	Section 5
B32	The Applicant must report on water extracted from the development each year (direct and indirect) in the Annual Review, including water taken under each water licence. ***Note:*** *Under the Water Act 1912 and/or the Water Management Act 2000, the Applicant is required to obtain all necessary water licences for the development, including during rehabilitation and post mine closure.*	Section 2.2 Section 6.3.2 Section 9.1
Compensatory Water Supply		
B33	The Applicant must provide a compensatory water supply to any landowner of privately-owned land whose rightful water supply is adversely and directly impacted (other than an impact that is minor or negligible) as a result of the development, in consultation with Water Group, and to the satisfaction of the Planning Secretary.	Section 8.3

Condition No.	Condition	Where Addressed
B34	The compensatory water supply measures must provide an alternative long-term supply of water that is equivalent, in quality and volume, to the loss attributable to the development. Equivalent water supply should be provided (at least on an interim basis) as soon as practicable after the loss is identified, unless otherwise agreed with the landowner.	Section 8.3
B35	If the Applicant and the landowner cannot agree on whether the loss of water is attributed to the development or the measures to be implemented, or there is a dispute about the implementation of these measures, then either party may refer the matter to the Planning Secretary for resolution.	Section 2.2, Section 8.3
B36	If the Applicant is unable to provide an alternative long-term supply of water, then the Applicant must provide compensation, to the satisfaction of the Planning Secretary.	Section 8.3
B37	However, conditions B33 to B36 do not apply if the Applicant has a compensatory water agreement with the owner/s of the land and the Applicant has advised the Department in writing of the terms of this agreement. ***Notes:*** • *The Water Management Plan (see condition B43) is required to include trigger levels for investigating potentially adverse impacts on water supplies.* • *The burden of proof that any loss of water supply is not due to mining impacts rests with the Applicant.*	N/A
B38	In the event of any complaint related to a privately-owned licensed groundwater bore which may, in the opinion of the Planning Secretary, have been adversely and directly impacted as a result of the development (other than an impact that is minor or negligible), the Applicant must, as soon as practicable, facilitate the provision of a temporary water supply, pending the outcome of any groundwater investigation and/or provision of an alternative long-term supply of water as required under condition B34, the satisfaction of the Planning Secretary.	Section 8.3
Design and Permeability of Storages		
B39	The Applicant shall ensure that the floor and walls of: (a) the leachate management ponds, seepage collection pond (associated with the tailings storage facility), process water dam and raw water dam are lined to achieve a permeability of no less than 1 x 10-9 m/s to a depth of at least 900 millimetres of clay (or equivalent);	Section Chapter 3, Section 4.1
	(b) the tailings storage facility (except for the seepage collection pond) is lined to achieve a permeability of no less than 1 x 10-8 m/s to a depth of at least 600 millimetres of clay (or equivalent); and	Section 3.9
	(c) the water management dam is lined to achieve a permeability of no less than 1 x 10-9 m/s to a depth of at least 1000 millimetres of clay or equivalent geosynthetic liner. ***Notes:*** • *An alternative permeability standard may be acceptable following completion of an appropriate risk assessment undertaken in accordance with the Environmental Guidelines – Management of Tailings Storage Facilities (VIC DPI, 2004), to the satisfaction of the EPA and the Secretary*.	Section 3.9
B40	The clean water diversion around the tailings storage facility shall be designed, constructed and maintained to prevent the probable maximum flood from the catchment upstream of the facility from entering the facility.	Section Chapter 3
B41	The process water dam, raw water dams, stormwater retention pond and lined leachate ponds must be maintained with a minimum freeboard sufficient to accommodate a 1 in 100-year ARI, 72-hour rainfall event without overtopping at all times.	Section 4.1.1 Section 4.2.1

<table>
<tr><th>Condition No.</th><th>Condition</th><th>Where Addressed</th></tr>
<tr><td colspan="3">Water Management Performance Measures</td></tr>
<tr><td>B42</td><td>The Applicant must ensure that the development complies with the performance measures in Table 4.
Table 4:Water management performance measures
<table>
<tr><th>Feature</th><th>Performance Measure</th></tr>
<tr><td>Water management – General</td><td>• Maximise water recycling, reuse and sharing opportunities
• Minimise the need for make-up water from external supplies, particularly the use of higher quality water used by other land users
• Design, install, operate and maintain water management infrastructure in a proper and efficient manner
• Minimise risks to the receiving environment and downstream water users</td></tr>
<tr><td>Aquifers</td><td>• Negligible impacts to fractured rock aquifers caused by the development beyond those predicted in the EIS, including:
– negligible change in groundwater levels beyond those predicted;
– negligible change in water quality beyond those predicted;
– negligible impact to other groundwater users; and
– no exceedance of the minimal impact considerations in the NSW Aquifer Interference Policy</td></tr>
<tr><td>Surface water resources</td><td>• Negligible impacts to surface water resources caused by the development beyond those predicted in the EIS;
• Maximise, as far as reasonable and feasible, the diversion of all clean water around disturbed areas</td></tr>
<tr><td>Waste Rock Storage Areas</td><td>• Minimise, as far as reasonable and feasible, the potential for acid mine drainage</td></tr>
<tr><td>Flood mitigation</td><td>• Negligible change to off-site flood regime, including flows, levels, storage capacity or velocities</td></tr>
<tr><td>Chemical and hydrocarbon storage</td><td>• Chemical and hydrocarbon products to be stored in bunded areas in accordance with the relevant Australian Standard</td></tr>
</table></td><td>Section 7.2</td></tr>
<tr><td colspan="3">Water Management Plan</td></tr>
<tr><td rowspan="4">B43</td><td>The Applicant must prepare a Water Management Plan for the development to the satisfaction of the Planning Secretary. This plan must:
(a) be prepared by a suitably qualified and experienced person/s;</td><td>This plan</td></tr>
<tr><td>(b) be prepared in consultation with Water Group, EPA, Resources Regulator and Council;</td><td>Section 2.4</td></tr>
<tr><td>(c) describe the measures to be implemented to comply with the water management performance measures in Table 4 and conditions of this consent;</td><td>Section 4</td></tr>
<tr><td>(d) include a:
(i) Site Water Balance that:
• includes details of:
o predicted inflows and outflows;
o sources and security of water supply, including contingency planning for various climate scenarios and allocations;
o reporting procedures, including the preparation of an updated annual site water balance; and
• measures actual water take from surface and groundwater sources, including accurate metering where possible;</td><td>Section 5</td></tr>
</table>

Condition No.	Condition	Where Addressed
	(ii) Surface Water Management Plan, that includes: • a detailed description of the water management system, including the; o clean water capture and diversion system; o dirty water system (including sediment detention basins); and o mine water capture system; • detailed plans for the design and management for the emplacement of reject materials and acid or sulphate generating materials; detailed plans for the design and management for the emplacement of reject materials and acid or sulphate generating materials; • detailed objectives and performance criteria, including trigger levels for investigating any potentially adverse impacts associated with: o the water management system; o downstream surface water flows and quality; o water supply for other water users; o post-mining water pollution from rehabilitated areas of the development; o surface water quality attributes relevant to water quality impacts on biological diversity and aquatic ecological integrity; • a program to monitor and evaluate: o compliance with the relevant performance measures in Table 4 and the performance criteria established above; o the effectiveness of the water management system; o surface water flows and quality in waterbodies that could be affected by the development; o impacts on water users; and o impacts on wildlife from exposure to cyanide or other toxic chemicals; • reporting procedures for the results of the monitoring program; and • a plan to respond to any exceedances of the performance measures or performance criteria, and mitigate any adverse surface water impacts of the development, including contingency strategies for addressing: o any discharge of pollutants from on-site water storages, emplacements, infrastructure and processing areas (including pipelines); and o any identified impacts to waterbodies;	Section 4.1.1 – Section 4.1.4 Section 4.2.1 – Section 4.2.4 Section 6.1 Section 6.2 Section 8 Section 9 Refer to the Waste Rock Management Plan for plans for the design and management for reject materials. Refer to the Rehabilitation Management Plan for post-mining water performance information
	(iii) Groundwater Management Plan, that includes: • a detailed description of the groundwater management system, including measures to minimise acid mine drainage from potentially acid forming material; • detailed objectives and performance criteria, including trigger levels for investigating any potentially adverse impacts associated with the development for: detailed objectives and performance criteria, including trigger levels for investigating any potentially adverse impacts associated with the development for: o local and regional aquifers; o groundwater users bores; o groundwater inflows to the mining operations; o seepage/leachate from underground voids, water storages, emplacements, infrastructure and processing areas, and the surface extraction area; o and groundwater dependent ecosystems; • a program to monitor and evaluate: o compliance with the relevant performance measures listed in Table 5 and the performance criteria established above; o potential acid mine drainage; o the effectiveness of the groundwater management system; o groundwater inflows to the mining operations; o any localised enhanced groundwater inflows associated with faults or other structures; o the effectiveness of the seepage collection and storage system and associated infrastructure in collecting and containing all seepage from the tailings storage facility and all other water storages that receive chemical or salt-laden water;	Section 4.1.5 Section 4.2.5 Section 6.3 Section 7.1.1 Section 7.3 Section 8 Section 9 Refer to the Rehabilitation Management Plan for information regarding post mining

Condition No.	Condition	Where Addressed
	o background changes in groundwater yield/quality against mine-induced changes; o any post-rehabilitation seepage from the tailings storage facility o impacts of the development on: - local and regional aquifers; - waterbodies; - groundwater supply of potentially affected landowners; • reporting procedures for the results of the monitoring program; and • a plan to respond to any exceedances of the performance measures or performance criteria, and mitigate any adverse groundwater impacts of the development, including contingency strategies for addressing: o seepage/leachate of pollutants from underground voids, water storages, emplacements, infrastructure and processing areas, and surface extraction area; o any localised enhanced groundwater inflows associated with faults or other structures; and	
	(iv) Waste Rock Management Plan, that includes: • a detailed description of the procedures to be implemented to monitor and manage potential acid forming material; • reference to the groundwater and surface water monitoring programs to monitor potentially acid-forming waste rock and any leachate generated, including appropriately designed detection and response systems for acid generation (covering monitoring methods, trigger levels and proposed management actions); • measures to ensure effective isolation of potential acid forming material in waste rock storage areas; • procedures to ensure that material relocated underground does not, to the extent reasonable and feasible, further oxidise or cause impact to groundwater; • notwithstanding the above, trigger levels for any material that has oxidised to the extent that it cannot be placed underground without impacting groundwater quality; and	Section Chapter 3, Section Chapter 3 Also refer to the Waste Rock Management Plan (IEMA 2023)
	(v) a program to validate the water balance and groundwater model for the development every 3 years, and compare monitoring results against modelled predictions.	Section 9.2
B44	The Applicant must not commence construction until the Water Management Plan is approved by the Planning Secretary.	Section 1.1
B45	The Applicant must implement the Water Management Plan as approved by the Planning Secretary.	Section 1.1
B46	Only consolidated paste fill material may be used as tailings material to backfill stopes.	Table 2
Management Plan Requirements		
C5	Management plans required under this consent must be prepared in accordance with relevant guidelines, and include where relevant: (a) summary of relevant background or baseline data; (b) details of: (i) the relevant statutory requirements (including any relevant approval, licence or lease conditions); (ii) any relevant limits or performance measures and criteria; and (iii) the specific performance indicators that are proposed to be used to judge the performance of, or guide the implementation of, the development or any management measures;	Section 0, Section 4.2
	(c) any relevant commitments or recommendations identified in the document/s listed in condition A2(c);	
	(d) a description of the measures to be implemented to comply with the relevant statutory requirements, limits, or performance measures and criteria;	Section 7.2
	(e) a program to monitor and report on the: (i) impacts and environmental performance of the development; and (ii) effectiveness of the management measures set out pursuant to paragraph (d);	Section 6 Section 9

Condition No.	Condition	Where Addressed
	(f) a contingency plan to manage any unpredicted impacts and their consequences and to ensure that ongoing impacts reduce to levels below relevant impact assessment criteria as quickly as possible;	Section 6.4
	(g) a program to investigate and implement ways to improve the environmental performance of the development over time;	Section 7.3
	(h) a protocol for managing and reporting any: (i) incident, non-compliance or exceedance of any impact assessment criterion or performance measure; (ii) complaint; or (iii) failure to comply with other statutory requirements;	Section **Error! Reference source not found.**
	(i) public sources of information and data to assist stakeholders in understanding environmental impacts of the development; and	Section 9
	(j) a protocol for periodic review of the plan.	Section 9.1
	***Note**: The Planning Secretary may waive some of these requirements if they are unnecessary or unwarranted for particular management plans.*	

2.2. Legislative Requirements

2.2.1. Protection of Environment Operations Act 1997

The *Protection of Environment Operations (POEO) Act 1997* is administered by the Environmental Protection Agency (EPA). The objectives of the POEO Act are to protect, restore and enhance the quality of the environment.

Under the POEO Act, an EPL is required for premises at which a 'scheduled activity' is conducted. Scheduled activities that occur at Hera Mine are crushing, grinding or separating, mineral processing, and mining for minerals.

Hera Mine holds EPL 20179, which includes specific monitoring requirements for both surface and groundwater, including locations, parameters, frequency, sampling method, and concentration limits for specific pollutants at each licenced discharge point (refer to **Section 7.1.2**).

Relevant conditions of EPL 20179 to this WMP and where they are addressed in this plan are provided in **Table 3.** EPL 20179 will be modified to accommodate activities at Federation Mine, in addition to the existing conditions for Hera Mine.

Table 3: Relevant EPL Conditions

Condition No.	Condition	Where Addressed
L1 Pollution of Waters		
L1.1	Except as may be expressly provided in any other condition of this licence, the licensee must comply with section 120 of the Protection of the Environment Operations Act 1997.	
L2 Concentration Limits		
L2.1	For each monitoring/discharge point or utilisation area specified in the table\s below (by a point number), the concentration of a pollutant discharged at that point, or applied to that area, must not exceed the concentration limits specified for that pollutant in the table.	Section 7.1.2
L2.2	Where a pH quality limit is specified in the table, the specified percentage of samples must be within the specified ranges.	
L2.3	To avoid any doubt, this condition does not authorise the pollution of waters by any pollutant other than those specified in the table/s.	
L2.4	Water and/or Land Concentration Limits (see **Table** 26 in **Section 7.1.2**)	Section 7.1.2

2.2.2. Water Management Act 2000

The *Water Management* (WM) *Act 2000* is the main legislation for water licences and approvals, replacing the Water Act 1912. The aim of the WM Act is to ensure that water resources are conserved and properly managed for sustainable use. It is also intended to provide formal means for the protection and enhancement of the environmental qualities of waterways and in-stream uses as well as to provide for protection of catchment conditions. The WM Act is currently administered by DPE, WaterNSW and the Natural Resources Access Regulator (NRAR). Under the WM Act, water sources in NSW are managed via Water Sharing Plans (WSPs).

- The Site's surface water source is the Water Sharing Plan for Intersecting Streams Unregulated and Alluvial Water Sources (2011).
- The Site's groundwater source is the Lachlan Fold Belt Groundwater Source under the Water Sharing Plan for the NSW Murray Darling Basin (MDB) Fractured Rock Groundwater Sources. The NSW MDB Fractured Rock Groundwater Sources WSP allows for the carryover of 10% of the remaining entitlement from one year to the next.

Table 4 summarises the groundwater approvals and Water Access Licence (WALs) currently held by Hera Resources for the Site's groundwater sources under the WM Act. There are no surface water approvals or licences at Hera Mine or Federation Mine.

Table 4: Groundwater Approvals and Licenses - Hera Resources

Works approval	Details	Location	Water Access License (WAL)	Share components (ML/year)
85WA752586	10 bores 1 excavation	Lot 664, DP 761702	WAL43173	543
85WA752816	1 bore 1 pipeline	Lot 1, DP 665073 Various along pipeline route*		

* Lot 9, DP 3427 Section E, Lot 1, DP 588073, Lot 1, DP 665073, Lot 664, DP 761702, Lot 1730, DP 763521

Domestic and Stock Rights

Landholders are entitled to take water from a watercourse which fronts their land or from an aquifer which is underlying their land for domestic consumption and stock watering, without a licence. However, a water supply work approval is required to construct a groundwater bore.

Native Title Rights

Anyone holding a native title with respect to water is entitled to collect and use water for a range of purposes including personal, domestic and non-commercial communal purposes. No native holder rights were identified for water sources covered in the project.

Maximum Harvestable Rights

Landholders are entitled to collect a proportion of runoff from their property, known as 'harvestable right', which is determined from the local contiguous area of land ownership. The Site is in the Western Division and shall capture all rainfall runoff by means of dams on first or second order stream. As a result, no licences are required for captured surface water.

Controlled Activity Approval

Any works within the defined riparian zone of a creek are to be carried out in accordance with the WM Act. Works undertaken on waterfront land (i.e. near a creek) require a Controlled Activity Approval, unless defined as exempt. NRAR has developed Guidelines for Instream Works on Waterfront Land (NOW 2012a) and Guidelines for Riparian Corridors on Waterfront Land (NRAR 2018). Section 4.41 of EP&A Act details that a water use approval under Section 89, a water management work approval under Section 90 or an activity approval (other than an aquifer interference approval) under Section 91 of the WM Act is not required where an SSD approval is given. Therefore a controlled activity approval for works proposed for the Site are exempt to controlled activities approval. However, works will still follow the principles defined in advice by NRAR.

Hera Resources will bury the Federation Mine Pipeline in the vicinity of Strahler second order watercourse crossings (or greater) between Federation Mine and Hera Mine. In addition, an access track will be established for the full length of the pipeline.

Bore Licences

Bore licences were historically issued under the *Water Act 1912*. While production bores are now approved under WM Act, existing monitoring bores and test bores continue to be licensed under the *Water Act 1912*. Bore licences at Hera Mine were identified based on review of site record and the Australian Groundwater Explorer (BOM 2019). In general, bore licences associated with water extraction were converted to works approvals and WALs under the WM Act at the commencement of the WSP. The status of the identified bore licences in the NSW Water Register is summarised in **Table 5**.

Table 5: Bore Licenses Hera Mine

Status According to NSW Water Register	Bore Licence	Other Information
Not converted and not subject to a WSP	85BL256061	Issued 7-May-10
	85BL256062	Issued 7-May-10
	85BL256063	Issued 7-May-10, associated with WB4
	85BL256118	Associated with WB15 (off-site)
Converted to 85WA752586	85BL256002	Associated with OB1 (decommissioned)
	85BL256090	Associated with WB8
	85BL256091	Associated with WB10
	85BL256092	Associated with WB11
	85BL013603	Associated with House bore
Not converted and no longer valid	85BL013602	Associated with Back Bore
	85BL256083	Issued 10-Feb-11, expired 9-Feb-14, 10 monitoring bores, associated with WB8, WB11, WB10, WB16, WB17 and WB21
	85BL256121	Issued 28-May-15, one monitoring bore, associated with WB20
	85BL256125	Issued 20-Aug-15, associated with WB12 and WB21
	85BL242084	
	85BL256127	Issued 13-Jan-16, associated with WB22 and WB23
	85BL256080	Issued 28-Sep-10, expired 27-Sep-13, one monitoring bore
	85BL256078	Issued 28-Sep-10
	85BL256079	Issued 28-Sep-10
	85BL256117	Issued 24-Feb-15, 3 monitoring bores, associated with WB18

Notwithstanding the status of bore licence or works approval for a particular monitoring bore, monitoring bores required by an EPL are exempt from requiring a works or use approval under Section 39 of the *Water Management (General) Regulation 2018.*

2.2.3. Dams Safety Act 2015

Dam safety is regulated by Dam Safety NSW under the *Dam Safety Act 2015* (DS Act). A 'declared dam' is a dam gazetted in accordance with Section 4 of 2019 regulations of the DS Act. 'Notification areas' are declared by Dam Safety NSW under Section 48 of the DS Act.

In accordance with the DS Act, the 'Hera Tailings' (Tailings Storage Facility) is defined as a declared dam, by virtue of being prescribed under the *Dam Safety Act 1978* by identification of plan number 233 gazetted 23 November 2012 (NSW Government 2012).

2.3. Guidelines and Policies

2.3.1. NSW Aquifer Interference Policy

The NSW Aquifer Interference Policy (NOW 2012c) clarifies the water licensing and approval requirements for the taking of water from an aquifer by mining. A WAL is required if it is taken incidentally by the aquifer interference activity (such as groundwater filling a void). Sufficient WALs must be held to account for all water take, including the take of water that continues after mining until the aquifer system reaches equilibrium.

All groundwater take associated with the Site is licenced under the WM Act 2000. Groundwater WAL information pertaining to the Site is included in **Section 2.2.2**, **Table 4** while bore licences are shown in **Table 5**.

The NSW Aquifer Interference Policy requires that potential impacts on groundwater sources, including adjacent users and groundwater dependent ecosystems (GDEs), be assessed against minimal impact considerations.

The minimal impact considerations relevant to the Site is the less productive fractured and porous rock groundwater sources. Groundwater receptors identified in the vicinity of the Site are described in **Section 3.8**.

2.3.2. NSW State Rivers and Estuary Policy

The NSW State Rivers and Estuaries Policy (NSW Water Resources Council 1993) provides objectives and principles to achieve sustainable management of rivers and estuaries in NSW to ensure resource use is consistent with the long-term biological and physical function of the natural system. The objectives of the policy are "To manage the rivers and estuaries in NSW in ways which: slow, halt or reverse the overall rate of degradation in their systems; ensure the long-term sustainability of their essential biophysical functions; and maintain the beneficial use of these resources". The policy details guiding principles for sustainable management of rivers and estuaries.

Water quality and flow in downstream watercourses will be managed through the Site design, surface water management measures (**Section 4**), surface water monitoring programs (**Section 6.2**) and contingency plans **(Section 6.4**) described throughout this document.

2.3.3. NSW Groundwater Strategy

The objective of the NSW Groundwater Strategy is to manage the State's groundwater resources so that they can sustain environmental, social and economic uses for the people of NSW. The NSW Groundwater Strategy has three strategic priorities:

- Protect groundwater resources and the ecosystems that depend on them.
- Build community and industry resilience through sustainable groundwater use.
- Improve groundwater information and knowledge.

All groundwater take for the Site is licenced under the WM Act 2000, as outlined in **Section 2.2.2**, **Table 4**.

The groundwater monitoring program for the site is outlined in **Section 6.3**. Groundwater receptors identified in the vicinity of the Site are described in **Section 3.8**. Contingency plans for any adverse effects identified by the groundwater monitoring program or landholders are included in **Section 6.4**.

2.3.4. Guide to Groundwater Management in NSW

The Guide to Groundwater Management in NSW provides details regarding the framework and regulatory context for groundwater management, as described throughout this section of this report. The Guide to Groundwater Management in NSW describes responsibilities of groundwater users, government agencies and development proponents for groundwater management using practical examples.

The Guide to Groundwater Management in NSW describes policies for groundwater management in NSW including:

- Draft NSW Groundwater Quantity Management Policy (**Section 2.3.5**).
- NSW Groundwater Quality Protection Policy (**Section 2.3.6**).
- NSW Groundwater Dependent Ecosystems Policy (**Section 2.3.7**).

2.3.5. Draft NSW Groundwater Quantity Management Policy

The principles of this policy include:

- Maintain total groundwater use within the sustainable yield of the aquifer from which it is withdrawn.
- Groundwater extraction shall be managed to prevent unacceptable local impacts.
- Provide opportunities for sustainable development that provide cultural, social or economic benefits.
- Increase community understanding of groundwater management measures.

All groundwater take associated with the Site is licenced under the WM Act 2000. Groundwater WAL information pertaining to the Site is included in **Section 2.2.2, Table 4** while bore licences are shown in **Table 5**. Contingency plans for any adverse effects identified by the groundwater monitoring program or landholders are included in **Section 6.4**.

2.3.6. NSW Groundwater Quality Protection Policy

The objective of this policy is the ecologically sustainable management of the State's groundwater resources so as to:

- Slow, halt or reverse any degradation in groundwater resources.

- Direct potentially polluting activities to the most appropriate local geological setting so as to minimise the risk to groundwater.

The groundwater monitoring program for the site is outlined in **Section 6.3**. Contingency plans for any adverse effects identified by the groundwater monitoring program or landholders are included in **Section 6.4**.

2.3.7. NSW Groundwater Dependent Ecosystems Policy

This policy was designed to protect ecosystems that are dependent on groundwater as a primary water source so that the ecological processes and biodiversity of these ecosystems are maintained or restored for the benefit of present and future generations. It provides guidance on how to protect and manage groundwater dependent ecosystems in a practical sense. Ground Water Dependent Ecosystems are further discussed in **Section 3.8**.

The groundwater monitoring program for the site is outlined in **Section 6.3**. Groundwater receptors identified in the vicinity of the Site are described in **Section 3.8**. Contingency plans for any adverse effects identified by the groundwater monitoring program are included in **Section 6.4**.

2.3.8. Groundwater assessment toolbox for major projects in NSW

The Groundwater Assessment Toolbox (GAT) aims to provide guidance for the preparation and review of groundwater assessments in NSW for State Significant Developments and Infrastructure Projects. The primary objectives of the GAT are to: provide a framework for investigation, assess impacts, manage and monitor groundwater resources and their interaction with surface water within the footprint of a major project; clarify the DPEs minimum requirements from groundwater documentation (including groundwater modelling) and, identify practical approaches for the assessment of cumulative groundwater impacts.

The relevant documentation from the GAT considered in the preparation of this WMP includes the Guidelines for groundwater documentation for SSD/SSI projects (major projects), as outlined in **Section 2.3.9**.

2.3.9. Guidelines for groundwater documentation for SSD/SSI projects (major projects)

The GAT provides guidance on the preparation of groundwater documentation for SSD and SSI major projects in NSW. This documentation specifically provides guidance on the preparation of Water Management Plans following approval of SSD major projects. The requirements set out within this guideline have been considered in the preparation of this WMP, including: demonstration of how the Site will be capable of complying with statutory obligations (as outlined in **Section 2** of this WMP) and provide clear direction to personnel responsible for its implementation (as outlined throughout this WMP. The recommended stages for preparation of the WMP are also implemented within this document.

2.3.10. NSW Water Quality and River Flow Objectives

The NSW Water Quality and River Flow Objectives (DECCW 2006) are the agreed environmental values and long-term goals for each catchment in NSW. The objectives are intended to be considered in assessing and managing the potential impacts of activities on waterways.

Water quality objectives for uncontrolled streams in the Barwon-Darling and Far Western catchment are for the protection of aquatic ecosystems; visual amenity; primary and secondary contact recreation; livestock, homestead water supply and aquatic foods (cooked).

An objective of this plan is to manage any potential water quality effects in downstream watercourses through the Site design, water management measures (**Section 4**), monitoring programs (**Section 6**) and contingency plans (**Section 6.4**) described throughout this document. Any material impacts to downstream watercourses will be investigated and reported to relevant government authorities (refer to **Section 9**).

2.3.11. Australian and New Zealand Guidelines for Fresh Wand Marine Water Quality

The Australian and New Zealand Guidelines for Fresh and Marine Water Quality (ANZG 2018) provide guidance for assessing and managing ambient water quality in a wide range of water resource types and according to specified environmental values, such as aquatic ecosystems, primary industries, recreation and drinking water. ANZG (2018) was published in 2018 after a scientific review of the ANZECC (2000a) guidelines.

The monitoring programs and trigger values provided in **Section 6** and **Section 7.1** have been developed in accordance with ANZG (2018) and ANZECC (2000a) guidelines.

2.4. Consultation

Condition B43(b) requires this management plan to be prepared in consultation with the Water Group, EPA, Resources Regulator (DPE-RR) and Council. Detailed consultation was conducted with these stakeholders for the MOD 2 EIS. As such, consultation was not required for the administrative updates to this plan. This approach was confirmed by DPHI in their letter dated 15 April 2025 and attached in **Appendix C**. The consultation detailed in **Table 6** below was completed as part of the previous version of this management plan.

Table 6: Consultation

Authority	Comments
DPE Water	The proponent should confirm the maximum annual groundwater take and demonstrate sufficient entitlement can be acquired if the volume exceeds current held entitlement. The proponent should update and validate the groundwater model (GHD, 2021) with the latest monitoring data. This should be done as part of the next model validation and update due in 2024. The proponent should update the water management plan with modelled results following the groundwater model update and validation in 2024. This should include modelled results of the updated mine water balance. For example, groundwater inflows and groundwater requirements from production bores.
EPA	No feedback received as of 26 September 2023.
DPE-RR	No feedback received as of 26 September 2023.
Council	No feedback received as of 26 September 2023.

3. BASELINE ENVIRONMENT

3.1. Climate

For a climate analysis data was sourced from the Hera Resources' weather station located at Hera Mine as well as from the Bureau of Meteorology (BOM) Cobar MO (station number 04802). The Hera Resources Weather Station has operated since 17 January 2013, a longer historical climate record was obtained from SILO for the Nymagee (Balowra) (station 49117), which is located approximately 17 km southeast of the site for the period from 1 January 1889.

The cumulative frequency of annual total rainfall and evaporation from SILO dataset between 1889 and 2022 are compared in **Figure 5**. In addition, the figure compares SILO rainfall to site-based rainfall recorded from 2013 to 2022.

Figure 5: Comparison of Daily Rainfall Depths

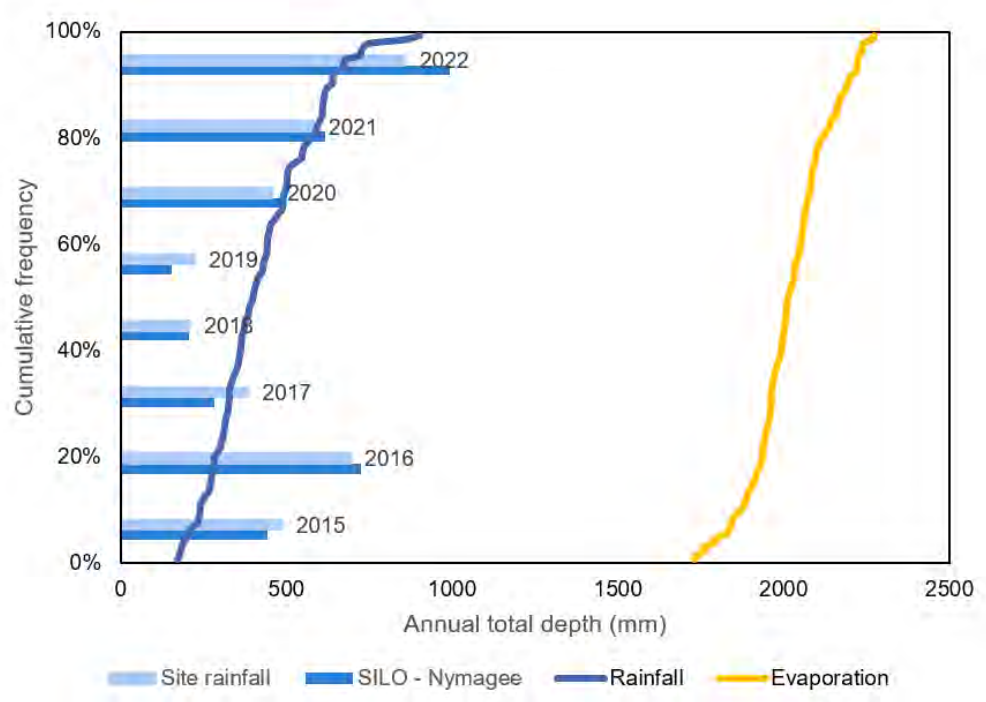


Figure 5 shows that the statistics of annual totals of the historical rainfall record were:

- Minimum 153.2 mm (2019)
- Maximum of 991.6 mm (2022)
- Median of 400.2 mm

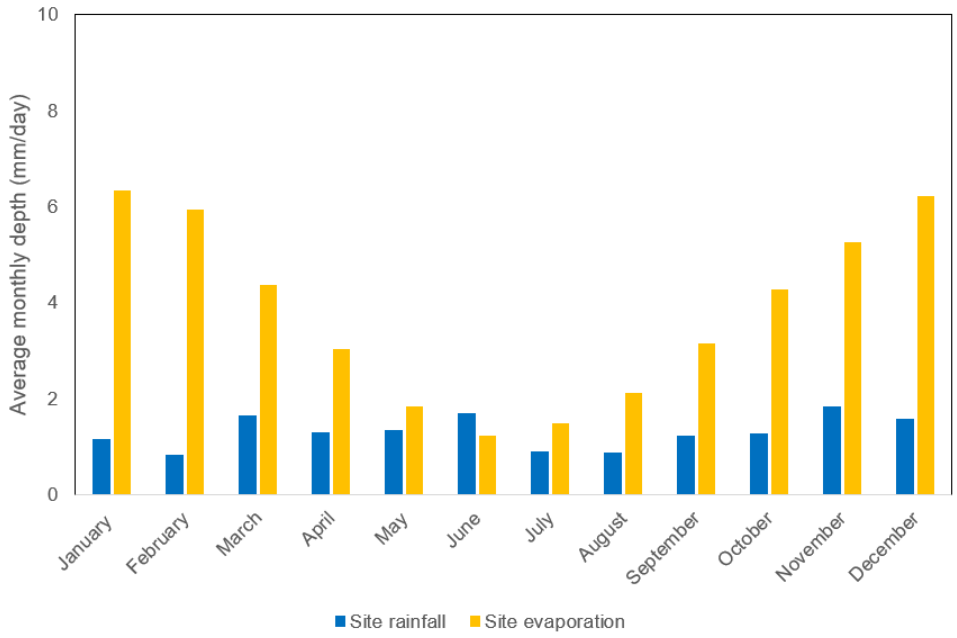
Annual evaporation totals have an average of 1994 mm, corresponding to an average annual moisture deficit (the difference between rainfall and evaporation) of 1573 mm.

The Cobar locality experiences hot summers, with a mean maximum temperature of 34.5ºC in January, and relatively mild winters, with a mean maximum temperature of 16ºC and a mean minimum temperature of 5.1ºC in July.

Rainfall is relatively low, averaging 389.5mm per annum, but can be highly variable with the highest maximum recorded monthly rainfall between 3 and 5 times the mean monthly rainfall. The highest recorded daily rainfall is between 2 and 3.6 times the mean monthly rainfall.

Plot of average monthly pan evaporation is compared to average monthly rainfall from the historical record in Error! Reference source not found..

Figure 6: Monthly Average Evaporation and Rainfall Recorded at BOM Station Cobar MO



Error! Reference source not found. shows that evaporation varies seasonally, having higher records in summer compared in winter. The Site has an average monthly net rainfall deficit in all parts of the year, resulting in a substantial water deficit within the Site and surrounds.

3.2. Topography and Hydrology

Elevation within Hera Mine varies from approximately 360 m AHD to approximately 305 m AHD. Elevated areas lie to the north and to the east of the pit top area and TSF and to the south of the Back Dam East and Back Dam. From this ridgeline elevations dip to the northeast and to the west. The topography at Federation Mine is generally flat. Local relief within the Federation Mine ranges from approximately 315 to 320 m AHD. The elevation rises to the east of Federation to over 380 m AHD.

The Site is located in the Murray Darling Basin and within in the catchment area of Sandy Creek. The main creek systems in the vicinity of the project are westerly flowing ephemeral streams that ultimately drain to the Darling River and include Box Creek to the North, and Sandy Creek to the South. Regional watercourse locations are shown in **Figure 7**.

Watercourses in the immediate vicinity of Federation Mine flow to the west. The closest watercourses are located approximately 1 km to the north and to the south of Federation. These unnamed watercourses flow into Sandy Creek approximately 19 km west of Federation Mine.

Watercourses at Hera Mine generally flow to the northwest. These watercourses are unnamed ephemeral tributaries of Box Creek and flow into Box Creek approximately 3 km northwest of Hera Mine. These watercourses have been impounded to supply water to the operation.

Hera Mine

Federation Mine

NYMAGEE

BOBADAH

BULLOCK CREEK

LEGEND

- Site Boundary
- Approved Disturbance Area
- Mine
- Contour (m AHD)

Watercourse Stream Order (Strahler system)

- 1
- 2
- 3

0 840 1,680 2,520 3,360 m

Scale: 1:70,000

GDA 1994 MGA Zone 55

2/08/2023

Data Disclaimer

Whilst every care has been taken to generate Figure 7, GHD makes no representations or warranties about its accuracy, reliability, completeness or suitability for any particular purpose and cannot accept liability and responsibility of any kind (whether in contract, tort or otherwise) for any expenses, losses, damages and/or costs (including indirect or consequential damage) which are or may be incurred by any party as a result of Figure 7 being inaccurate, incomplete or unsuitable in any way and for any reason.

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Hera Resources – Site Water Management Plan

Topography and Watercourses

Figure 7

aurelia METALS Ltd.

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https://aureliametals.com/

Source: LPI: DTDB / DCDB, 2017; NSW DPI: Seamless geology, 2020.World Imagery: Earthstar Geographics. Created by: sperera2

3.3. Land Use

Land use within the vicinity of the Site includes:

- Residential and rural residential including the village of Nymagee about 4 km to the north of Hera Mine.
- Agriculture.
- Recreation and community facilities.
- Grazing native vegetation – predominately sheep and goat grazing with no pasture modification and widely spaced rural residences / homesteads.
- Other minimal use - areas of land that are largely unused, likely as a result of steep slopes or dense vegetation.
- Nature conservation and forestry – associated with the Balowra State Conservation Area.

3.4. Geology and Soils

3.4.1. Regional Geology

The Site is located on the eastern margin of the Cobar Basin. Federation Mine and Federation Mine is covered by a thin layer of Quaternary alluvial and colluvial sediments and underlain by Palaeozoic rocks (Devonian age) of the Amphitheatre and Mouramba Groups (MacRae, 1988).

The Amphitheatre Group is divided into the Upper Amphitheatre and the Lower Amphitheatre (MacRae, 1988). According to Aurelia Metals (2020), the mineralisation occurs primarily within the Lower Amphitheatre Group. The Amphitheatre Group outcrops within the western portion of the Site (MacRae, 1988). As indicated by the Nymagee 1:100,000 Geological Map (MacRae, 1988), shown in **Figure 8**, the Mouramba Group outcrops across the eastern portion of the Site.

The Amphitheatre Group conformably overlies the upper parts of the Mouramba Group. The Mouramba Group is further subdivided into the Roset Sandstone and Burthong Formation. The Burthong Formation consists of fine to very fine sandstone interbedded with siltstone. The Roset Sandstone consists of a sequence of fine to medium-grained sandstone interbedded with fine to very fine sandstone. The workings at the Site do not reach the base of the Amphitheatre Group.

The Project is located outside the Great Artesian Basin.

3.4.2. Local Geology

The host rock at the Site comprises of alternating layers of siltstone and sandstone to depth. The bedrock at Federation and Hera Mine includes an oxidised zone (saprolite), partially oxidised zone and fresh rock. Based on exploration drilling, in the immediate vicinity of Hera Mine and Federation, the depth of the oxidised zone is approximately 45 m below ground level (bgl) and the base of the partially oxidised zone/top of fresh rock is approximately 75 m bgl.

The Nymagee 1:100,000 Geological Map (MacRae 1988) was reviewed to identify faulting in the vicinity of Hera Mine and Federation. The review identified the Rookery Fault that runs from north north-west to south south-east. The Rookery Fault lies approximately 1 km east of Hera Mine and 6 km east of Federation. A number of monitoring bores and production bores at Hera Mine (WB3, WB4, WB10, WB28, PWB004 and PWB006) are installed along the Rookery Fault. Additional production bores are proposed to be installed along the Rookery Fault and near Federation Mine.

Exploration drilling undertaken by Hera Resources has identified faulting and shearing associated with the intrusive ore body at Federation and Hera Mine. The ore body is approximately limited to the extent of the existing and proposed workings at Federation and Hera. The ore body is of Devonian age.

A map showing the local surface geology is shown in **Figure 8**.

Nymagee Copper Mine

Hera Mine

Federation Mine

NYMAGEE

BABINDA

BOBADAH

Rookery Fault

LEGEND

- Site Boundary
- Approved Disturbance Area
- Mine
- Fault, approximate
- Fault, inferred
- Fold, approximate
- Fold, inferred
- Trendline

Devonian

- Amphitheatre Group
- Kopyje Group

- Mouramba Group

Silurian

- Erimeran Granite
- Nymagee Igneous Complex

Ordovician/Cambrian

- Girilambone Group

0 1,000 2,000 3,000 4,000 m

Scale: 1:85,000

GDA 1994 MGA Zone 55

2/08/2023

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Hera Resources – Site Water Management Plan

Geology

Figure 8

aurelia METALS Ltd.

Sheet Size : A3

https://aureliametals.com/

Source: LPI: DTDB, 2017; NSW DPI: Seamless geology, 2020.World Imagery: Earthstar Geographics. Created by: sperera2

3.5. Groundwater Sources

The fractured and porous groundwater sources are managed under the water sharing plan for the NSW Murray Darling Basin Fractured Rock Groundwater Sources. Groundwater levels at Hera Mine are deep at 45 m to 75 m below ground level (bgl). At Federation Mine groundwater levels range from 75 m to 90 m bgl. As depth increase, groundwater yield generally decrease; as rock fractures become tighter, consequently inhibiting groundwater flow. Based on monitoring data collected at the Site, groundwater flow is east north-east to west south-west.

Previously conducted groundwater impact assessments (GHD, 2021a) found that due to the depth to groundwater interactions between surface water and groundwater are highly unlikely.

3.6. Groundwater Levels

Groundwater levels are very deep at Hera Mine, Federation Mine and Nymagee Mine (located near Nymagee township). Depth to groundwater typically ranges from 45 m to 75 m below ground level (bgl) at Hera Mine, which have been monitored since 2011. Aquade (2015a) identified a baseline groundwater flow gradient across the Hera Mine site from east-northeast to west-south-west. Drawdown in groundwater levels has been observed with decline development in early 2013 and groundwater extraction from production bores.

Groundwater levels have been monitored within the Federation Mine since July 2020 with monitoring data indicating that the standing water level is typically 75m to 90 m bgl at Federation.

At Hera Mine the groundwater table appears to generally lie within the partially weathered strata, while at Federation Mine, the water table is approximately equal to or approximately 10 m below the base of the partially weathered strata.

The predicted groundwater drawdown as a result of mining assessed for the Federation Project Groundwater Impact Assessment (GHD 2021a) indicated that steep hydraulic gradients were predicted around the edges of the Federation Mine and Hera Mine workings, due to the low horizontal hydraulic conductivity of the strata.

The predicted groundwater 1 m drawdown contour extends up to 6.2 km from Hera Mine, while the predicted 1 m drawdown contour extends up to 8 km to the west of Federation Mine and 10.5 km to the east of the Federation Mine workings (which is partially attributable to the proposed production bores shown in **Figure 17**).

Visual review of groundwater hydrographs at Federation Mine since July 2020 indicate groundwater levels do not display response to periods of rainfall, given low recharge rates and the depth to groundwater. Pumping from FWB030 has resulted in an observed drawdown of more than 20 m at this location. Groundwater levels also declined at all Federation bores by less than 2 m. These bores are located within a 700 m radius of FWB030.

Groundwater level hydrographs are shown in **Appendix A**.

3.7. Groundwater Quality

Groundwater quality monitoring at Hera Mine is undertaken at monitoring bores and production bores. Results have shown that the water quality is circumneutral (pH typically ranging 6.7 to 8.3 pH units) and slightly brackish to brackish (generally 2,000 µS/cm to 8,000 µS/cm) with some variation in EC. Dissolved metals concentrations in groundwater at Hera Mine are generally low. Some variability has been observed in different metal concentration at several bores, however variability has been found to typically be a one-off spikes with concentrations returning to typical values in the following monitoring round. No cyanide has been observed in any groundwater bores for the Hera Mine.

Groundwater quality monitoring at Federation Mine is undertaken at monitoring bores and production bores. Groundwater at Federation Mine is circumneutral to slightly basic (6.7 pH units to 8.0 pH units). Groundwater quality is slightly brackish to saline (generally 1,000 µS/cm to 10,200 µS/cm) and generally dissolved metal concentrations are low, with some elevated iron and manganese concentrations noted.

A number of monitoring bores are installed downstream of the TSF embankment at Hera Mine. These TSF bores were installed to monitor for seepage from the TSF. These TSF bores have consistently been observed as dry since installation.

3.8. Groundwater Receptors

3.8.1. Landholder Bores

A search of the Australian Groundwater Explorer (BoM 2019a) and Water NSW Real Time Data (Water NSW 2021) was undertaken to identify registered bores near the Site. The search identified 34 bores within an approximate 20 km radius.

Registered bores are shown in **Figure 9** and bore details are summarised in **Table 7**. Eighteen bores are registered as monitoring or mining purposes, and form part of the monitoring network and production bore network for Hera Mine. Three of these monitoring bores are reported to be abandoned. The Nymagee Town Bore was not identified in the searches. This bore was reported by Aquade (2017) to be located approximately one kilometre east of Nymagee Mine. The approximate location of Nymagee Town Bore is shown in **Figure 9**. Records of extraction and water level monitoring at the Nymagee Town Bore were not available.

The majority of the remaining registered bores are associated with mining and water supply operations at Hera Mine. Stock and domestic bores that are not associated with operations at Hera Mine include:

- GW014111, GW014217, GW015819, GW015820, GW017183, GW017469, GW020714, GW021543 and GW022674 located over 15 km from Hera Mine.
- GW017385 which is located approximately 3 km north of Hera Mine.
- GW017386 is located approximately 2.5 km south of Hera Mine and is 650 m from the nearest groundwater production bore (WB11).
- GW018014 is located approximately 10 km southwest of the Hera Mine underground workings and 8.3 km from the nearest groundwater production bore (WB11).

The closest stock and domestic bores to Federation Mine are GW020714 and GW017386 which are located 6.4 km south and 7.4 km north from Federation respectively.

Table 7: Registered Bore Details

Bore	Depth(m)	Purpose	SWL (m)	Yield (L/s)	Salinity	Strata	Radial distance from Federation (km)	Radial distance from Hera (m)	Radial distance from proposed borefield (km)	Hera Bore name/notes
GW014111	54.3	Stock	39.6	0.13	Brackish	Limestone, granite	20.4	30.1	19.2	
GW014217	55.5	Stock	-	-	Brackish	slate	20.3	30.2	19.0	
GW015819	25.9	Unknown	-	-	-	Sandstone	17.7	24.3	17.1	
GW015820	50.3	Stock	-	-	-	-	18.9	25.1	18.3	
GW017183	91.4	Stock	48.8	0.73	>14000ppm	Sandstone, slate	12.7	18.3	12.3	
GW017385	61	Stock	46.6	0.51	501-1000 ppm	Schist, slate	12.7	3.0	8.3	
GW017386	100.9	Stock	58.2	0.25	1001-3000 ppm	Slate	7.4	2.5	4.6	
GW017469	100.9	Stock	58.2	0.25	1001-3000 ppm	Slate	18.8	22.3	12.6	
GW018014	82.9	Stock	15.2	0.51	3001-7000 ppm	Quartzite	8.2	9.7	8.3	
GW020656	74.1	Stock	55.8	0.63	1001-3000 ppm	Slate, quartzite bands	8.7	2.8	2.9	Back Bore
GW020657	74.1	Stock, Domestic	54.3	0.63	-	Slate, quartzite bands	10.3	1.2	6.8	House Bore
GW020714	109.73	Stock	36.6	0.21	Salty	Quartzite	6.4	16.3	5.1	
GW021543	75.6	Stock	45.7	0.59	>14000 ppm	Slate	13.4	18.8	13.1	
GW022674	90.8	Stock, Domestic	45.7, 39.6	0.63	10001-14000 ppm	Slate	12.7	216	11.6	
GW802946	85	Stock, Industrial	65	1.1	-	Siltstone	10.5	0.6	6.1	Shirka's Bore (abandoned)
GW804183	108	Monitoring Bore	100	2.5	-	Siltstone	11.6	2.2	7.8	
GW804184	108	Monitoring Bore	-	0.6	-	Siltstone	11.7	2.4	5.9	WB3
GW804185	120	Monitoring Bore/Test Bore	52.78	1	-	Siltstone	9.1	3.1	2.8	WB4
GW804534	116	Mining	70.66	3.5,2.5	-	Sandstone, Siltstone, minor Quartz veins	8.5	2.7	3.0	
GW804600	150	Monitoring Bore/Test Bore	-	-	-	Sandstone, Siltstone	10.6	0.9	6.0	Obs Bore 3

Bore	Depth(m)	Purpose	SWL (m)	Yield (L/s)	Salinity	Strata	Radial distance from Federation (km)	Radial distance from Hera (m)	Radial distance from proposed borefield (km)	Hera Bore name/notes
GW804601	120	Monitoring Bore/Test Bore	-	-	-	Sandstone, Siltstone	8.1	2.3	3.5	Obs Bore 2
GW804602	120	Monitoring Bore/Test Bore	-	-	-	Sandstone, Siltstone	8.6	2.9	2.9	Obs Bore 1
GW804603	150	Monitoring Bore/Test Bore	-	0.5	Slightly salty	Siltstone	10.4	0.6	6.0	Decline Bore
GW804604	103	Monitoring Bore/Test Bore	-	-	-	Shale, Sandstone, Siltstone	9.9	3.3	3.3	Abandoned
GW804605	140	Monitoring Bore/Test Bore	70	7.5	-	Shale, Sandstone, Siltstone	8	2.5	3.3	WB8
GW804606	115	Monitoring Bore/Test Bore	-	-	-	Shale, Sandstone, Siltstone	9.8	1.7	4.3	Abandoned
GW804607	90	Mining	58	0.6	-	Shale, Sandstone, Siltstone	10.9	2.5	4.8	WB10
GW804608	122	Mining	63	5	-	Sandstone, Siltstone	8	1.9	5.1	WB21
GW804609	96	Monitoring Bore/Test Bore	60	0.4	-	Sandstone, Siltstone	9.3	1.1	6.2	WB12/WB17
GW804610	108	Mining	72	3.5	3001- 7000 ppm	Sandstone, Siltstone	9.9	0.3	5.5	WB13
GW805641	117	Monitoring Bore	78	0.3	-	Siltstone	11.7	2.3	7.9	WB15
GW805642	120	Mining	75	4.2	-	Sandstone, Siltstone	8.5	2.7	3.0	
GW805643	135	Industrial	66	3	-	Siltstone	9.3	1.1	6.2	WB12/WB17
GW850057	-	Stock, Domestic	-	-	-	-	-	10.4	1.1	FWB030

3.8.2. Groundwater Dependant Ecosystems

A GDE is an ecosystem which has its species composition and natural ecological processes determined by groundwater. That is, GDEs are natural ecosystems that require access to groundwater to meet all (obligatory), or some (facultative) of their water requirements so as to maintain their communities of plants and animals, ecological processes and ecosystem services. If the availability of groundwater to GDEs is reduced, or if the quality is allowed to deteriorate, these ecosystems might be impacted.

It is widely acknowledged that a poor understanding exists in recognising GDEs, or understanding the hydrogeological processes affecting GDEs, or their environmental water requirements. GDEs can be broadly grouped into three categories:

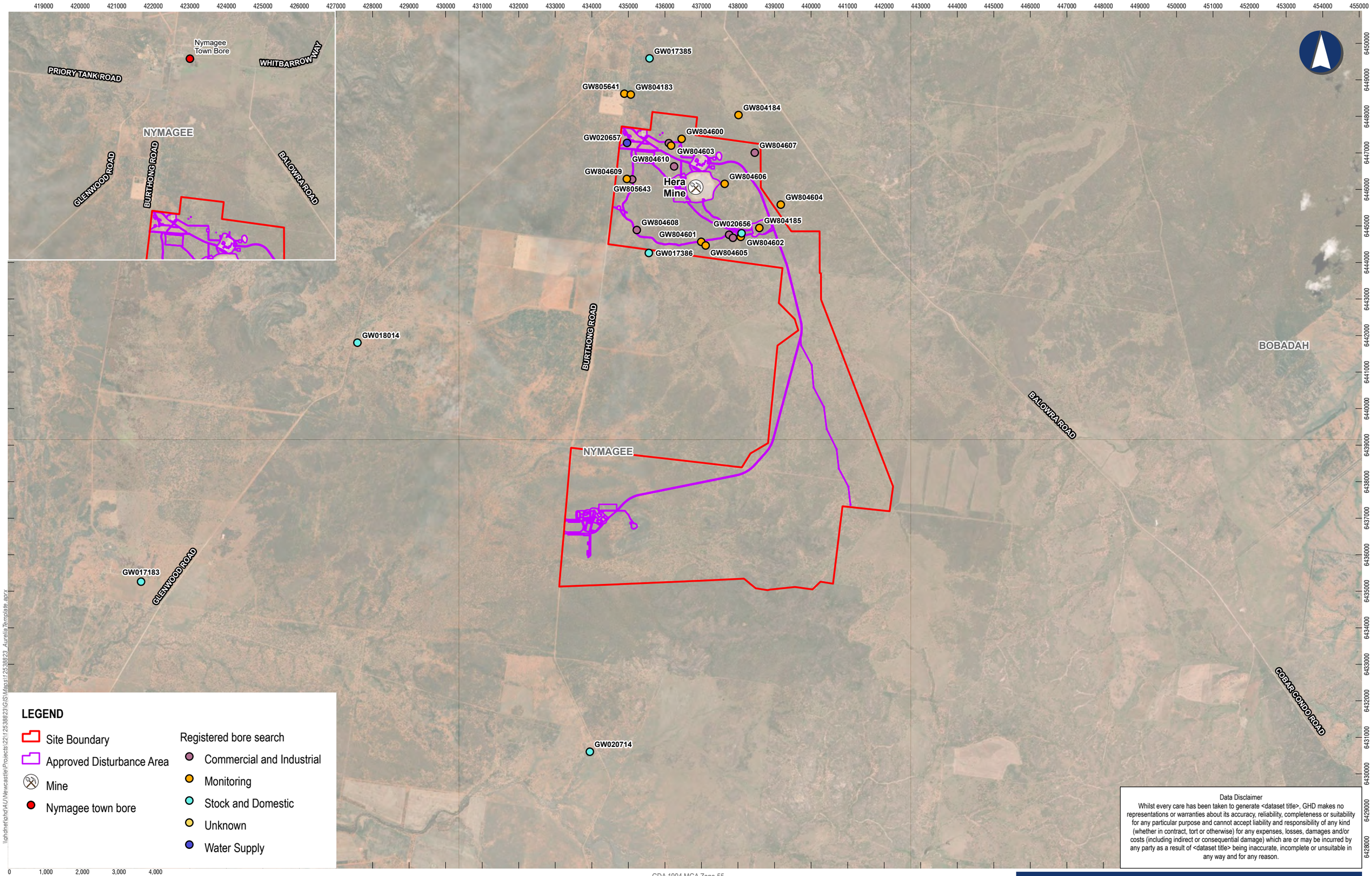
- Ecosystems that depend on the surface expression of groundwater:
  - Swamps and wetlands can be sites of groundwater discharge and may represent GDEs. The sites may be permanent or ephemeral systems that receive seasonal or continuous groundwater contribution to water ponding or shallow water tables. Tidal flats and inshore waters may also be sites of groundwater discharge. Wetlands can include ecosystems on potential acid sulphate soils and in these cases maintenance of high-water levels may be required to prevent waters from becoming acidic.
  - Permanent or ephemeral stream systems may receive seasonal or continuous groundwater contribution to flow as baseflow. Interaction would depend upon the nature of stream bed and underlying aquifer material and the relative water level heads in the aquifer and the stream.
- Ecosystems that depend on the subsurface presence of groundwater. Terrestrial vegetation such as trees and woodlands may be supported either seasonally or permanently by groundwater. These may comprise shallow or deep-rooted communities that use groundwater to meet some or all of their water requirements. Animals may depend upon such vegetation and therefore indirectly depend upon groundwater. Groundwater quality generally needs to be high to sustain vegetation growth.
- Ecosystems that reside within a groundwater resource. These are referred to as hypogean ecosystems. Micro-organisms in groundwater systems can exert a direct influence on water quality, for example, stygofauna typically found in karstic, fractured rock or alluvial aquifers.

3.8.3. Occurrence Within the Region

A search of the Groundwater Dependent Ecosystem Atlas (BoM 2019b) was undertaken to identify GDEs within 20 kilometres of the Site. There were no known aquatic GDEs identified within 20 kilometres of the Site. This is not unexpected, given the deep groundwater levels identified at the site. Potential GDEs are identified based on regional assessments of groundwater levels, remote sensing of vegetation and surface topography. The mapping (BoM 2019b) generally identifies potential GDEs based on regional mapping and therefore the potential GDEs often correspond with areas of vegetation. The search identified a number of potential terrestrial GDEs in the vicinity of the Site. The location of these potential GDEs are shown in **Figure 10**. As shown in **Figure 10** areas mapped as low potential GDE – national assessment and moderate potential GDE – national assessment occurrence zone occurs at the Site. It is considered highly unlikely that these vegetative communities are GDEs given the deep-water levels (45 m to 90 m bgl) identified within the Palaeozoic Sediments at the site.

The Balowra State Conservation Area lies to the immediate south of the Project. Drawdown of groundwater levels due to mining is predicted to extend into the Balowra State Conservation Area (GHD, 2021). The State Conservation Area is considered unlikely to contain GDEs given the deep-water levels at the site are beyond the reasonable limit of tree rooting depths. It is considered unlikely that a perched aquifer would be present considering that exploration drilling at the Site indicated that the shallow strata are dry. Modelled drawdown extending to the Balowra State Conservation Area is therefore unlikely to impact on GDEs (GHD 2021a).

The background document for the Murray-Darling Basin Fractured Rock Groundwater Sources Water Sharing Plan (DPIW 2012) was also reviewed to identify any high priority GDEs within the Lachlan Fold Belt groundwater source. Overall, no high priority GDE were identified within vicinity of the Hera and Federation Mine site.



Hera Resources – Site Water Management Plan

Landholder Bores

Figure 9

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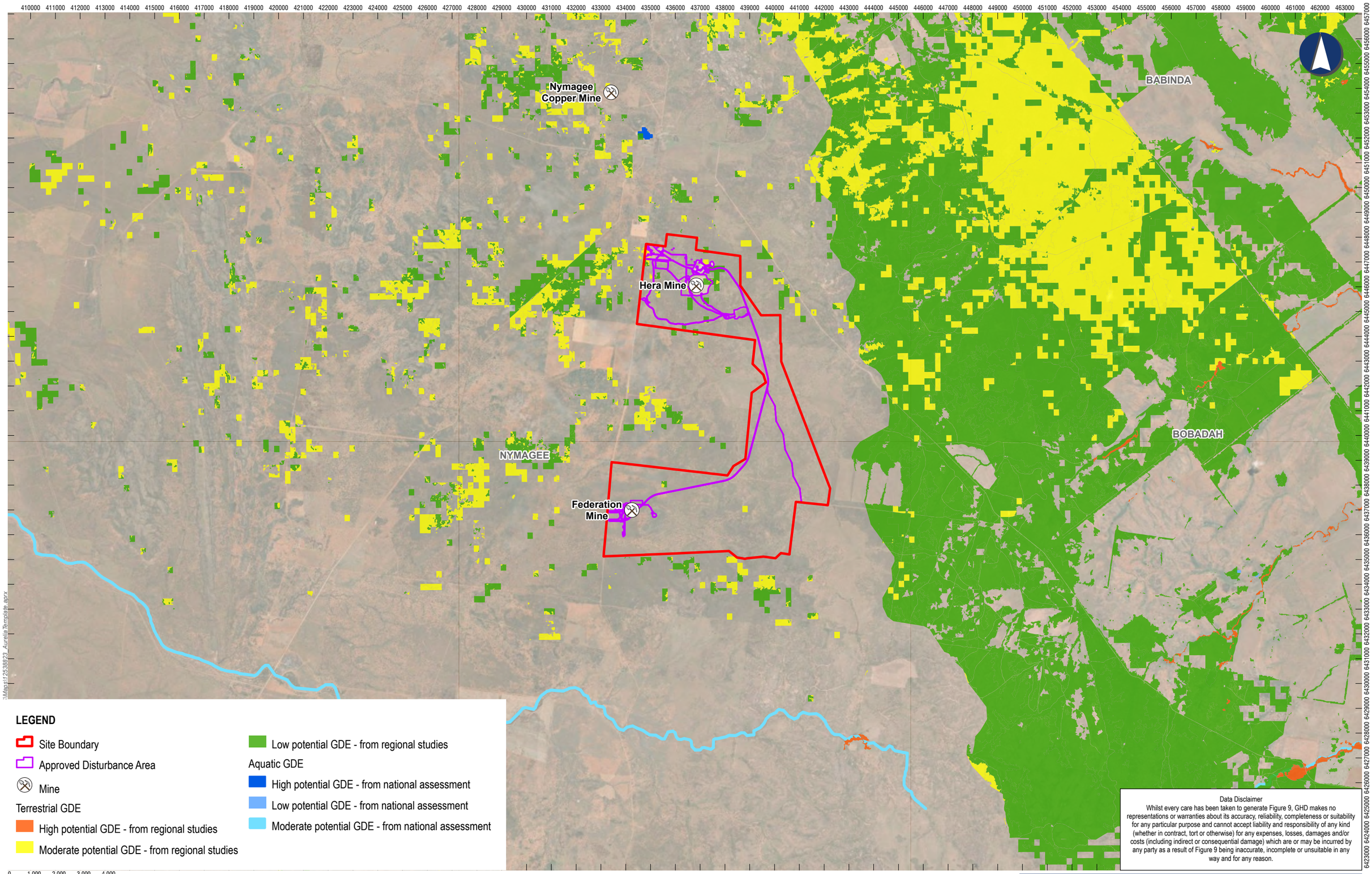
https://aureliametals.com/

Source: 2020.World Imagery: Earthstar Geographics. Created by: sperera2



Hera Resources – Site Water Management Plan

Groundwater Dependent Ecosystems

Figure 10

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Source: LPI: DTDB, 2017; Australian Government Bureau of Meteorology/Australian Groundwater Explorer: Terrestrial GDEs (2020):World Imagery: Earthstar Geographics. Created by: sperera2

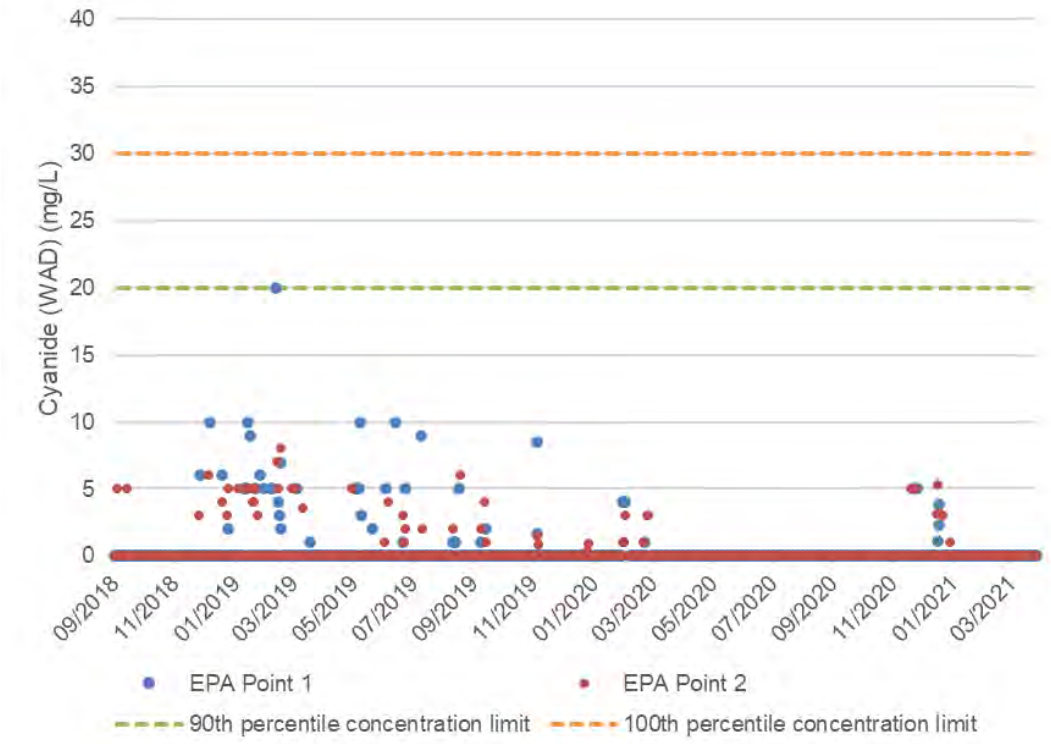
3.9. Surface Water Quality

Surface water quality of the receiving and background environment was investigated by the Ground Doctor in 2014 at Hera Mine. Surface water quality data were collected at clean or raw water surface water storages including the Back Dam East, Pete's Dam and House Dam. The background surface water data were collated between December 2011 and January 2014. During this period construction work had commenced but activities including stockpiling and processing of ore, and generation and storage of tailings had not.

Due to the semi-arid climate and ephemeral watercourses at Hera Mine, no observation of water quality of discharge (EPA Point 3 and 4) or in watercourses (EPA Point 25 and 26) have occurred.

Recent observations of WAD cyanide for discharges to the TSF (EPA Point 1), and to the Process Water Dam (PWD) (EPA Point 2) are shown in Error! Reference source not found., showing the approved concentration limits.

Figure 11: EPA Point 1 and Point 2 Surface Water Quality and Triggers



Baseline water samples were collected at Federation from both Middle Dam and Far Dam on 10 May 2021. Water quality data was compared to ANZG (2018) Default Guideline Values (DGVs). As the sites are farm dams, the impounded nature means that conditions are unlikely to be reflective of naturally observed conditions in the area. However, low frequency of streamflow at the site indicates that a more robust baseline assessment would be impractical.

Water collected from both Middle Dam and Far Dam was neutral and soft, with low EC/salinity. Water from Far Dam was notably more turbid than that collected from Middle Dam.

Concentrations of all dissolved metals were below the laboratory limit of reporting (LOR) at Far Dam, with the exception of dissolved barium, for which no DGV exists. In Middle Dam, only dissolved barium and manganese were observed in concentrations above the LOR, though no exceedances of the DGVs were recorded.

As with dissolved metals, concentrations of the majority of total metals were also low, though copper, lead and zinc were present in both samples as particulate matter not observed in the dissolved samples.

Concentrations of all total metals observed in concentrations higher than the LOR were highest in the Far Dam sample. Although no silver above the LOR was detected, the LOR of the test used exceeded the DGV and therefore it cannot be verified that the concentration was below the DGV.

Nutrients were elevated at Middle Dam and Far Dam, with Nitric Oxides (NOx), Total Nitrogen (TN) and Total Phosphorus (TP) exceeding the respective DGVs. All nutrient concentrations were highest in the Far Dam sample. Elevated nutrient concentrations are expected to occur in farm dams such as these, as animals wastes and other organic materials enter the dams in runoff during periods of high rainfall and become concentrated during dry conditions.

Concentrations of oil and grease, Biological Oxygen Demand (BOD) and all forms of cyanide were low at both sites, with all results at or below the LOR.

4. MANAGEMENT MEASURES

The management measures applied at the Site are documented throughout **Section 4.1** and **Section 4.2**. These Sections outline the reasonable and feasible measures which will be implemented to minimise and prevent material harm to the environment occurring during the development and operation of the Site. The management measures, in addition with the relevant subplans (water monitoring programs (**Section 6**), contingency plans (**Section 6.4**), incident and complaint management (**Section 8**) and reporting (**Section 9**)) will be implemented across the Site to minimise and prevent material harm to the environment, per Schedule 2, Condition A1 of the Consent.

4.1. Existing Management Measures

A summary of water management measures existing at Hera Mine which are to be continued for the Site are outlined in **Table 8**. Description of the water management measures are further outlined in **Section 4.1.1** to **Section 4.1.7**.

Table 8: Existing Water Management Measures

Source	Control Procedure	Person Responsible
Surface water		
Clean water management	• Collection and storage of surface runoff from clean catchments as it occurs. • Diversion of clean catchments away from areas of disturbance. • Usage of water from clean water storages when it is available. • Overflows will bypass the clean water dams and will discharge to creek lines downstream of the site. • Transfer of water to the Process Water Dam (PWD) for on-site industrial use. • Meter transfers of water to the PWD. • Refer to **Section 4.1.1** for additional details.	Environment Superintendent or suitably qualified delegate
Dirty water management	• Collection and storage of potentially sediment laden runoff from disturbed catchments via gravity dirty water drains. The Dirty Water Management system is contained within the bunded landform of the box cut and the surface extraction area and is internally draining.	Environment Superintendent or suitably qualified delegate
Raw water management	• Raw water is used for operational purposes and is generally clean and supplied by production bores on-site. • Raw water is transferred between site Raw Water Storages for management and operational use. • The header tank can receive water from the underground thickener and raw water via the feed water tank (when necessary). The header tank allows for transfers of raw water to the underground workings. • Raw water is also supplied from Nymagee Mine via pipeline to PWD or the Water Management (WM) Dam. • Meter transfers of water from production bores to water storages.	Environment Superintendent or suitably qualified delegate
Contaminated water management	• Transfer contaminated water from contaminated water sources to the PWD. • Maintain 200 mm freeboard in the PWD. • If freeboard within the PWD cannot be maintained water is transferred to the TSF by decreasing tailings density (i.e. reducing the proportion of solids and increasing the proportion of liquids in the tailings pumped to the TSF). • Maintain automatic shutoff mechanisms on all pumps and pipelines that transfer contaminated water and are located outside contaminated water management catchment.	Environment Superintendent or suitably qualified delegate
Hydrocarbon management	• Store all fuels and oils in purpose-built facilities with appropriate bunding. • Store diesel in above self-bunded tanks from where it is transferred direct to machinery. • Licensed contractor is engaged to remove and recycle and/or dispose of used oil and grease products at licensed facilities.	Environment Superintendent or suitably qualified delegate Site operators

Source	Control Procedure	Person Responsible
Potable water	• Potable water is treated using reverse osmosis (RO) that is supplied from groundwater and surface water sources. • The water treatment plant is managed by a specific operational management plan.	Environment Superintendent or suitably qualified delegate
Wastewater	• Wastewater is treated in an aerated wastewater treatment system. • Treated effluent is disposed of in dedicated vegetated irrigation areas. • Sub-surface drip irrigation infrastructure is installed to ensure the dispersal of the effluent is evenly distributed over the irrigation area without the risk of spray drift. • The wastewater treatment system is managed by a specific operational management plan.	Environment Superintendent or suitably qualified delegate
Groundwater		
Mine inflows	• Groundwater intercepted by underground mine workings are to be removed as vapour in the ventilation system or by pumping.	Environment Superintendent or suitably qualified delegate
Production bores	• Metered extraction of raw water from production bores. • Operation within licencing and approvals of new bores.	Environment Superintendent or suitably qualified delegate
Groundwater monitoring bores	• Monitoring of groundwater level and quality within monitoring bores.	Environment Superintendent or suitably qualified delegate
Erosion and sediment control		
Erosion	• Temporary groundcover, including rolled erosion control products (RECPs), mulch. Temporary groundcover will be applied as required e.g. prior to rainfall events and then removed when works are to recommence. • Placed rock, energy dissipaters and level spreaders.	Environment Superintendent or suitably qualified delegate
Sediment	• Sediment controls for minor maintenance works requiring ground disturbance include: ▪ Sediment basins/sumps, where soil loss is above the threshold ▪ Sediment filter fence ▪ Dirty water channels ▪ Flow breaks on areas with slope lengths greater than 40 m ▪ Filter berms/logs/socks ▪ Straw bale filters ▪ Stabilised site access points • The site access roads are sealed for approximately 100 m prior to joining public roads to provide stabilised surfaces that prevent the tracking of dust and mud offsite.	Environment Superintendent or suitably qualified delegate
Revegetation and rehabilitation		
Revegetation	• Apply vegetative cover to non-operational exposed surfaces, e.g. Sediment Basin edges, water diversion drains (where necessary).	Environment Superintendent or suitably qualified delegate
Rehabilitation	• Contaminated and dirty surface water management storages will be removed after mining with residual water pumped underground. • Tailings seepage pond will be retained until seepage ceases. Any seepage will be pumped underground. • Clean water Dams, and clean water diversion drains upstream of the TSF will remain permanently after mine closure. • All other dirty and clean water drains (with the exception of those above the TSF) will be removed following mine closure. • Rehabilitation of the TSF will be investigated through research and trials.	Environment Superintendent or suitably qualified delegate

Source	Control Procedure	Person Responsible
	• Environmental monitoring to occur two years post closure.	

4.1.1. Surface Water

The surface water management system at the Hera Mine site consists of four water types: clean, raw, dirty, and contaminated (or process) water. An overview to the surface water management system, including surface water flow paths and storages around the operation, are shown in **Figure 12**. The Hera Mine surface water management system schematic is shown in **Figure 13**.

The design and operation of the site will ensure there will be negligible change to off-site flood regime, including flows, levels, storage capacity or velocities.

435000 436000 437000 438000 439000 440000

6447000

6446000

6445000

HOUSE DAM

EXISTING AND EXPANDED ACCOMODATION VILLAGE

EXISTING OVERHEAD TRANSMISSION LINE

HOUSE DAM

PROPOSED OVERHEAD TRANSMISSION LINE

HEADER TANK

EXISTING PROCESSING PLANT

PROPOSED HV CORRIDOR

WREA DAM

SURFACE EXTRACTION AREA (QUARRY LOCATION (MOD 6))

SWITCH GEAR

GENSETS

TAILINGS AND CONCENTRATE SHED

SERVICES CORRIDOR

NEW PROCESS PLANT

APPROVED MINE SITE INFRASTRUCTURE

THREE GATES DAM

PROCESS WATER DAM

RELOCATED MAGAZINE

TAILINGS STORAGE FACILITY

LDP1

SEDIMENT BASIN

PETES DAM

WATER MANAGEMENT DAM

LEGEND

- Site Boundary
- Approved Disturbance Area
- Licensed discharge point
- Clean water
- Contaminated water
- Infrastructure
- Pipeline
- Contaminated catchment
- Dirty water catchment
- New processing plant
- Water storage
- Watercourse

0 190 380 570 760 m

Scale: 1:16,000

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GDA 1994 MGA Zone 55
20/02/2024

Data Disclaimer
Whilst every care has been taken to generate Figure 11, GHD makes no representations or warranties about its accuracy, reliability, completeness or suitability for any particular purpose and cannot accept liability and responsibility of any kind (whether in contract, tort or otherwise) for any expenses, losses, damages and/or costs (including indirect or consequential damage) which are or may be incurred by any party as a result of Figure 11 being inaccurate, incomplete or unsuitable in any way and for any reason.

Hera Resources – Site Water Management Plan

Hera Mine Surface Water Management System

Figure 12

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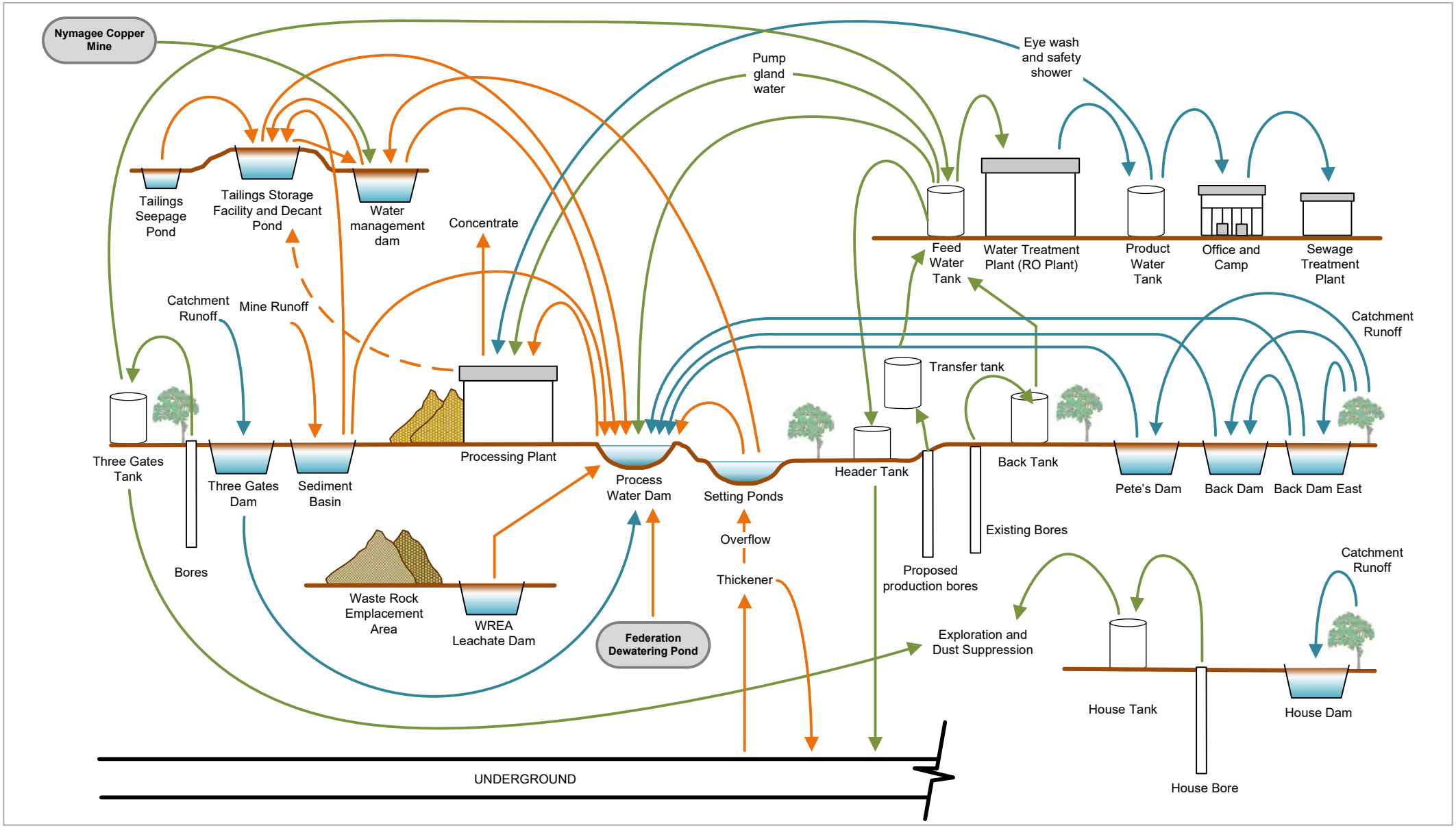
Source: NSW Trade & Investment Resources and Energy: Mining Lease, 2016; LPI: DTDB / DCDB, 2017 World Imagery: Maxar. Created by: aharvey3



Legend

- Underground storage
- Underground process
- Surface storage
- Surface process
- Licensed discharge point
- Contaminated water
- Surface water flow
- Raw Water

Hera Resources Pty Ltd
Hera Mine
Water Management Plan

Water management schematic

Project No. **12600422**
Revision No. **0**
Date **02/08/2023**

FIGURE 13

Created by: Tyler Tinkler

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Clean Water Management

The clean water includes runoff from undisturbed catchment areas within and upslope of Hera Mine portal and the TSF. Clean water may be diverted around and discharged off site without treatment or licensing.

The management of clean water at Hera Mine includes:

- Collection and storage of surface runoff from clean catchments as it occurs.
- Diversion of clean catchments away from areas of disturbance.
- Usage of water from clean water storages when it is available.
- Overflows will bypass the clean water dams and will discharge to creek lines downstream of the site.
- Transfer of water to the Process Water Dam for on-site industrial use.

Current clean water storages are summarised in **Table 9**. The locations of the current clean water storages are shown in **Figure 12**.

Table 9: Existing Clean Water Storage

Storage	Capacity (ML)	Usage
Pete's Dam	3.2 (existing) 20 (approved but not constructed)	Transferred to Process Water Dam as required
Back Dam East	108	Transferred to Process Water Dam as required
Back Dam	6.5	Transferred to Process Water Dam as required
Three Gates Dam	3.6	Transferred to Process Water Dam as required
House Dam	2.0	Not used for any purpose

Clean water diversions

Clean water diversions have been constructed upstream of the TSF and the Hera Mine portal. The clean water diversions have been designed to safely convey the probable maximum flood (PMF) event. The clean water diversions divert water to the Three Gates Dam for surface water capture and reuse within the raw water system (refer to **Section Chapter 3**). The locations of the current clean water diversions are shown in **Figure 12**. The clean water diversions will be inspected in accordance with the requirements specified in **Section 6.1.1**.

Dirty Water Management

Dirty water is defined as runoff from disturbed catchments that is potentially sediment laden. Dirty water management at Hera Mine is comprised of the bunded landform of the box cut and the Hera Surface Extraction Area, which ensures dirty water rainfall runoff within these areas is secure and internally draining.

Sediment Basin 1 and Sediment Basin 2 were previously used as dirty water storages during construction and have since been combined into a larger contaminated water storage which collects runoff from the processing plant area (refer to **Section Chapter 3**). This contaminated water storage is referred to as the Sediment Basin.

Raw Water Management

Raw water is used for operational purposes and is generally clean. Raw water at Hera Mine is supplied from production bores around site. The production bores WB8, Back Bore, WB21 and WB28 transfer water to the Back Tank (located beside Back Dam). Water from the Back Tank is transferred to the Feed Water Tank. The House Dam receives surface water from the clean water catchment and the House Bore (production bore).

The Three Gates Tank receives water from production bores WB24 and WB25. The Header Tank receives water from the underground thickener and raw water (only when necessary) via the Feed Water Tank. The Header Tank allows for transfers of raw water to the underground workings.

Raw water can also be supplied from the nearby Nymagee Copper Mine, via a pipeline that reports to the Process Water Dam or Water Management Dam. Current surface water storages associated with the management of raw water are summarised in **Table 10**, while the locations of raw water storages are shown in **Figure 12**.

Table 10: Raw Water Storages

Storage	Capacity (ML)	Usage
Back Tank	0.1	Receives raw water from WB8, Back Bore, WB21 and WB28.
Three Gates Tank	0.1	Receives raw water from WB24, WB25, WB10, WB17, WB26 and WB27.
Feed Water Tank	0.24	Water Treatment Plant and underground Header Tank.
Header Tank	0.1	Transfer underground.

Raw water transferred from the underground workings or production bores may also be pumped to the Settling Ponds at Hera Mine, for use in Site processes. There are no raw water dams located on site, with all raw groundwater transferred to the tanks listed in **Table 10**. Therefore, no lining of raw water dams will occur as required by Condition B39 (a) of the Consent.

Raw water and existing surface water storages would be used for dust suppression in a manner that is consistent with current practices. Only the minimum amount of water required for dust suppression would be applied to prevent dryland salinisation.

Contaminated Water Management

Contaminated (or process) water is categorised by the increased likelihood of elevated concentrations of cyanide and arsenic. Contaminated water management at the site consists of a series of contaminated water drains which capture and convey potentially contaminated runoff to contaminated site storages.

Current surface water storages associated with contaminated water are summarised in **Table 11** and shown in **Figure 12**. There is no active treatment of this water with all captured volumes reused in processing.

Table 11: Existing Process Water Structures at Hera Mine

Storage	Full Supply Volume (ML)	Usage
PWD	5.3	Central source for process system
TSF	1,700	Storage of Tailings, declared dam under the DS Act
Tailings Decant Pond [(a)]	134 (nominal, varies with tailings deposition)	Decant water back into process system
Tailings Seepage Pond	0.1	Captures runoff from the TSF embankment, as well as intercepting any potential seepage. Intercepted water is pumped to the TSF as required.
WREA Leachate Dam	0.9	Collection of seepage from WREA for transfer to the Process Water Dam.
Water management dam (approved but not constructed)	204 to embankment crest (168 to spillway crest)	Removal of excess decant water from TSF, water inventory storage and providing environmental containment freeboard for the TSF.
Sediment Basin	9.1 (plus pump installed to capture 100-year 72-hour rainfall event)	Collects runoff from the processing plant area and pumped back into the process system for re-use.

Process Water Dam

The PWD has been designed as the central point for water management. The PWD receives water from the clean, raw, dirty and contaminated water storages and supplies it to the Processing Plant. If freeboard within the PWD cannot be maintained water is transferred to the TSF by decreasing tailings density (i.e. reducing the proportion of solids and increasing the proportion of liquids in the tailings pumped to the TSF). A freeboard of at least 200 mm is to be achieved as a minimum operational condition allowing capacity to capture the 1% AEP 72 hour design rainfall event. The PWD is lined to minimise loss of contaminated water through seepage to achieve a permeability equivalent to no less than 1×10^{-9} m/s to a depth of 900 mm.

Tailings Storage Facility

The TSF receives tailings from the Processing Plant. The TSF is a prescribed dam under the DS Act, with a significant consequence category. An environmental containment freeboard for the 1% AEP, 72 hour design rainfall event is required. As required, the TSF will be enlarged to meet the operational requirements of the site. Water captured within the TSF, and water decanted from the tailings deposition, collects within the Tailings Decant Pond. No seepage has been observed in the Tailings Seepage Pond or shallow TSF monitoring bores. A minimum clay cover of 0.6 m was allowed for in the TSF. The TSF is lined to achieve a permeability equivalent to no less than 1×10^{-8} m/s to a depth of 600 mm.

Tailings Decant Pond

The Tailings Decant Pond is localised low point in the TSF where decant water from the TSF is collected. This water is transferred to the PWD or the planned Water Management Dam and decanted following water accumulation.

Tailings Seepage Pond

The purpose of the Tailings Seepage Pond and associated table drain is to intercept potential seepage from the TSF western embankment. During rainfall events the Tailings Seepage Pond collects surface runoff from the TSF embankment. The Tailings Seepage Pond is dewatered to the TSF or the planned Water Management Dam as required to maximise water storage. The Tailings Seepage Pond is lined to achieve a permeability equivalent to no less than 1×10^{-9} m/s to a depth of 900 mm.

Underground Tailings Deposition

The placement of cemented TSF tailings in underground mine voids at Hera Mine may be undertaken to supplement a shortfall in waste rock backfill material in providing geotechnical stability to the mine workings.

Waste Rock Emplacement Area Leachate Dam

The WREA Leachate Dam receives surface water runoff and any leachate generated from the WREA. Water captured within the WREA Leachate Dam is transferred to the PWD for use in the processing system. Water volumes are managed following rainfall events by dewatering to the PWD. The WREA Leachate Dam is lined to achieve a permeability equivalent to no less than 1×10^{-9} m/s to a depth of 900 millimetres of clay.

Sediment Basin

Sediment Basin 1 and Sediment Basin 2 were originally constructed to capture sediment laden water during construction of the processing plant area. During operations, the basins were combined and enlarged to form a single expanded Sediment Basin. Water from Sediment Basin is transferred to the Process Water Dam for reuse. When water levels exceed the sediment storage volume, the storage is dewatered to the Settling Ponds, PWD or TSF.

Water Management Dam

The Water Management Dam is a planned supplementary water storage designed for the removal of water ponding over the TSF, receiving of water from the Nymagee Copper Mine and storage of excess water inventory. The Water Management Dam will form part of the contaminated water system and catchment. An emergency spillway will connect the TSF to the Water Management Dam. As part of the TSF facility, the Water Management Dam is required to provide equivalent performance for environmental containment freeboard and flood routing. Water levels are to be maintained at the minimum operational level to ensure the dam can contain the nominated design storm event.

A concrete well decant structure is planned in the northwest corner to allow return of water to the TSF decant pond. The Water Management Dam will be lined to achieve a permeability equivalent to no less than 1×10^{-9} m/s to a depth of 1000 millimetres of clay or equivalent performance geosynthetic liner.

Pump and pipelines

All pumps and pipelines transferring contaminated water where these are outside of the contaminated water management catchment are equipped with an automatic shutoff mechanism capable of detecting leaks in the pipeline and immediately shutting off the pumps.

4.1.2. Hydrocarbon Management

Fuels and oils are stored in purpose-built facilities with appropriate bunding to minimise the potential for accidental discharging of hydrocarbons into the surrounding environment. Diesel is stored in above ground self-bunded tanks from where it is transferred direct to machinery. A licensed contractor is engaged to remove and recycle and/or dispose of used oil and grease products at licensed facilities. All hydrocarbons and chemicals are stored in accordance with the relevant Australian Standard (AS1940:2017) and the manufacturer's instructions.

4.1.3. Licensed Discharge Points

The EPL currently allows discharges from the site to occur from two LDPs, LDP3 and LDP4, which were located at the outlet of the former Sediment Basin 1 and Sediment Basin 2 respectively. Following the expansion of the Sediment Basin, an application to the EPA has been made in November 2017 to remove LDP3 and LDP4. No response has been received to date.

Whilst the EPL includes no limit on how much water may be discharged from these LDPs, the concentration of a range of pollutants in the discharge water is limited (refer to **Section 6.2**). Two internal discharge points also exist for the TSF (EPA Point 1) and PWD (EPA Point 2). The locations of the LDPs are included in **Figure 12**.

4.1.4. Potable and Wastewater

Potable water is treated using reverse osmosis (RO) that is supplied from both groundwater and surface water sources via a feed tank. The Feed Tank provides a transfer point for water from around the site to be treated. Filtered waste is returned to the PWD.

Wastewater produced within the Surface Facilities Area is treated in an aerated wastewater treatment system, with the treated effluent disposed of in dedicated vegetated irrigation areas. Sub-surface drip irrigation infrastructure is installed to ensure the dispersal of the effluent is evenly distributed over the irrigation area without the risk of spray drift.

Both the water treatment plant and wastewater treatment system are managed via specific operational management plans, with maintenance undertaken as per industry requirements by appropriately trained personnel to ensure that the systems are operating efficiently.

4.1.5. Groundwater

Underground workings

Groundwater inflows have been observed in the development of the decline at Hera Mine. Development of the decline commenced in January 2013. Groundwater inflows are expected to continue as mining progresses. Groundwater encountered within the underground workings will be removed as vapour in the ventilation system or by pumping. Transfers of water into and out of the underground workings are metered.

Groundwater bores

Groundwater bores at Hera Mine include:

- Production bores, where groundwater is extracted to the raw water system. Currently operating production bores include Decline Bore, House Bore, Backbore, WB8, WB10, WB21, WB24, WB25, WB26, WB27, WB28, PWB004 and PWB006. Existing and new production bores are to be operated within the requirements of the WAL and approval.
- Monitoring bores where changes in water levels and quality are monitored. Currently operating monitoring bores include OB2, OB3, WB3, WB4, WB10, WB15, WB16, WB18, WB20, WB22, WB23, TSFOB1, TSFOB2, TSFOB3, TSFOB4 and TSFOB5.

As discussed in **Section 3.9**, TSF monitoring bores TSFOB1, TSFOB2, TSFOB3, TSFOB4 and TSFOB5 were installed to monitor for seepage from the TSF. These TSF bores have consistently been observed as dry since installation.

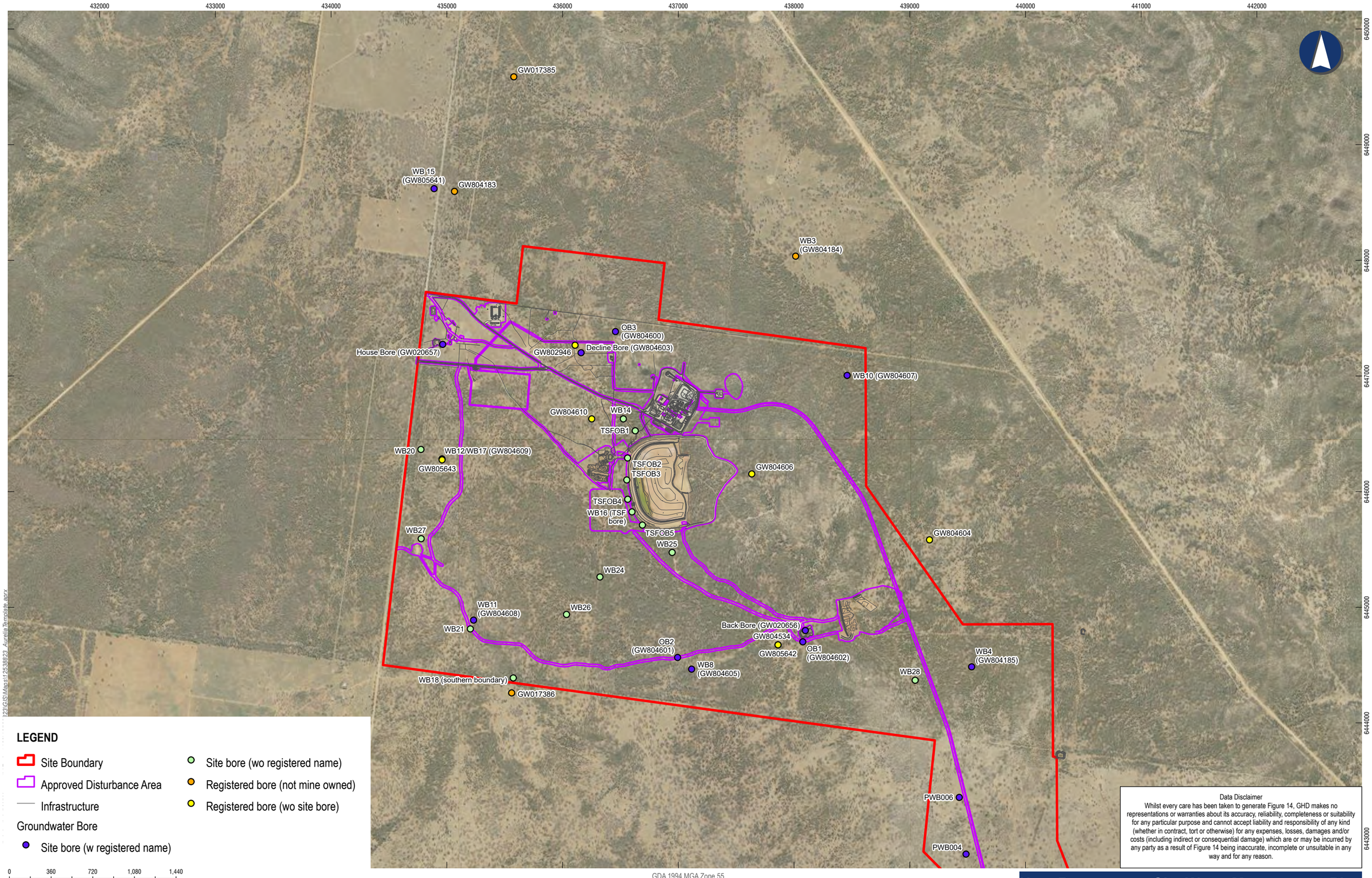
- The details of groundwater bores defined in the EPL and 85WA752586 are summarised in **Table 12** with locations shown in **Figure 14.** Monitoring requirements are included in **Section 6.3.**

The Works Approval for Hera Mine (85WA752586) specifies groundwater level trigger values for bores WB4, WB15, WB18 and WB20. These trigger values require to be updated to reflect the updated groundwater modelling and impact assessment as part of the Federation Project. Consultation should be undertaken with WaterNSW to revise the conditions of Works Approval 85WA752586.

Table 12: Groundwater Bores

Bore	Registered Name	EPL Location	Type	Depth (m)	Surface (m AHD)	Screen Interval	Easting (MGA 55)	Northing (MGA 55)
Decline Bore	GW804603		Inactive production bore	150	313.2	136-148 m	436150	6447203
House Bore	GW020657		Production bore	74.1	303.8	Open Hole Below 30 m	434964	6447273
Back Bore	GW020656		Production bore	74.1	321	108-114 m	438098	6444799
OB1	GW804602		Inactive monitoring bore	120	321.9	138-150 m	438076	6444701
OB2	GW804601		Deep monitoring bore	120	316.1	138-150 m	436994	6444566
OB3	GW804600		Deep monitoring bore	150	321.7	138-150 m	436457	6447384
WB3	GW804184		Deep monitoring bore	108	316.2	74-90 m	438014	6448036
WB4	GW804185	EPL Point 7	Deep monitoring bore	120	324.8	114-120 m	439535	6444485
WB8	GW804605		Production bore	140	316.7	79-140 m	437115	6444465
WB10	GW804607	EPL Point 40	Production and deep monitoring bore	90	336	66-90 m	438459	6447005
WB11	GW804608		Inactive production bore	122	308.1	82-122 m	435231	6444889
WB12 (WB17)	GW804609		Inactive production bore	120	305.8	70-108 m	434958	6446287
WB13	No registered bore identified		Inactive production bore	108	316	90-102 m	436525	6446629
WB15 (Hay Bore)	GW805641	EPL Point 27	Deep monitoring bore	117	303	101-109 m	434890	6448620
WB16 (TSF bore)	No registered bore identified	EPL Point 28	Deep monitoring bore	114	316	98-106 m	436600	6445825
WB18 (southern boundary)	No registered bore identified	EPL Point 29	Deep monitoring bore	120	309	106-112 m	435574	6444389
WB20	No registered bore identified	EPL Point 30	Deep monitoring bore	120	304.9	103-116 m	434776	6446364.61
WB21	No registered bore identified		Production bore		308.2	97-109 m	435203	6444813

Bore	Registered Name	EPL Location	Type	Depth (m)	Surface (m AHD)	Screen Interval	Easting (MGA 55)	Northing (MGA 55)
WB22								
WB23								
WB24	No registered bore identified		Production bore		312.6	91-103 m	436323	6445262
WB25	No registered bore identified		Production bore		324	106-123 m	436947	6445474
WB26	Registration pending		Production bore	136	314	118-124 m	436064	6444938
WB27			Production bore	154	306.7	136-148 m	434778	6445593
WB28			Production bore	100	335.8	64-70 m and 88-94 m	439047	6444369
TSFOB1	Shallow, no registration required	EPL Point 34	Shallow TSF monitoring bore				436628	6446526
TSFOB2		EPL Point 35	Shallow TSF monitoring bore				436562	6446291
TSFOB3		EPL Point 36	Shallow TSF monitoring bore				436555	6446101
TSFOB4		EPL Point 37	Shallow TSF monitoring bore				436563	6445934
TSFOB5		EPL Point 38	Shallow TSF monitoring bore				436690	6445711
PWB004	GW850084		Production bore		331.852	96-108	439402	6442866
PWB006	GW850085		Production bore		338.975	148-160	439423	6443350



Hera Resources – Site Water Management Plan

Hera Mine Groundwater Bores

Figure 14

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Source: BOM: Groundwater Bores, 2019; NSW Trade & Investment Resources and Energy: Mining Lease, 2016; LPI: DTDB / DCDB, 2017 sixmaps/ LPI_Imagery_Best: © Department of Customer Service 2020. Created by: sperera2

4.1.6. Erosion and Sediment Control

The reference guidelines and standards that will be consulted with respect to erosion and sediment control include:

- Managing Urban Stormwater, Soils and Construction, Volume 1 (Landcom 2004).
- Managing Urban Stormwater, Soils and Construction, Mines and Quarries, Volume 2E (DECC 2008).
- International Erosion Control Association, Best Practice Erosion and Sediment Control (IECA 2008).

Disturbance activities

Disturbance areas at Hera Mine include:

- Mine Facilities Area, including lay-down areas, WREA, ROM pad and haul roads.
- General unsealed surrounds (e.g., tracks).
- TSF.
- Proposed Water Management Dam.
- Surface Extraction Area.
- Magazine.
- Pipeline to Federation Mine within disturbance tracks.

Constraints

Table 13 presents the constraints that have been considered in the development of erosion and sediment control at Hera Mine.

Table 13: Erosion and Sediment Constraints

Aspect	Condition
Works period and site sensitivity (DECC, 2008)	Mining operations greater than three years. Downstream environment defined as standard.
Sediment Basin Type	'Wet Basin' Type D (dispersive)/Type F (fine).
Storage Criteria	5 day management period, 90th percentile rainfall event depth of 33.8 mm.
Rainfall Factor – R Factor	1,150 mm
Soil erodibility – K Factor	0.029 (Red Earth) to 0.053 (Lithosols).
Slope and flow length	Maximum flow lengths do not exceed 80 m. Typical slopes are between 0.5% to 1%.
Volumetric Runoff Coefficient	0.39 to 0.79 (DECC (2008) recommends 0.9 for hardstand areas).
Sediment volume allowance	1 year revised universal soil loss equation (RUSLE), dependent upon ability to clean out, otherwise 50% of inflow volume will be applied (DECC 2008).
Sediment basin requirement threshold	150 m3/yr soil loss.

Erosion Controls

The following erosion controls are currently implemented on site:

- Temporary groundcover, including rolled erosion control products (RECPs), mulch.
- Placed rock, energy dissipaters and level spreaders.

Temporary groundcover provides a means of protecting areas that are to remain disturbed for a short period of time, such as temporary soil stockpiles. The temporary groundcover measures (such as RECPs) may be removed prior to the continuation of works and reapplied prior to forecasted rainfall events.

Placed rock forms many of the more permanent erosion controls on site. Placed rock is best suited in applications where concentrated flow paths are likely to occur. The ease of sourcing appropriate rock allows for quick applications around site. Where feasible, placed rock will be of well graded, angular and hard-wearing rock with a median diameter (D50) selected according to the estimated flow velocities (refer to **Table 14**). The placed rock is to be applied with a minimum thickness of 1.5 times the D50 rock size.

Energy dissipaters and level spreaders are located at the discharge point of open channels. They are designed to slow the velocity of discharges using either rocks check dams or stabilised earthen banks to spread the flow over a larger plan area and encouraging sheet flow conditions.

Table 14: Placed Rock Specification (Fischenich, 2001)

D_{50} Rock Size (mm)	Maximum Permissible Velocity (m/s)
150	3.1
250	3.4
300	4.0
450	4.9
600	5.5

Sediment Controls

Sediment controls are intended to intercept sediment generated by disturbance activities and minimise the export of sediment laden runoff into the downstream environment. Sediment controls for minor maintenance works requiring ground disturbance include:

- Sediment basins/sumps, where soil loss is above the threshold
- Sediment filter fence
- Dirty water channels
- Flow breaks on areas with slope lengths greater than 40 m
- Filter berms/logs/socks
- Straw bale filters
- Stabilised site access points

Runoff from the disturbed areas is contained within the permanent water management system. During construction of the planned Water Management Dam, additional temporary sediment basins may be required where construction activities are estimated to result in soil losses greater than 150 m^3/year and will be allowed for in the detailed design.

Filter fences provide a means of managing sediment laden runoff from small areas of disturbance and temporary stockpiling areas.

Flow breaks are installed along the contour and are intended to reduce flow velocities and reduce the risk of rilling and gully erosion within a hillslope. Flow breaks are typically installed where flow lengths are greater than 40 m and may include earthen bunds, mulch berms, sandbags or eco-logs.

The site access roads are sealed for approximately 100 m prior to joining public roads to provide stabilised surfaces that prevent the tracking of dust and mud offsite.

4.1.7. Revegetation and Rehabilitation

Revegetation

The placement of soil and revegetation with endemic native species will be undertaken promptly once sections of Hera Mine are no longer required for mining-related purposes. This is unlikely to occur during mine life as disturbed areas are proposed for ongoing mining operations.

Rehabilitation

The water management system is to be rehabilitated following the completion of operations at the Site, inclusive of Federation Mine activities such as processing and tailings disposal at the Hera TSF. As mining activities progress, some rehabilitation activities may be undertaken. **Table 15** provides a summary of rehabilitation activities that may be required for each of the water management system components.

Table 15: Waste Management System Rehabilitation

Water Management System Component	Rehabilitation Activities
Dirty and contaminated water storages	• Contaminated water from the PWD and the WREA dam will be pumped to the TSF for evaporation. • All contaminated water storages will be removed after Site operations. • Residual water will be piped underground. • The tailings seepage pond will remain until all seepages have ceased. Seepage will be automatically pumped underground. • Sediment basins will be removed once the mine's facilities area is rehabilitated.
Clean water dams	• The clean water dams will be retained after rehabilitation.
Dirty water drains	• All dirty water drains will be removed as a final part of the Site rehabilitation.
Clean water diversion drains	• The clean water diversion drains upslope of the TSF will remain permanently after mine closure. • All other clean water diversion drains will be removed at the completion of rehabilitation works.
Tailings storage facility closure	• During mining operations research and trials will be undertaken to determine the best strategy for the rehabilitation of the TSF, including: ▪ Depth and type of cover to achieve a free draining landform with minimal infiltration. ▪ Development of growth media. ▪ Revegetation. ▪ Stability of final landform including water management structures.
Environmental monitoring	• Continue the environmental monitoring for a period of two years post closure. Rehabilitation plans developed at the time of closure may include triggers to alter the frequency and extent of the monitoring program.

4.2. Additional Water Management Measures

Additional management measures will be introduced to mitigate water impacts as part of the Site inclusive of Federation Mine, these are described in **Table 16.**

Table 16: Additional Water Management Measures – Federation Mine

Source	Control Procedure	Person Responsible
Surface water		
Clean water management	• Diversion of clean water runoff around disturbed catchment areas to minimise volume of contaminated water to be managed.	Environment Superintendent or suitably qualified delegate
Dirty water management	• Capture and containment of dirty water catchment flows from the site infrastructure area in the Stormwater Retention Pond. • Metering of transfers between: ▪ Stormwater Retention Pond to the Dewatering Pond ▪ Dewatering Pond to Hera Mine	Environment Superintendent or suitably qualified delegate
Raw water management	• Raw water supplied from production bores • Metering of transfers between: ▪ Production bore and water management infrastructure	Environment Superintendent or suitably qualified delegate
Contaminated water management	• Metering of transfers between: ▪ Leachate ponds to the Dewatering Pond	Environment Superintendent or suitably qualified delegate
Areas disturbed by mining	• Minimise the dust generating impacts during adverse meteorological conditions and extraordinary events. • Limit disturbance to the minimum area necessary for mining and associated activities. • Stabilise disturbance areas as soon as practicable after they are no longer required for mining-related purposes to minimise dust generation. • Contour the final landform shape to avoid strong wind flows and smooth gradients to reduce turbulence at surface. • Apply vegetative cover to non-operational exposed surfaces, e.g. Sediment Basin edges, water diversion drains (where necessary).	Environment Superintendent or suitably qualified delegate Mine final landform designer
Ore Handling Areas/Stockpiles	• Maintain ore handling areas/stockpiles in a moist condition by using water carts to water down areas affected by wind-blown and traffic-generated dust.	Processing Manager
Topsoil Stockpiling	• Establish vegetative cover over all long-term topsoil stockpiles not regularly used, within three months of stockpiling. • Profile all surfaces to reduce velocity of overland winds.	Environment Superintendent or suitably qualified delegate
Groundwater		
Mine inflows	• Groundwater intercepted by underground mine workings are to be removed as vapour in the ventilation system or by pumping.	Environment Superintendent or suitably qualified delegate
Production bores	• Metered extraction of raw water from production bores. • Operation within licencing and approvals of new bores.	Environment Superintendent or suitably qualified delegate
Groundwater monitoring bores	• Monitoring of groundwater level and quality within monitoring bores.	Environment Superintendent or suitably qualified delegate
Erosion and sediment control		

Source	Control Procedure	Person Responsible
Erosion	• Temporary groundcover, including rolled erosion control products (RECPs), mulch. Temporary groundcover will be applied as required e.g. prior to rainfall events and then removed when works are to recommence. • Placed rock, energy dissipaters and level spreaders.	Environment Superintendent or suitably qualified delegate
Sediment	• Sediment controls for minor maintenance works requiring ground disturbance include: ▪ Sediment basins/sumps, where soil loss is above the threshold ▪ Sediment filter fence ▪ Dirty water channels ▪ Flow breaks on areas with slope lengths greater than 40 m ▪ Filter berms/logs/socks ▪ Straw bale filters ▪ Stabilised site access points The site access roads are sealed for approximately 100 m prior to joining public roads to provide stabilised surfaces that prevent the tracking of dust and mud offsite.	Environment Superintendent or suitably qualified delegate
Revegetation	• Apply vegetative cover to non-operational exposed surfaces, e.g. Sediment Basin edges, water diversion drains (where necessary).	Environment Superintendent or suitably qualified delegate

4.2.1. Surface Water

Introduced surface water management measures at the Site comprise clean, dirty, raw and contaminated water management systems for the Federation Mine.

The surface water management measures at the Federation Mine site consists of four water types: clean, raw, dirty, and contaminated (or process) water. An overview to the surface water management system, including surface water flow paths and storages around the operation, are shown in **Figure 15**.

The design and operation of the Site will ensure there will be negligible change to off-site flood regime, including flows, levels, storage capacity or velocities.

427000 428000 429000 430000 431000 432000 433000 434000 435000 436000 437000 438000 439000 440000

6443000 6442000 6441000 6440000 6439000 6438000 6437000 6436000 6435000

PROPOSED SOLAR FARM
BATCH PLANT
BOXCUT
RAW WATER TANK
PASTE PLANT AND SUBSTATION PAD
TOPSOIL STOCKPILE
DEWATER POND
STORMWATER RETENTION POND
EPA48/ SWQTP32
DEWATER POND CATCHMENT
BOX CUT CATCHMENT
RETENTION POND CATCHMENT
ACCESS ROAD
PFWB001
PFWB004
TOPSOIL STOCKPILE
LAYDOWN
FWB030
FWB174
OFFICES AND ABLUTIONS
CRUSHER PAD
TOPSOIL STOCKPILE
PAF WASTE ROCK
PAF / NAF WASTE ROCK PAD
WORKSHOP
ROM ORE STOCKPILE
LINED LEACH POND
LEACHATE POND2 CATCHMENT
LEACHATE POND1 CATCHMENT
PFWB003
LINED LEACH POND
TOPSOIL STOCKPILE
HV HAUL ROAD
TOPSOIL STOCKPILE

FWB040
FWB041
FWB042
Transfer Tank
FWB043
FWB044
FWB045
FWB046
FWB047
Transfer Tank

SERVICES CORRIDOR TO HERA MINE
PFWB005
ACCESS ROAD
PFWB006
SURFACE EXTRACTION AREA
PFWB002
MAGAZINE 1
MAGAZINE 2
PDWB001

LEGEND

- Site Boundary
- Approved Disturbance Area
- Approved bores
- Proposed production bores
- Clean water diversion
- Dirty Water Drain
- Contaminated water drain
- Stopping footprint projected to surface
- Proposed infrastructure
- Dewater pond (10ML)
- Lined leach pond 1
- Lined leach pond 2
- Stromwater retention pond
- Proposed internal haul road
- Contaminated water catchment
- Dirty water catchment
- Watercourse
- Licensed Discharge Point

0 440 880 1,320 1,760 m

Scale: 1:37,000

GDA 1994 MGA Zone 55
20/02/2024

Data Disclaimer
Whilst every care has been taken to generate Figure 15, GHD makes no representations or warranties about its accuracy, reliability, completeness or suitability for any particular purpose and cannot accept liability and responsibility of any kind (whether in contract, tort or otherwise) for any expenses, losses, damages and/or costs (including indirect or consequential damage) which are or may be incurred by any party as a result of Figure 15 being inaccurate, incomplete or unsuitable in any way and for any reason.

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Hera Resources – Site Water Management Plan

Federation Mine surface water management system

Figure 15

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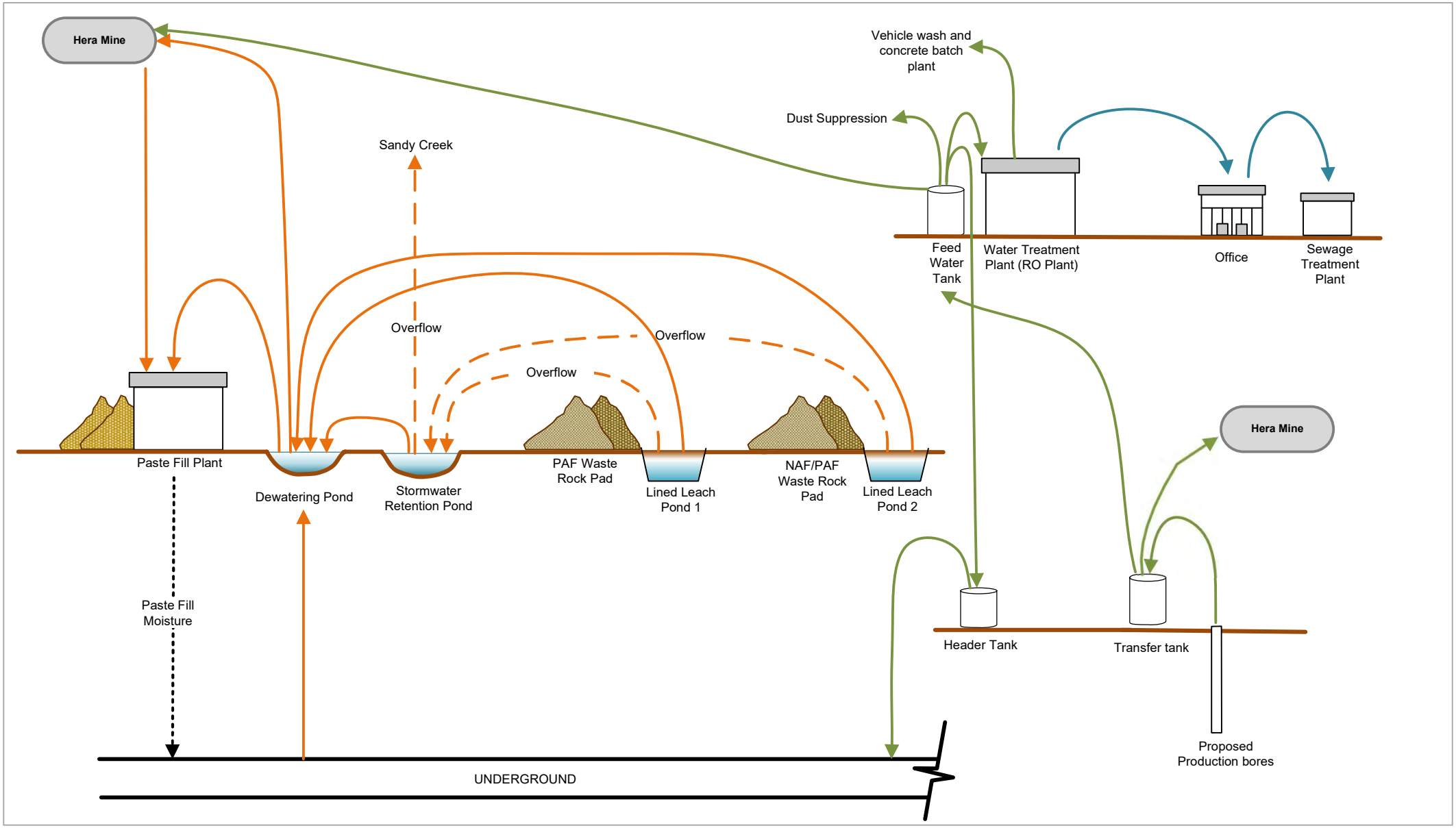
Source: Aurelia Metals Limited: Mine Boundaries & Site Data, 2022; LPI: DTDB / DCDB, 2017World Imagery: Maxar. Created by: aharvey3



Legend

- Underground storage
- Underground process
- Surface storage
- Surface process
- Licensed discharge point
- Entrained moisture
- Treated water
- Raw water
- Contaminated water

Hera Resources Pty Ltd
Hera Resources
Site Water Management Plan

Federation Mine water management schematic

Project No. **12600422**
Revision No. **0**
Date **02/08/2023**

FIGURE 16

Created by: Aharvey3

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Print date: 02/08/2023 11:03

Clean Water Management

Clean water management measures at the Federation Mine includes the diversion, via open drains, of runoff generated within undisturbed catchment areas around disturbed areas and discharged off site. No treatment or licensing is required given these catchments are undisturbed.

Clean water diversions have been designed to contain the 1% Annual Exceedance Probability (AEP) 72-hour rainfall event of 151mm. The adopted design criteria substantially exceed the criteria identified in Managing Urban Stormwater. Each diversion drain will be inspected quarterly and immediately after significant rainfall (>25mm in 24 hrs) to ensure their integrity. Clean water diversions at Federation Mine are shown on **Figure 15**. The surface water management system does not include clean water storages.

As assessed in GHD (2021b), due to the elevated topography of the Federation Mine and the inclusion of clean water diversion drains designed to convey the 1% AEP design flow from the upslope catchment around the operational areas, the Federation Mine is not expected to be subject to regional or localised flooding. Change in catchment areas associated with the Site layout are negligible relative to the downstream receiving watercourse and are therefore not expected to alter flood behaviour in the vicinity of the Site. The clean water diversions will be inspected in accordance with the requirements specified in **Section 6.1.1**.

Dirty Water Management

During construction of Federation Mine, dirty water from the disturbed catchment will be captured by dirty water cut off drains and conveyed to a sediment basin within the footprint of the Stormwater Retention Pond.

During operations, runoff from the infrastructure area is to be directed to the Stormwater Retention Pond via the dirty water cut off drains. This water may be reused for mining purposes, primarily dust suppression or will be transferred to Hera Mine via the Federation Pipeline.

Dirty water management structures have been designed to contain the 1% Annual Exceedance Probability (AEP) 72-hour rainfall event of 151mm. The adopted design criteria substantially exceeds the criteria identified in Managing Urban Stormwater. Each diversion drain will be inspected quarterly and immediately after significant rainfall (>25 mm in 24 hrs) to ensure their integrity. Remedial action, if required, will be implemented immediately. A summary of Dirty Water Management Features at Federation Mine is presented in **Table 17**.

Table 17: Dirty Water Management Structures

Storage	Full Supply Volume (ML)	Usage
Stormwater Retention Pond	35.9	Surface water collection with possibly elevated sediment concentration, but no further pollution of salts, chemicals or a low pH. Water will be used for reused for mining purposes, primarily dust suppression or will be transferred to Hera Mine via the Federation Pipeline.

Stormwater Retention Pond

The Stormwater Retention Pond will receive water from the dirty water catchments within the Surface Infrastructure Area. Surface water from this area may contain elevated concentrations of sediment, but will not contain salt, chemicals or have a low pH. The Stormwater Retention Pond will have a capacity of approximately 36ML. The capacity of the stormwater retention pond substantially exceeds the minimum required capacity for a sediment basin under Managing Urban Stormwater (Landcom 2004), to prevent off-site discharges. The stormwater retention pond will include a 10 m wide spillway in the unlikely event of rainfall that exceeds the 1% AEP rainfall event.

Water within the stormwater retention pond will be used for mining-related purposes, primarily for dust suppression, or will be transferred to the Hera Mine via the Federation Pipeline. Sufficient storage capacity to contain the 1% AEP rainfall event will be maintained within the Stormwater Retention Pond via dewatering to the Dewatering Pond or off-site transfer. In rainfall events exceeding the 1% AEP design event, water may potentially overflow from the Stormwater Retention Pond, as rainfall runoff volumes would exceed the nominated design criteria of the storage. EPA Point 48 licences discharge from the Stormwater Retention Pond. Refer to **Section 7.1.2** for EPL concentration limits.

Raw Water Management

A relatively small volume of raw water is required at Federation Mine throughout mining, for potable usage and underground mining operations.

A pipeline is proposed to transfer raw water from the proposed production bores to the Feed Water Tank at Hera Mine, to supply raw water for the process plant.

Raw water supply for underground mining operations at Federation Mine is to be supplied from production bores via the feed water tank and the header tank. Metering of transfers from production bores will be undertaken.

Potable water is currently trucked to Federation from the Hera Mine Water Treatment Plant. Once constructed, potable water at Federation will be supplied by the Federation Water Treatment Plant. This water will be supplied via the proposed production bores via the Feed Water Tank.

Contaminated Water Management

Contaminated water is categorised as water that has or has an increased likelihood of coming into contact with groundwater, hydrocarbons or Potentially Acid Forming (PAF) material. Water within the PAF Waste Rock Storage Area and the PAF/NAF Waste Rock Pad, as well the Fuel Farm will drain to the Lined Leachate Ponds from where it will be pumped to the Dewatering Pond.

Runoff from the box cut would report down the decline and be dewatered as part of the underground dewatering system to the Dewatering Pond. Water removed from the Federation Mine, as well as water from within the bunded area of the Diesel Tanks and Workshop and Store areas will also be pumped to the Dewatering Pond.

Water within the Dewatering Pond will be used for underground mining operations or, following testing, for dust suppression. The floors and walls of the Dewatering Pond will be lined with HDPE. Water within the Dewatering Pond would also be pumped to the Hera Mine via the bidirectional Federation Pipeline, for use in the processing plant. Contaminated water will not be permitted to be discharged from the Federation Mine area.

Lined Leachate Ponds are lined to achieve a permeability of no less than 1 x 10^{-9} m/s through use of HDPE liner which is considered equivalent to the required standard specified in Condition B39 (a).

A summary of the contaminated water management structures are presented in **Table 18**, with locations shown in **Figure 15**.

Table 18: Contaminated Water Management Structures

Storage	Full Supply Volume (ML)	Usage
Dewatering Pond	10	Receives water from Federation Mine, lined leach pond and bunded areas within the diesel tanks and workshop/store areas. The water may contain elevated salt concentrations, hydrocarbons or have a low pH. HDPE lined.
Lined Leachate Pond 1	2.5	Receives water from PAF/NAF and PAF Waste Rock Storage areas and ROM pad. Stored water might have low pH and elevated concentration of metals or other contaminants. The storage is HDPE lined.
Lined Leachate Pond 2	2.5	

Lined Leachate Ponds

The Lined Leachate Ponds will receive water from the PAF Waste Rock Storage areas, the PAF/NAF Waste Rock Pad and the ROM pad. The material stored within those areas may potentially have a low pH and elevated concentration of metals or other contaminants. The Lined Leachate Ponds will have a combined capacity of approximately 5.0 ML and will be lined to achieve a permeability of no less than 1 x 10-9 m/s to a depth of at least 900 millimetres of clay (or equivalent. The Lined Leachate Ponds will be maintained with a minimum freeboard sufficient to contain the 1% AEP, 72-hour duration through transfer to the Dewatering Pond. Water will be pumped from the Lined Leachate Ponds to the Dewatering Pond using automated pump that will transfer any accumulated water to the Dewatering Pond following rainfall. Water within the Lined Leachate Ponds will not be permitted to flow to natural drainage and will be pumped to the Dewatering Pond as soon as practicable after rainfall.

Dewatering Pond

The Dewatering Pond will receive water pumped from the underground mine, the Lined Leachate Ponds and the bunded areas within the Diesel Tanks and Workshop and Store areas. Water within the Dewatering Pond water may have the potential to contain elevated salt concentrations, hydrocarbons or, in the case of water from the Lined Leachate Ponds, have a low pH. The Dewatering Pond will have a capacity of approximately 10 ML and will be HDPE lined. Accumulated water will be used primarily for use in underground operations or will be transferred to the Hera Mine via the Federation Pipeline. Water transported to Hera Mine will be used predominantly for processing purposes and would replace water that would otherwise be extracted from existing and proposed bores at Hera Mine. Water withing the Dewatering Pond will only be used for dust suppression purposes once it has been tested and it has been demonstrated to comply with the following water quality criteria (refer to **Section 7.1.2**).

- pH: 6.5-8.5
- EC: 1000 $\frac{\mu S}{cm}$

- Oil and Grease: 10 mg/L

A minimum of 30 cm freeboard will be maintained within the Dewatering Pond to prevent discharge. Produced water will not be permitted to flow to natural drainage.

Pump and pipelines

All pumps and pipelines transferring contaminated water where these are outside of the contaminated water management catchment are equipped with an automatic shutoff mechanism capable of detecting leaks in the pipeline and immediately shutting off the pumps.

4.2.2. Hydrocarbon Management

Hera Resources will implement the following mitigation strategies to manage the risk of contamination or inappropriate chemical or waste management.

- Ensure that all hydrocarbons and chemicals are stored in accordance with the relevant Australian Standard (AS1940:2017) and the manufacturer's instructions.
- Ensure all equipment is regularly inspected and maintained, including scheduled replacement of hydraulic hoses to minimise the risk of hydrocarbon spills.
- Ensure that hydrocarbon spill kits are available at each active work site as appropriate.
- Ensure that all personnel are trained and aware of the procedures and requirements of hydrocarbon and chemical materials management prior to the proposed activities commencing.
- Ensure that all personnel are trained and aware of waste storage and disposal requirements.

4.2.3. Licensed Discharge Points

The Water Management System at Federation Mine is designed to retain environmental flows for the 1% AEP 72 hour design storm duration. In the unlikely event that rare rainfall events that exceed the design capacity of the system (i.e. during those events exceeding the design criteria of the 1% AEP 72 hour duration storm) occur, off site discharges may occur. EPA Point 48 licences discharge from the Stormwater Retention Pond, for water within the pollutant limits specified in **Section 7.1.2**.

4.2.4. Potable and Wastewater

Potable water for on-site drinking and ablution requirements will be trucked to Federation Mine from the Hera Mine when required. Wastewater produced during mining activities at Federation Mine will be stored in pump-out septic tanks and removed from the Federation Mine by a suitably licensed contractor.

4.2.5. Groundwater

The groundwater assessment for the Federation Mine estimated that between 0.3 ML/day and 0.34 ML/day of groundwater would likely be dewatered from the Federation Mine workings and pumped to the Dewatering Pond or Hera Mine Site via a proposed pipeline connecting the two operations.

Underground Workings

Hera Resources will implement the following groundwater management strategy to minimise impacts upon groundwater resources and ensure compliance with the requirements of the *Water Management Act 2000*.

- Ensure that all water removed from the Federation mine workings is pumped to the Dewatering Pond.
- Cease to pump water from the Federation mine workings to the Dewatering Pond in the event that the water level in the pond is less than 30 cm from the pond invert.
- Ensure that all water pumped into and out of the Federation mine workings, as well material movements and ventilation rates are recorded through meters to enable a robust assessment of groundwater inflows to the mine workings.
- Continue monitoring groundwater levels and quality within the existing monitoring bores and within proposed monitoring bores, once installed.
- Engage with surrounding landholders, including the owner of bore GW020714 (over 6 km from the Federation Mine), to ensure that groundwater impacts are appropriately managed and mitigated.

Groundwater bores

Existing groundwater monitoring bores in the vicinity of Federation Mine include:

- Deep groundwater monitoring bores, where changes to the groundwater level and quality are monitored. Currently operating bores include: FMB001, FMB002, FMB003, FMB004, FMB005 and FMB006.
- Shallow monitoring bores, monitored for detection of leakage from the Lined Leach Pond and Dewatering Pond. Proposed bores include: LLPOB01, LLPOB02, LLPOB03, LLPOB04, DWPOB01, DWPOB02 and DWPOB03.

The details of existing and proposed groundwater monitoring bores at Federation Mine are shown in **Table 19**, with locations shown in **Figure 17**. Monitoring requirements are included in **Section 6.3**.

There are a number of proposed groundwater production bores at Federation Mine. These production bores will be operated under respective WAL and use approvals. The locations of these production bores is shown in **Figure 15** and **Figure 17**.

Table 19: Groundwater Monitoring Bores

Bore	EPL Location	Type	Depth (m)	Surface (m AHD)	Screen interval	Easting	Northing
FMB01		Monitoring bore	120	323.754	111-117	434361	6437163
FMB02		Monitoring bore	180	328.115	162-174	434511	6437027
FMB03		Monitoring bore	120	316.734	105-109, 114-117	433780	6436947
FMB04		Monitoring bore	120	327.118	111-117	434339	6436818
FMB05		Monitoring bore	120	323.248	111-117	434146	6437092
FMB06		Monitoring bore	150	312.228	100-103, 144-147	433476	6436614
FMB07		Monitoring bore	120	316.122	112 - 113	434432	6438789
FMB08		Monitoring bore	120	331.909	112 - 113	436244	6436744
FMB09		Monitoring bore	120	317.303	90 - 92	4344658	6435672
FMB010		Monitoring bore	114	309.301	84 – 85, 107 - 108	433297	6436790
FLLP01		Shallow groundwater monitoring bore – Lined Leachate Pond	Shallow	N/A	N/A	433801	6436748
FLLP02		Shallow groundwater monitoring bore – Lined Leachate Pond	Shallow	N/A	N/A	433785	6436693
FLLP03		Shallow groundwater monitoring bore – Lined Leachate Pond	Shallow	N/A	N/A	433974	6436674
FLLP04		Shallow groundwater monitoring bore – Lined Leachate Pond	Shallow	N/A	N/A	433970	6436625
FMDD01		Shallow groundwater monitoring bore – Dewatering Dam	Shallow	N/A	N/A	433770	6437175
FMDD02		Shallow groundwater monitoring bore – Dewatering Dam	Shallow	N/A	N/A	433770	6437125
FMDD03		Shallow groundwater monitoring bore – Dewatering Dam	Shallow	N/A	N/A	433765	6437079

4.2.6. Pipeline Management

Hera Resources will implement the following management strategies to ensure appropriate management of the Federation Pipeline and compliance with Section 120 of the *Protection of the Environment Operations Act 1997*.

- Construct the pipeline using an HDPE pipe placed directly on the ground except in the vicinity of Strahler second order watercourse crossings (or greater) where the pipeline would be buried.
- Construct a 3 m wide graded access track to facilitate installation and maintenance of the pipeline.
- Install and maintain leak detection equipment and automatic pump shutoffs to prevent discharge of water in the event of a pipe failure or leak.
- Visually inspect the pipeline weekly to ensure its integrity and undertake maintenance as required. The pipeline will be inspected by the Environment Superintendent or delegate. Inspections are recorded on the Site INX system.

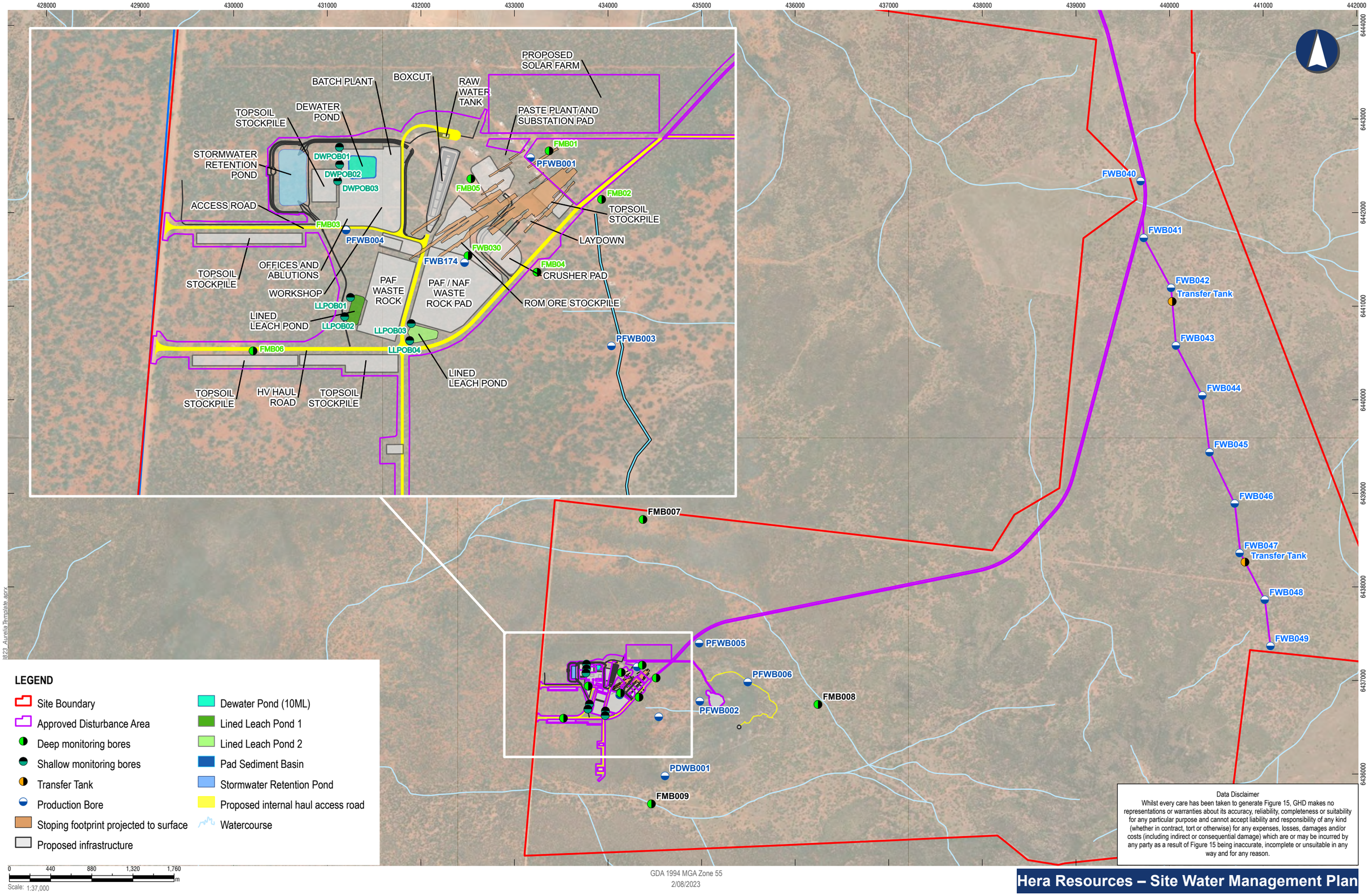
4.2.7. Erosion and Sediment Control

Permanent erosion and sediment control will continue to be undertaken in accordance with the erosion and sediment control framework outlined in **Section 4.1.6**.

Any construction activities at Federation Mine will have a detailed Erosion and Sediment Control Plan (ESCP) prepared based on specific construction methodologies. The objective of the ESCP is to ensure that appropriate structures and programs of work are in place to:

- Identify activities that could cause erosion and generate sediment.
- Describe the location, function and capacity of erosion and sediment control structures required to minimise soil erosion and the potential for transport of sediment downstream.
- Ensure erosion and sediment control structures are appropriately maintained.
- Fulfil the statutory conditions of the project approval.
- Consider industry standard practice, specifically:
  - Landcom 2004. Managing Urban Stormwater – Soils and Construction, Volume 1, 4th Edition.
  - Department of Environment and Climate Change (DECC) 2008. Managing Urban Stormwater – Soils and Construction, Volume 2E – Mines and Quarries.
  - Best Practice Erosion and Sediment Control (IECA, 2008).

During construction activities, surface water and groundwater monitoring programs will be implemented per this WMP to adopt the reasonable and feasible measures to minimise and prevent material harm to the environment.



Hera Resources – Site Water Management Plan

Federation Mine Groundwater Bores

Figure 17

aurelia METALS Ltd.

Sheet Size : A3

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Source: Aurelia Metals Limited: Mine Boundaries & Site Data, 2022; LPI: DTDB / DCDB, 2017World Imagery: Maxar. Created by: sperera2

5. WATER BALANCE

A site water balance model was previously developed for the Site as part of the Federation Project EIS SWIA (GHD, 2021b).

The model was implemented in GoldSim and was based on the observed flows and climatic conditions at Hera Mine and the proposed conditions at the Federation Mine site. The site water management features described in **Section 4** were linked together to simulate rainfall, runoff, evaporation, overflows pumped transfers, and operations over time. The estimation of catchment runoff, based on rainfall and potential evaporation is itself simulated by the Australian Water Balance Model. The model was used to forecast the combined site water balance for Federation and Hera under a range of rainfall conditions, utilising the historical rainfall record and projected site activities.
A summary of results is presented in **Section 5.3**, while a conceptual schematic of site transfers for Hera Mine and Federation Mine are include in **Figure 15** and **Figure 16**.

Information regarding the model methodology and presented results can be referred to within the Federation Project EIS SWIA (GHD 2021b).

The site water balance is also required to be run every 12 months per **Section 9.1** and reviewed every three years, or when conditions on site change, per **Section 9.2.2**.

5.1. Water Sources and Demands

The principal sources of water at Hera Mine are:

- Groundwater intercepted by the decline and the underground workings.
- Groundwater extracted from production bores.
- Catchment runoff from clean catchments captured in the clean water storages.
- Catchment runoff from disturbed catchments captured in the sediment basins.
- Direct rainfall onto surface water storages.
- Water imported to site from the nearby Nymagee Copper Mine.

The most significant source of water is groundwater inflow into the underground workings and groundwater extraction from the production bores. Catchment runoff is utilised when available.

The principal demands of water at Hera Mine are:

- Processing plant consumption.
- Evaporation losses from surface water storages.
- Dust suppression.

The water demands at Hera Mine, such as the consumption of water by the processing plant, are likely to be relatively stable over the life of the mine. Other demands, such as dust suppression and evaporation losses, will vary in response to the climatic conditions.

The principal sources of water at Federation Mine are:

- Groundwater intercepted by the decline and the underground workings.
- Groundwater extracted from production bores.
- Catchment runoff from disturbed catchments captured in the sediment basin.
- Direct rainfall onto surface water storages.

The principal demands of water at Federation Mine are:

- Ore crushing.
- Paste fill plant consumption.
- Dust suppression.
- Underground mine operations.

5.2. Water Reuse and Reticulation

In order to minimise water supply demands, the Site has an integrated water management system across the Site. Water is reused and recirculated throughout the Site. Water reuse on the Site is influenced by water type.

Two water pipelines within the Services Corridor, pumps at Hera Mine and production bores at Federation Mine, will allow for transfer of water within the following:

- Production bores to the Feed Water Tank at Hera Mine, to supply raw water for the process plant.
- Dewatering Pond at Federation Mine to the Water Management Dam at Hera Mine.

Site water demands are also managed by water runoff from dirty water and contaminated water catchments at Federation being reticulated for reuse within the Hera Mine water management system via the Federation to Hera Mine pipeline.

Similarly, process water at Hera Mine is reticulated via capture of decant water from the Tailings Storage Facility with this water transferred to the Process Water Dam for use at the Processing Plant.

5.3. Water Balance Results

The combined average annual Site water balance for future conditions at the Site are shown in **Table 20**, while a schematic of the overall water management system is shown in **Figure 13** and **Figure 16**. The results presented for year 8 are representative of approved conditions and are forecast only. The year presented for year 8 corresponds to the peak in annual total groundwater inflows to Federation Mine and was selected to represent the corresponding peak water management for the Site. Year 1 future conditions are provided for comparison.

Table 20: Site Water Balance Forecast Conditions

Water Management Element	Future Conditions (year 1)	Future Conditions (ML) (year 8)
INPUTS		
Direct rainfall	42	45
Catchment runoff	167	169
Groundwater inflows	66	122
Extraction from production bores	178	336
Import from Nymagee mine	0	0
TOTAL INPUTS	**453**	**671**
OUPUTS		
Evaporation	118	125
Water entrained in tailings	198	469
Dust suppression	37	48
Wastewater irrigation	32	33
Discharge to Box Creek	0	0
Discharge to Sandy Creek	0	0
TOTAL OUTPUTS	**385**	**676**
CHANGE IN STORAGE		
Surface water storages	67	-5
Underground storage	0	0
TOTAL CHANGE IN STORAGE	**67**	**-5**
BALANCE		
Inputs-outputs-change in storage	0	0

5.3.1. Off-site Discharges

With the planned commissioning of the Water Management Dam at Hera Mine and the construction of the water management system at Federation Mine, it is not expected that controlled discharges will occur at the Site. Off-site discharges may still occur in the unlikely event of rare to extreme rainfall events that exceed the relevant design criteria of the Site water storages.

5.3.2. Water Security

A Site water balance model simulated the range of annual extraction from all production bores for proposed conditions. Proposed conditions are representative of the peak water demand during operations, which simulate ore production at the peak of approximately 60,000 tonnes per month. The assessment did not consider potential extraction from the Hera Mine underground workings following the completion of mining at Hera Mine, which is assessed in the GIA (GHD 2021), thereby conservatively over-estimating the potential extraction from production bores required.

GHD 2021a indicates that total production bore usage to satisfy operational requirements for the Site under the proposed conditions is expected to range from 250 ML to 408 ML. Considered in combination with the forecast groundwater inflows in that year of 122 ML/year, the maximum groundwater extraction forecast by the Site water balance model is 530 ML/year. This is within the groundwater entitlement held by Hera Resources (or Aurelia) for the Site under WAL 43173 equivalent to 543 ML/year. Therefore, Hera Resources holds sufficient WAL entitlement for the Site.

A summary of potential future groundwater take in comparison to the current water entitlements are summarised in **Table 21**.

Table 21: Water Take Requirements for Peak Water Demand Year

Element	Future Conditions (ML/year)
Gross water demands	672
Passive take (underground inflows)	122
Active take (e.g., pumping from bores)	408
Total groundwater take	530
Current water entitlements	543

In reality, take from production bores will vary in response to actual groundwater inflows. Extractions from production bores will be higher if mine inflows are lower than predicted; and extraction from production bores will be lower if mine inflows are higher than predicted. However, in any case, the total extraction is expected to remain within the groundwater entitlement held by Hera Resources for the Project under WAL 43173 equivalent to 543 ML/year. Hera Resources will not exceed the entitlement held under WAL 43173. If required, Site operations will be scaled to match the available water supply.

6. WATER MONITORING PROGRAM

Water monitoring will be undertaken in compliance with the SSD 24319456 and EPL 20179 criteria. The monitoring will be undertaken by suitably qualified and experienced personnel. The results of the monitoring program will be reviewed and reported as outlined in **Section 9.1**.

6.1. Inspections

6.1.1. Site Inspections

Once per fortnight and after significant rainfall (greater than 20 mm in 24 hours), the Site's Environment Team member will carry out a walk-over of the Site to assess all surface water structures, including potential leakage from tailings, mineral concentrate or effluent pipelines where these are outside of the contaminated water management catchment. The Federation to Hera Mine water pipeline is inspected weekly. Inspections are recorded in the on site INX system. The integrity of any perimeter fence around water management infrastructure, to prevent access by wildlife, will also be inspected.

In the unlikely event of off-site discharges, the water quality of downstream watercourse will be monitored as required by the EPL 20179, as described in **Section 6.2**, including cyanide in particular. A visual inspection of downstream watercourse at least to the location of the furthest downstream monitoring location will be undertaken to identify any potential impacts to wildlife.

6.1.2. Dam Inspections

Quarterly visual inspections of silt depth in Process Water Dam, Settling Ponds, Sediment Basin and Stormwater Retention Pond are undertaken. Once silt levels exceed one third of the dam capacity the water storage will be de-silted. The water storages will be desilted using a vacuum truck, hydro mining or similar non-destructive method. The use of excavators or similar equipment with hard cutting blade is prohibited. Silt will be disposed on site within the TSF.

The Sediment Basin is located at the main access of the processing plant area at Hera Mine. The water levels in, and the operation of, the dewatering pump at the Sediment Basin can be reliably visually observed from the main Site office.

Water levels in dams are gauged using flood gauges.

6.2. Surface Water Monitoring

Surface water quality monitoring of clean, dirty and contaminated water management systems is undertaken by suitably trained personnel. The samples are sent to a National Association of Testing Authorities (NATA) accredited laboratory for testing.

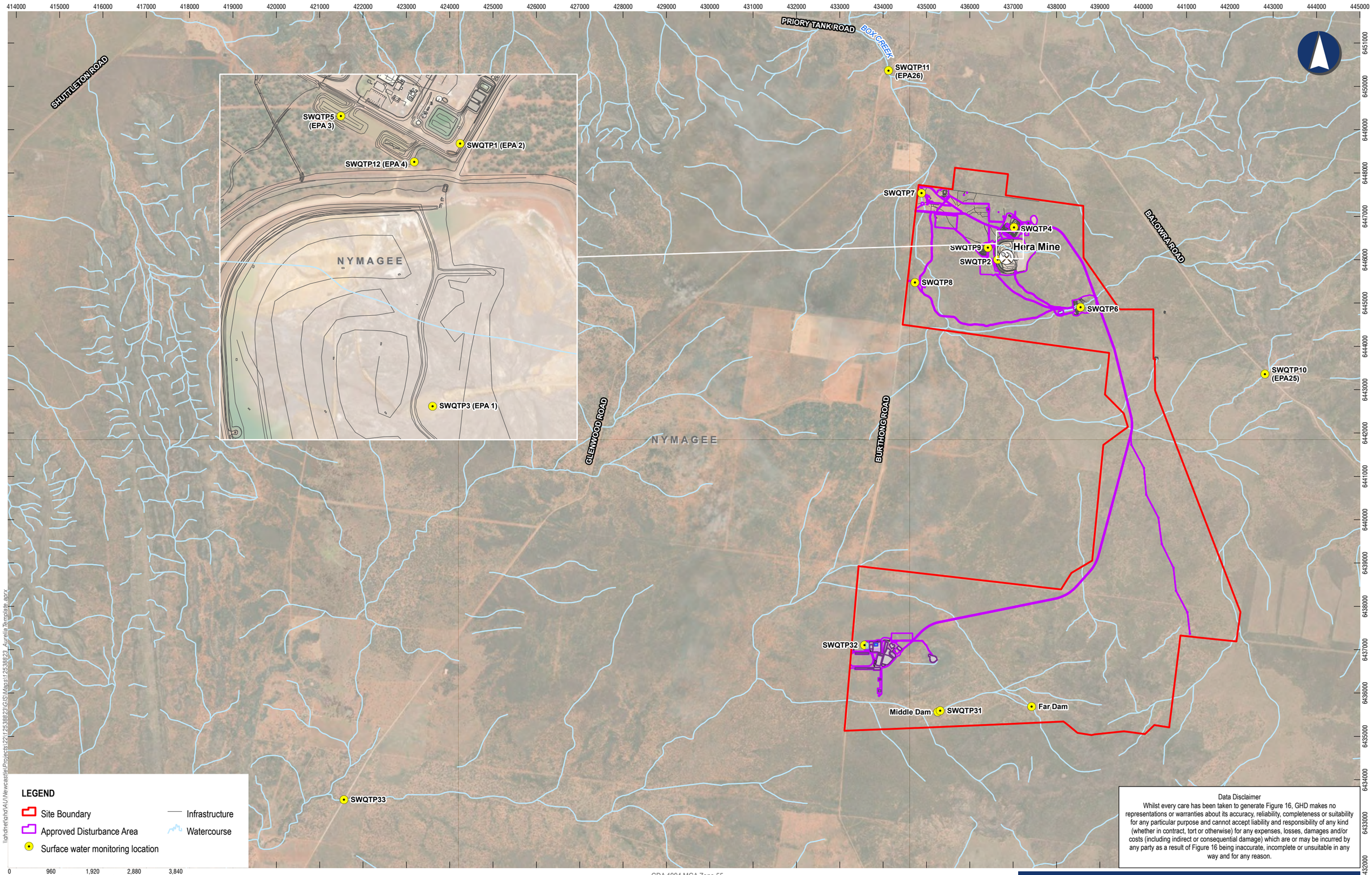
Surface water quality monitoring locations are listed in **Table 22**. EPL 20179 requires that surface water quality is monitored at a number of locations as outlined in **Table 22**. There are no volumetric discharge limits specified in EPL 20179.

Locations of surface water quality monitoring locations are shown in **Figure 18**.

Table 22: Surface Water Quality Monitoring Locations

Name	EPA Point	Location	Frequency	Parameters
SWQTP3	EPA 1	Discharge to TSF	Daily during any discharge	Cyanide (weak acid dissociable)
SWQTP1	EPA 2	Discharge to PWD		
SWQTP5	EPA 3 [A]	EPA 3 [A]	Daily During any discharge	EC, pH, TSS, Cyanide (weak acid dissociable), Al, As, B, Cd, Cu, Pb, Mn, Ni, N (total), Oil and grease, Ag, Total P (filtered), Zn
SWQTP12	EPA 4 [A]	EPA 4 [A]		
SWQTP10	EPA 25	Hera Surface Quality Monitoring Point Upstream		
SWQTP11	EPA 26	Hera Surface Quality Monitoring Point Downstream		
SWQTP31	EPA 47	Federation Surface Quality Monitoring Point Upstream		
SWQTP32	EPA 48	Federation Stormwater retention pond discharge		
SWQTP33	EPA 49	Federation Surface Quality Monitoring Point Downstream		
WREA Leachate Dam, Sediment Basin	-	WREA Leachate Dam, Sediment Basin	Once following each rainfall event that causes runoff	EC, pH (in situ), TDS, major ions, acidity, Al, As, B, Cd, Cu, Pb, Mn, Ni, N (total), Oil and grease, Ag, Total P (filtered), Zn

[A] Following the expansion of the Sediment Basin, an application to the EPA has been made in November 2017 to remove LDP3 and LD P4. No response has been received to date.



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LEGEND

- Site Boundary
- Approved Disturbance Area
- Surface water monitoring location
- Infrastructure
- Watercourse

0 960 1,920 2,880 3,840 m

Scale: 1:80,000

GDA 1994 MGA Zone 55

2/08/2023

Data Disclaimer

Whilst every care has been taken to generate Figure 16, GHD makes no representations or warranties about its accuracy, reliability, completeness or suitability for any particular purpose and cannot accept liability and responsibility of any kind (whether in contract, tort or otherwise) for any expenses, losses, damages and/or costs (including indirect or consequential damage) which are or may be incurred by any party as a result of Figure 16 being inaccurate, incomplete or unsuitable in any way and for any reason.

Hera Resources – Site Water Management Plan

Surface Water Quality Monitoring Program

Figure 18

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Source: NSW Trade & Investment Resources and Energy: Mining Lease, 2016; LPI: DTDB / DCDB, 2017 World Imagery: Earthstar Geographics. Created by: sperera2

6.3. Groundwater Monitoring

6.3.1. Groundwater Bore Monitoring

Groundwater monitoring at the Site includes monitoring of groundwater level and quality at observation bores and sampling of groundwater quality at production bores. Monitoring is required by the EPL. Monitoring in addition to the EPL requirements is undertaken to verify impacts of mining operations.

Shallow monitoring bores TSFOB1, TSFOB2, TSFOB3, TSFOB4 and TSFOB5 are located in the vicinity of the TSF to monitor for potential impacts from the TSF. Prior to the commissioning of the Water Management Dam, a series of piezometers will be installed within 40 m of the downstream toe of the embankment, at a similar spacing to the existing shallow monitoring bores. The existing shallow monitoring bores will be retained or replaced to monitor upgradient groundwater conditions. Monitoring locations will be specified during detailed design of the Water Management Dam and included in this WMP following commissioning. Monitoring results at the existing shallow monitoring bores (refer to **Section 3.7**) suggest a low potential for groundwater contamination at that location with the proposed construction method.

Shallow monitoring bores will be installed adjacent to the Lined Leachate Ponds (bores LLPOB01 to LLPOB04) at Federation at the Dewatering Pond (bores DWP01 to DWP03). The Dewatering Pond will receive transfers from the Lined Leachate Ponds. Monitoring results at the existing shallow monitoring bores (refer to **Section 3.7**) suggest a low potential for groundwater contamination at that location with the proposed construction method.

As specified by DIPNR (2003) (to be adopted as a minimum standard), groundwater monitoring will be undertaken in general accordance with 'A Practical Guide to Groundwater Sampling' (Jiwan and Gates, 1992). Where practical, low flow sampling techniques are be used for purging and sampling (rather than bailers or submersible pumps) to minimise aquifer disturbance and reduce the volume of groundwater extracted during sampling.

The frequency and parameters to be monitored are summarised in **Table 23**. Monitoring locations are shown in **Figure 19**.

Table 23: Groundwater Monitoring Program

Location	Frequency	Parameter
EPL monitoring points		
WB4 (EPA 7)	Annual	Standing water level (SWL), EC, pH, TDS, Sb, As, HCO3, B, Cd, Ca, CO3, Cl, Cr, Cu, Cyanide (free, total & WAD), Fe, Pb, Mg, Hg, Mo, Ni, K, Ag, Na, Sn, Zn
WB15 (EPA 27)		
WB16 (EPA 28)		
WB18 (EPA 29)		
WB20 (EPA 30)		
WB10 (EPA 40)		
FMB01	Quarterly	
FMB02		
FMB03		
FMB04		
FMB05		
FMB06		
FMB07		
FMB08		
FMB09		
FMB010		

Location	Frequency	Parameter
TSFOB01 (EPA 34)	Quarterly (when water present)	SWL, EC, pH, Cyanide (free, total & WAD)
TSFOB02 (EPA 35)		
TSFOB04 (EPA 37)		
TSFOB05 (EPA 38)		
FLLP01		
FLLP02		
FLLP03		
FLLP04		
FMDD01		
FMDD02		
FMDD03		

6.3.2. Mine Dewatering and Production Bores

Water volumes extracted from production bores and dewatering of the underground workings are metered as required by 85WA752586.

The volume of water extracted is monitored continuously by an electromagnetic flowmeter at the headworks. The flow meters comply with the NSW Non-Urban Water Metering Policy using a pattern approved closed conduit meter (Arad Octave DN80 or equivalent).

Water extracted under WALs will be recorded and reported as part of the Annual Review, as outlined in **Section 9.1**.

421000 422000 423000 424000 425000 426000 427000 428000 429000 430000 431000 432000 433000 434000 435000 436000 437000 438000 439000 440000 441000 442000 443000 444000 445000 446000 447000 448000 449000 450000 451000 452000

6452000 6451000 6450000 6449000 6448000 6447000 6446000 6445000 6444000 6443000 6442000 6441000 6440000 6439000 6438000 6437000 6436000 6435000 6434000

PRIORY TANK ROAD
BARTON STREET
MILFORD STREET
WHITBARROW WAY
BURTHONG ROAD
FMB010
DWPOB01
DWPOB02
DWPOB03
FMB01
FMB05
FMB02
FMB03
FMB04
LLPOB01
LLPOB02
LLPOB03
FMB06
LLPOB04
GW017385
WB 15 (GW805641)
GW804183
WB3 (GW804184)
OB3 (GW804600)
WB5
GW802946
Decline Bore (GW804603)
WB10 (GW804607)
House Bore (GW020657)
GW804610
WB13
WB20
WB12/WB17 (GW804609)
WB14
GW804606
GW805643
Hera Mine
WB27
WB16 (TSF bore)
WB25
GW804604
WB24
Back Bore (GW020656)
WB11 (GW804608)
WB26
WB21
GW804534
WB4 (GW804185)
OB2 (GW804601)
WB8 (GW804605)
GW805642
Harland's Bore
WB18 (southern boundary)
GW017386
WB28
PWB006
PWB004
NYMAGEE
BOBADAH
GLENWOOD ROAD
GW018014
BALOWRA ROAD
FMB007
Federation Mine
FMB008
FMB009

LEGEND

- Site Boundary
- Approved Disturbance Area
- Mine
- Hera bore
- Federation Bore

0 950 1,900 2,850 3,800 m

Scale: 1:80,000

GDA 1994 MGA Zone 55
04/04/2024

Data Disclaimer
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Hera Resources – Site Water Management Plan

Groundwater Monitoring Program

Figure 19

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Source: LPI: DTDB, 2017; Australian Government Bureau of Meteorology/Australian Groundwater Explorer: Terrestrial GDEs (2020);World Imagery: Earthstar Geographics. Created by: mzhou2

6.4. Paste Fill Management Program

Schedule 2, Condition B48 requires Hera Resources to commission a suitably qualified and experienced person to:

(a) carry out trials to clarify the physical and leaching characteristics of the paste fill and set technical specifications for the production of the consolidated paste fill material to meet the performance measures in Condition B47;

(b) prepare a program for the ongoing testing of the consolidated paste fill material to ensure it meets these technical specifications; and

(c) prepare a report on the findings of the trial and proposed implementation of the testing program, to the Secretary's satisfaction prior to backfilling stopes with consolidated paste fill material.

In Accordance with condition B48(a), trials will be conducted to clarify the physical and leaching characteristics of the paste fill and set technical specifications for the production of the consolidated paste fill material.

The outcomes of this trial will determine if the consolidated paste fill material will meet the performance measures specified in Condition B47 – to ensure material used to backfill stopes is physically and chemically stable.

Following testing and trials of physical and leaching characteristics of the paste fill materials, a suitable testing program will be developed and implemented in accordance with the relevant technical specifications for the production of consolidated paste fill material.

A report to document the findings of the trial and proposed implementation of the testing program will be developed to the satisfaction of the Secretary, prior to any backfilling of stopes with consolidated paste fill materials. The report and ongoing monitoring program will determine whether consolidated material will maintain long term stope stability and will not affect the predictions in the EIS that subsidence will be negligible, in accordance with Condition B50.

Once the program is approved by the Secretary, the program will be implemented in accordance with Condition B48(b) and this section of the WMP will be revised to describe the ongoing monitoring requirements associated with stope backfilling.

7. CONTINGENCY PLAN

The key water related risks associated with operations at the Site include:

- Significant rainfall event, resulting in discharges from site via LDPs.
- Mixing of contaminated and clean water and mixing of dirty and clean water.
- Deterioration of water quality or instability in downstream ephemeral watercourses.
- Change in groundwater conditions including a loss of water supplies to neighbouring landholders.
- Contamination of groundwater due to leaching of acid, heavy metals, and cyanide from the TSF, waste rock stockpiles, ROM ore stockpiles or leakages or overflows from contaminated water storages.

Where unpredicted impacts are identified, mitigation measures will be implemented. The relevant performance criteria are outlined in **Section 7.2**. Further detail regarding the corrective actions to be undertaken by Hera Resources in the event of unpredicted water impacts are described in the Trigger Action Response Plans (TARPS) developed in **Section 7.3**.

7.1. Trigger Values

7.1.1. Groundwater

The monitoring program described in **Section 6.3** and trigger values described in **Section Chapter 3** and **Section Chapter 3** will monitor for impacts to groundwater quality and levels for other groundwater users. Groundwater level trigger values have been calculated based on the maximum drawdown predictions in GHD (2021a).

The management of the Site through identification of triggering events and required site mitigations will ensure there will be negligible impact to other groundwater users and to not exceed the minimal impact considerations in the NSW Aquifer Interference Policy.

Groundwater Level

Mining activities such as dewatering of the underground workings and production bores may result in depressurisation of the water table in all directions from the Site (GHD 2021a).

Groundwater level trigger values have been developed at Site monitoring locations based on the maximum drawdown predictions in GHD (2021a) as shown in **Table 24**.

Where no triggers are presented for deep monitoring bores, the maximum predicted drawdown is likely to be deeper than the drilled depth of the bore. This is limited to production bores and bores that are in close vicinity to the Hera and Federation Mine workings including OB3, FMB001, FMB003, FMB004, and FMB005.

Groundwater trigger values for monitoring bores WB4, WB15, WB18 and WB20, as shown in brackets in **Table 24** are a condition of groundwater works approval 85WA752586. These triggers were previously calculated by Aquade (2015b). The condition (DS3375-00001) in groundwater works approval should be updated to reflect the latest groundwater modelling completed in GHD (2021a) and the revised trigger values shown in **Table 24**.

Table 24: Groundwater Level Trigger Values

Bore	Trigger Value – Standing Water Level (m bgl)	
	Stage 1 (1 m of Stage 2)	Stage 2
Hera Mine		
OB2	106	107
OB3	-	-
WB3	54	55
WB4*	64 (62)	65 (63)
WB10	73	74
WB15*	69 (57)	70 (58)
WB16	107	108
WB18*	80 (64)	81 (65)

Bore	Trigger Value – Standing Water Level (m bgl)	
	Stage 1 (1 m of Stage 2)	Stage 2
WB20*	93 (68)	94 (69)
Federation Mine		
FMB002	174	175
FMB006	123	124
FMB007^	25 m drawdown	26 m drawdown
FMB008^	22 m drawdown	23 m drawdown
FMB009^	29 m drawdown	30 m drawdown

*. Trigger values shown in brackets are a current condition of 85WA752586 based on previous groundwater modelling undertaken by Aquade (2015b).

^ Trigger values for FMB007, FMB008 and FMB009 are proposed as observed drawdown, given there is no baseline data available for these bores.

A Stage 1 trigger for groundwater levels is also a complaint from a surrounding landholder regarding groundwater levels.

Groundwater level triggers for shallow TSF monitoring bores are recommended to detect any seepage from the TSF. A stage 1 trigger for groundwater level at TSF monitoring locations is a detection of groundwater in the bore. A stage 2 trigger for groundwater level at the TSF monitoring bores is recommended to be a rise in groundwater level following the previous month's detection of groundwater in the bore.

Groundwater level triggers for shallow Lined Leachate Ponds monitoring bores and Dewatering Pond monitoring bores at Federation Mine will be implemented to detect influence of the Lined Leachate Ponds and Dewatering Pond on groundwater downgradient of these storages. A stage 1 trigger for groundwater level at the TSF monitoring bores is a detection of groundwater in the bore. A stage 2 level trigger for groundwater level at the Lined Leachate Ponds and Dewatering Pond will be a rise in groundwater level following the previous quarters detection of groundwater in the bore.

Groundwater Quality

The main potential sources of groundwater contamination at the Site are as follows:

- Leaching of acid, heavy metals, and cyanide from the TSF at Hera Mine.
- Leaching of acid and heavy metals from waste rock stockpiles.
- Leaching of acid and heavy metals from the ROM ore stockpiles.
- Leaching of acid and heavy metals from the concentrate storages via leakages or overflows.
- Spilling of fuel, chemicals, and/or reagents.
- Formation of acid from exposed rock in underground workings at the Site.

Most activities with the potential to affect groundwater quality occur on the surface. Surface soils will be the receptor of potential contamination. Surface soils within the mine site are typically less than 3 m deep and groundwater has not been identified in any near surface soils.

The deep fractured rock aquifer within the Site is not vulnerable to contamination associated with spills or discharges of acid, chemicals or reagents at the surface. The uppermost water bearing strata within the Site is more than 60 m bgl. This provides a buffer against accidental release of contaminants from the surface.

Dewatering of the underground workings has created a groundwater flow gradient towards the underground workings at Hera Mine, which will also occur at Federation Mine. Any significant impacts to groundwater quality are likely to propagate towards the underground workings and may be recovered by dewatering.

Groundwater quality triggers

Based on background water quality discussed in **Section3.7** and presented in **Appendix B**, any potential usefulness of the deep aquifer impacted by mine workings at Hera Mine is considered to be for livestock.

Trigger values have been derived based on consideration of the 95th percentile of each parameter value and the ANZG (2018) and ANZECC (2000) water quality guideline values for livestock drinking water.

The adopted trigger values for deep groundwater bores are shown in **Table 25**. There are no livestock drinking water triggers for antimony, silver and tin. Therefore, for antimony, silver and tin the 95th percentile of the historical dataset for each parameter has been used in the derivation of the triggers. Iron is not sufficiently toxic to cattle and therefore no triggers have been developed.

Groundwater quality triggers for deep monitoring bores FMB007, FMB008 and FMB009 will adopt stock trigger values due to lack of baseline data. Trigger values will be developed for these sites following development of an appropriate baseline dataset.

Groundwater quality triggers for shallow TSF monitoring bores, and the shallow Lined Leachate Ponds and Dewatering Pond monitoring bores are a rise in EC, cyanide or specific metals over three consecutive monitoring events.

Table 25: Deep Groundwater Monitoring Locations Trigger Values

Parameter	Stock Trigger Value	Adopted Trigger Value														
		OB2	OB3	WB3	WB4	WB10	WB15	WB16	WB18	WB20	FMB001	FMB002	FMB003	FMB004	FMB005	FMB006
Physical Parameters																
EC (µS/cm)	7 500[a]	7500	7500	7500	7500	7500	7500	7500	7500	7838	7500	7500	7500	7500	7500	11425
pH (pH units)	6.0–9.0[a]	6 - 9	6 - 9	6 - 9	4.9 - 9	6 - 9	6 - 9	6 - 9	6 - 9	6 - 9	6 - 9	6 - 9	6 - 9	6 - 9	6 - 9	6 - 9
Total Dissolved Solids (mg/L)	5 000[b]	5000	5000	5000	5000	5000	5000	5000	5000	5000	5000	5000	5000	5000	5000	6357
Metals (dissolved)																
Antimony (mg/L)		0.012	0.003	0.006	0.007	0.001	0.001	0.012	0.029	0.004	0.008	0.004	0.011	0.001	0.003	0.002
Arsenic (mg/L)	0.5 [b]	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Boron (mg/L)	5 [b]	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Cadmium (mg/L)	0.01 [b]	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Chromium (mg/L)	1 [b]	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Copper (mg/L)	0.4 [b][c]	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
Lead (mg/L)	0.1 [b]	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Magnesium (mg/L)	2 000[b]	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Mercury (mg/L)	0.002[b]	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002
Molybdenum (mg/L)	0.15 [b]	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15
Nickel (mg/L)	1 [b]	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0

Parameter	Stock Trigger Value	Adopted Trigger Value														
		OB2	OB3	WB3	WB4	WB10	WB15	WB16	WB18	WB20	FMB001	FMB002	FMB003	FMB004	FMB005	FMB006
Silver (mg/L)		0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.002
Tin (mg/L)		0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.002	0.001	0.001	0.001	0.001	0.001	0.001	0.001
Zinc (mg/L)	20 [b]	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0
Major Cations and Anions																
Calcium (mg/L)	1000 [b]	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000

(a) Based on background groundwater quality

(b) Based on ANZECC and ARMCANZ (2000) default stock water trigger values

(c) Guideline for sheep

7.1.2. Surface Water

The monitoring program described in **Section 6.3** and trigger values described in this section will monitor for impacts to surface water quality in downstream water courses.

Storage Water Quality

Water quality within the Dewatering Pond may be influenced by runoff or transfers from the workshop areas and the Lined Leachate Ponds and may contain hydrocarbons, elevated salt concentrations or low pH. However, water reuse to minimise use of raw water will still be viable if water quality is within suitable ranges.

Water to be used for the purpose of dust suppression from the Dewatering Pond or other site storages is only to be used following confirmation of water quality within the trigger limits of:

- pH within 6.5-8.5 pH units
- EC below 1000 µS/cm
- Oil and grease below 10 mg/L

7.1.3. Storage Capacity

At Hera Mine, following the upgrade to the Sediment Basin to contain the 1% AEP 72 hour duration design storm event, discharges under EPL 20179 are not expected. An application to vary EPL 20179 to remove LDP3 and LDP4 was made to the EPA on 10 November 2017. This has been followed up with emails and phone calls. No response has been received to date. EPL 20179 currently requires that any discharges from the sediment ponds meet pollutant concentration limits.

At Federation Mine, the Stormwater Retention Pond has potential to discharge if rainfall exceeds the 1% AEP 72-hour design criteria of 151 mm. In the case of such a rare storm event, an additional LDP is required for monitoring of off-site discharges from the Stormwater Retention Pond, which will be included in a new application to vary EPL 20179.

The risk of uncontrolled discharges from surface water storages is minimised by:

- Maintaining minimum retained water levels within storages by actively treating and transferring intercepted water for reuse on site.
- Regularly removing accumulated sediment from sediment basins to ensure no loss of storage capacity.
- Providing additional pumping capacity to allow for increased transfer of intercepted runoff into alternative storages.
- Contaminated and dirty water storages are to be managed to maintain sufficient freeboard to contain the 1% AEP, 72-hour design rainfall event.

Discharge Water Quality

EPL 20179 stipulates discharge water quality limits, as summarised in

Table 26.

At Hera Mine, analysis of background surface water quality data by the Ground Doctor (2014) collected at surface water storages indicates that background concentrations of boron, copper, lead, nickel and zinc exceed the EPL limits suggesting that the EPL limits may not reflect the natural concentrations for these pollutants. Ongoing monitoring of water quality upstream and downstream of Hera Mine, in particular during large storm events or extended periods of wet weather, will assist in identifying whether potential instances of elevated surface water quality parameters are the result of activities at Hera Mine or are the result of other processes (natural or human) within the catchment.

At Federation Mine, background monitoring of surface water storages will be undertaken prior to the commencement of mining, should water be available within the storages. Sampling of discharge from the Stormwater Retention Pond (SWQTP32) in the unlikely event of rare rainfall events will also occur following its construction. EPL concentration limits are in effect for the Stormwater Retention Pond (SWQTP32/EPA Point 48). These limits are included in

Table 26**.**

All reasonable and feasible measures will be taken to ensure that the concentration of Weak Acid Dissociable (WAD) cyanide in tailings discharged from the discharge point to the Tailings Storage Facility and at the discharge point to the Process Water Dam do not exceed the limits specified within

Table 26**.**

Where exceedances of water quality trigger values occur within the receiving waterways that are the result of discharges (uncontrolled or otherwise), Hera Resources will:

- If a controlled discharge, cease to discharge until such time that it meets the requirements of EPL 20179.

- If an uncontrolled discharge, notify the EPA immediately and, if safe to do so, commence emergency pumping measures to alternative water storages to minimise the volume of uncontrolled discharges off-site.

Table 26: EPL 20179 Pollutant Concentration Limits

Pollutant	EPL Concentration Limits	
	90% Concentration	100% Concentration
EPA Point 1		
Cyanide (WAD) (mg/L)	20	30
EPA Point 2		
Cyanide (WAD) (mg/L)	20	30
EPA Point 3, EPA Point 4 and		
Aluminium (mg/L)	-	0.055
Arsenic (mg/L)	-	0.024
Boron (mg/L)	-	0.370
Cadmium (mg/L)	-	0.0002
Copper (mg/L)	-	0.0014
Cyanide (WAD) (mg/L)	-	0.007
Electrical conductivity (µS/cm)	-	1000
Lead (mg/L)	-	0.0034
Manganese (mg/L)	-	1.90
Nickel (mg/L)	-	0.011
Nitrogen (total) (mg/L)	-	0.5
Oil and Grease (mg/L)	-	10
pH (pH units)	-	6.5-8.5
Phosphorus (total) (mg/L)	-	0.025
Silver (mg/L)	-	0.00005
Total suspended solids (mg/L)	-	50
Zinc (mg/L)	-	0.008

There are no volumetric limits specified in the EPL. There are however periods of discharge which will trigger Site response (refer to **Table 33**), associated with site performance measures for the downstream environment:

- Discharges of less than three hours and
- Discharges of greater than three hours

Water quality samples of the discharge, as well as upstream and downstream locations are required to be collected, analysed and compared to the trigger values in **Section Chapter 3** and **Section Chapter 3**.

Inspection of the discharge location and downstream watercourses for evidence of scour is also required.

Refer to **Table 33** for the required actions as outlined in the TARP.

Downstream Surface Water Quality

Water quality trigger values for the receiving environment were calculated based on available background water quality data (Groundwater Doctor, 2014) and ANZECC (2000) and ANZG (2018) default guideline values for freshwater 95% species protection. Strict adherence to ANZECC (2000) methodology for calculating site specific triggers is not practical, due to the ephemeral nature of watercourses. The methodology adopted was confirmed by NOW (now NRAR) in 2014 during consultation regarding the water management plan for Hera Mine however the data collected cannot constitute site specific triggers.

The surface water data compiled by the Ground Doctor (2014) is provided in **Table 27** with a comparison of results with updated ANZG (2018) default guideline values for freshwater 95% species protection.

Table 27: Hera Mine Receiving Environment Surface Water Quality

Parameter	Groundwater Doctor (2014) Hera Mine Background Water Quality Data Triggers	ANZG 2018 Default Guideline Value (DGV) for 95% Protection of Freshwater Aquatic Ecosystems (mg/L)	Adopted Trigger Value	Comment
Physiochemical Parameters				

Parameter	Groundwater Doctor (2014) Hera Mine Background Water Quality Data Triggers	ANZG 2018 Default Guideline Value (DGV) for 95% Protection of Freshwater Aquatic Ecosystems (mg/L)	Adopted Trigger Value	Comment
EC (µS/cm)	**3800***	350	**3800***	Trigger determined as maximum value from surface water storages
pH (pH units)		**6.5-8.0**	**6.5-8.0**	
TSS (mg/L)		**50**	**50**	No ANZECC guideline determined from EPL
Metals (dissolved)				
Antimony (mg/L)	**0.009**	-	**0.009**	No data for DGV
Arsenic (mg/L)	**0.013**	0.024	**0.013**	Determined from As(III)
Boron (mg/L)	**0.490**	-	**0.490**	No data for DGV
Cadmium (mg/L)	0.0002	**0.0002**	**0.0002**	
Chromium (mg/L)	**0.009**	0.001	**0.009**	Determined for Cr(VII)
Copper (mg/L)	**0.006**	0.0014	**0.006**	
Iron (mg/L)	0.3	**0.3**	**0.3**	Canadian guideline as recommended by ANZECC and ARMCANZ (2000) (Section 8.3.7.1).
Lead (mg/L)	**0.0074**	0.0034	**0.0074**	
Mercury	0.0006	**0.0006**	**0.0006**	
Molybdenum	**0.034**	**-**	**0.034**	No data for DGV
Nickel	0.011	**0.011**	**0.011**	
Silver	**0.001**	0.00005	**0.001**	
Tin	**0.003**	-	**0.003**	No data for DGV
Zinc	**0.020**	0.008	**0.020**	
Cyanide				
Total cyanide (mg/L)	0.007	**0.007**	**0.007**	Determined from Cyanide
Free cyanide (mg/L)	0.007	**0.007**	**0.007**	
Weak Acid Dissociable cyanide	0.007	**0.007**	**0.007**	

Bold values indicate source of trigger values

Federation Mine surface water quality triggers will be developed based on background sampling at Federation upstream monitoring location SWQTP31. Until such time that a sufficient baseline exists, comparison of water quality sampling results at downstream monitoring location SWQTP33 to the ANZG (2018) DGVs, as outlined in **Table 28** is recommended.

Table 28: Federation Mine Receiving Surface Water Quality Guideline Values

Parameter	ANZG 2018 Default Guideline Value (DGV) for 95% Protection of Freshwater Aquatic Ecosystems (mg/L)
Physiochemical Parameters	
EC (µS/cm)	350
pH (pH units)	6.5-8.0
TSS (mg/L)	25
Metals (dissolved)	
Antimony (mg/L)	-
Arsenic (mg/L)	0.024

Parameter	ANZG 2018 Default Guideline Value (DGV) for 95% Protection of Freshwater Aquatic Ecosystems (mg/L)
Boron (mg/L)	-
Cadmium (mg/L)	0.0002
Chromium (mg/L)	0.001
Copper (mg/L)	0.0014
Iron (mg/L)	0.3
Lead (mg/L)	0.0034
Mercury	0.0006
Molybdenum	-
Nickel	0.011
Silver	0.00005
Tin	-
Zinc	0.008
Cyanide	
Total cyanide (mg/L)	0.007
Free cyanide (mg/L)	0.007
Weak Acid Dissociable cyanide	0.007

Exposure of Wildlife

Exposure to cyanide or other toxic chemicals can have lethal results to wildlife. Cyanide levels are monitored daily during discharge between the contaminated water storages to ensure compliance (refer to **Table 22**). WAD cyanide levels are consistently below 50 mg/L (refer to **Section 3.9**), which is the concentration that is expected to pose a risk to wildlife (Department of Industry, Innovation and Science 2008).

Hera Mine has a perimeter fence to prevent access by wildlife. The processing plant area (including the PWD), TSF and planned Water Management Dam are inside the active mining area, which further reduces the potential risk of wildlife entering dams and being exposed to cyanide or other toxic chemicals. Federation Mine will also have protective fencing installed in accordance with site safety procedures. Site inductions include procedures for potential wildlife poisoning and contact information of the closest wildlife rescue along with how to and whom to report any wildlife fatalities recorded on site.

When climatic conditions allow, a sufficient volume of water is maintained in clean water storages listed in **Table 15**. Each of these structures stores contaminant free, undisturbed water and provides a more attractive habitat for both terrestrial fauna and avifauna, thereby limiting the attractiveness of any surface water accumulated on the TSF.

In the highly unlikely event of discharge to contaminated water into downstream watercourses, monitoring of surface water quality and potential exposure of wildlife would be undertaken.

Waste Rock

At the Site, waste rock is placed in the respective emplacement areas within the contaminated water management system catchments.

Hera Mine

At Hera Mine, the WREA Leachate Dam is dewatered to the PWD. At Hera Mine, waste rock that is potentially acid forming is preferentially transported back underground into an anoxic environment, thereby preventing oxidation of potentially acid forming materials and the associated generation of a low pH leachate and resulting mobilisation of metals.

Federation Mine

At Federation Mine, it is expected that of the 1.5 million tonnes of waste rock to be mined, approximately 60% will be stockpiled within the first seven years. The remaining rock will be disposed underground as backfill. Waste rock will be stockpiled in separate areas, based on its acid formation potential. Stockpiles of PAF waste rock and NAF waste rock are planned to be stored within the contaminated water management system catchments.

Weathered waste rock is expected to be NAF as it poses a very low potential to generate AMD, NMD and salinity. Weathered rock from the box cut will be stockpiled in the NAF waste rock stockpile, separate from the fresh PAF waste rock. Runoff from the area containing a PAF waste rock stockpile, NAF waste rock stockpile and ROM pad would be diverted and conveyed to the Lined Leach Pond 2. NAF waste rock may be used to later backfill the box cut or for other rehabilitation or construction activities.

Fresh waste rock will be stockpiled in the PAF waste rock stockpile. No PAF waste rock is expected to be left at the surface following closure. PAF waste rock stockpiles will be disposed of underground below the natural groundwater level, where oxidation will be low. Runoff from the PAF waste rock stockpiles will be captured and conveyed to the Lined Leach Ponds.

To minimise environmental releases of potentially contaminated water at Federation Mine, water volumes are managed via transfers from the Lined Leachate Ponds to the Dewatering Pond. Seepage of leachate from the PAF and NAF Waste Rock Dumps will be monitored in shallow groundwater bores near the Lined Leachate Ponds and the Dewatering Pond.

Contingency Plan

In the event that acid generation within the potentially acid-forming waste rock emplacement area is identified, the following will be implemented:

- Monitoring of leachate within the Lined Leachate Ponds at Federation or the PWD, WREA Leachate Dam and Sediment Basin at Hera Mine will be increased in frequency to daily monitoring of electrical conductivity and pH during discharge and weekly monitoring of all other parameters listed in **Table 22** until leachate generation ceases.
- All leachate will be removed to the Lined Leachate Ponds as it is generated, limiting the potential for this material to discharge or seep from the ponds.
- A waste rock management plan has been developed that includes details to facilitate transportation of acid-forming material back underground or, if this is not practicable, temporary emplacement of this material.
- Continued application of the groundwater monitoring program to monitor for seepage of leachate to shallow groundwater areas in the vicinity of the Lined Leachate Ponds and the Dewatering Pond.

7.2. Performance Criteria

Performance criteria have been developed from the performance measures specified by Table 4 of Development Consent SSD 24319456, presented in **Table 2** and **Table 29**.

The performance criteria have been developed to ensure that impacts as a result of mining operations are not greater than those predicted by the environmental impact assessments for the approved SSD 24319456. The triggers outlined in **Section 7.1** were developed with reference to background monitoring data and the predictions of the SWIA and the GIA of SSD 24319456 (GHD, 2021a, 2021b).

Table 29: Water Management Performance Measures

Features	Performance Measures	Where Addressed
Water management – General	• Maximise water recycling, reuse and sharing opportunities. • Minimise the need for make-up water from external supplies, particularly the use of higher quality water used by other land users. • Design, install, operate and maintain water management infrastructure in a proper and efficient manner. • Minimise risks to the receiving environment and downstream water users.	Section 5.2 Section 5.3 Section 6.1 Section 4.1 Section 4.2 Section 6 Section 6.4
Aquifers	• Negligible impacts to fractured rock aquifers caused by the development beyond those predicted in the EIS, including: ▪ Negligible change in groundwater levels beyond those predicted. ▪ Negligible change in groundwater quality beyond those predicted. ▪ Negligible impact to other groundwater users. ▪ No exceedance of the minimal impact considerations in the *NSW Aquifer Interference Policy*.	Section 4.1.5 Section 4.2.5 Section 6.3 Section 7.1.1
Surface Water Resources	• Negligible impacts to surface water resources caused by the development beyond those predicted in the EIS. • Maximise, as far as reasonable and feasible, the diversion of all clean water around disturbed areas.	Section 4.1.1 Section 4.2.1 Section 5.2 Section 6.2

Features	Performance Measures	Where Addressed
		Section 7.1.2
Waste Rock Storage Areas	• Minimise, as far reasonable and feasible, the potential for acid mine drainage.	Section 4.1.5 Section 4.2.5 Section 6.3 Section Chapter 3 Section Chapter 3
Flood mitigation	• Negligible change to off-site flood regime, including flows, levels, storage capacity or velocities.	Section 0 Section 4.1.1 Section 4.2.1
Chemical and hydrocarbon storage	• Chemical and hydrocarbon products to be stored in bunded areas in accordance with the relevant Australian Standard.	Section 4.1.2 Section 4.2.2

7.3. Trigger Action Response Plans

The Trigger Action Response Plan (TARP) defines the minimum set of corrective actions that Site must implement in response to unpredicted impacts or abnormal conditions (triggers), in accordance with Appendix 6 of the Consent. Refer to **Section 8.1** for Incident and Non-compliance Protocol.

The triggers are determined based on regulatory requirements, previous monitoring and best practice management. The TARP is displayed in **Table 30** to **Table 34**.

Of the key water related risks associated with operations at the Site identified in **Section 7**:

- Significant rainfall event, resulting in discharges from site via LDPs – is addressed in **Table 30**.
- Mixing of contaminated and clean water and mixing of dirty and clean water – is addressed in **Table 32** and **Table 34** under items 'Dewatering pump failure' and 'Surface water – sediment dams'.
- Deterioration of water quality or instability in downstream ephemeral watercourses – is addressed in **Table 33**.
- Change in groundwater conditions including a loss of water supplies to neighbouring landholders – is addressed in **Table 30**.
- Contamination of groundwater due to leaching of acid, heavy metals, and cyanide from the TSF, waste rock stockpiles, ROM ore stockpiles or leakages or overflows from contaminated water storages – is addressed in **Table 31**.

Table 30: Trigger Action Response Plan – Groundwater Levels

Key Element	Trigger/ Action/ Response	Condition Green	Condition Orange		Condition Red	
Groundwater levels	Trigger	Groundwater level is within typical range of historical average	Groundwater standing water level of a bore listed in **Table 24** reaches its Stage 1 trigger value.	Groundwater is detected at any TSF monitoring location or a shallow Lined Leachate Bore or shallow Dewatering Bore.	Groundwater standing level of a bore listed in **Table 24** reaches its Stage 2 trigger value.	Groundwater levels at any TSF monitoring location or a shallow Lined Leachate Bore or shallow Dewatering Bore rise following the detection of groundwater in the previous month.
	Action	-	1. Alert Mine Manager 2. Provide written non-compliance notification in accordance with Condition C9 of SSD 24319456 within seven days (refer to **Section 8.1**).			
	Response	No response required. Continue to monitor with a frequency specified in **Table 23**.	1. Investigate if groundwater level change is due to mining related activity, or due to any spill, seepage or leachate seepage 2. If the investigation indicates that the change in groundwater level is due to mining related activity, undertake review of hydrogeological model in accordance with **Section 9.2.1**.		1. Investigate if groundwater level change is due to mining related activity, or due to any spill, seepage or leachate seepage, per condition C9 (refer to **Section 8.1**). 2. If investigation indicates potential for impacts on surrounding landholders, discuss compensatory water supply with relevant surrounding landholders, DPE Water and NRAR as soon as reasonably practical (refer to **Section 8.3**). 3. If the investigation indicates that the change in groundwater level is due to mining related activity, undertake review of hydrogeological model in accordance with **Section 9.2.1**.	

Key Element	Trigger/ Action/ Response	Condition Green	Condition Orange	Condition Red
Groundwater inflows into mine workings	Trigger	Groundwater inflow into mine workings is within predicted range of 0.30 ML/day to 0.34 ML/day	Average groundwater inflow into the mine workings exceeds 0.34 ML/day over a 12 month period.	Average groundwater inflow continues to exceed the predictions of the updated hydrogeological model.
	Action		Review production bore volumes to ensure groundwater take has not exceeded WAL volumes. In the event that groundwater take has exceeded WAL volume, Engage with NRAR, EPA, CSC and DPE regarding additional water licences.	
	Response	No response required. Continue daily metering of water transferred into mine workings.	Commission review and update of the hydrogeological model in accordance with **Section 9.2.1**. If investigation indicates potential for impacts on surrounding landholders, discuss compensatory water supply with relevant surrounding landholders, DPE Water and NRAR as soon as reasonably practical (refer to **Section 8.3**). If required, mitigation measures to be considered would include grouting of stopes to reduce groundwater inflow.	Commission review and update of the hydrogeological model in accordance with **Section 9.2.1**. If investigation indicates potential for impacts on surrounding landholders, discuss compensatory water supply with relevant surrounding landholders, DPE Water and NRAR as soon as reasonably practical (refer to **Section 8.3**). If required, mitigation measures to be considered would include grouting of stopes to reduce groundwater inflow.

Table 31: Trigger Action Response Plans – Groundwater Quality

Key Element	Trigger/ Action/ Response	Condition Green	Condition Orange		Condition Red	
Groundwater quality	Trigger	Groundwater quality is within typical range of historical average	Groundwater quality at any deep groundwater monitoring bore exceeds water quality trigger values listed in **Table 25**.	Increasing trend in EC, cyanide, or specific metals at any TSF monitoring location or a shallow Lined Leachate Bore or shallow Dewatering Bore for three consecutive months.	Groundwater quality at any deep groundwater monitoring bore or exceeds water quality trigger values listed in **Table 25** for three consecutive monitoring rounds.	Increasing trend in EC, cyanide, or specific metals at any TSF monitoring location or a shallow Lined Leachate Bore or shallow Dewatering Bore for six consecutive months.
	Action	-	1. Alert Mine Manager. 2. **Provide written non-compliance notification** to Planning Secretary **in accordance with Condition C**9 **of SSD 24319456 within seven days (refer to Section 8.1).**			
	Response	Continue to monitor with a frequency specified in **Table 25**	1. Investigate if change in groundwater quality is due to mining related activity. Investigate if rising trend in water quality is due to mining related activity or due to a spill, seepage or leachate. 2. If investigation indicates that change in groundwater quality is due to a spill, seepage or leachate: • **Provide written incident notification to Planning Secretary in accordance with Condition C8 of SSD 24319456 immediately.** • **Review requirements of Pollution Incident Response Management Plan (PIRMP).** • **Report investigation findings to the Planning Secretary via the NSW Major Projects website within thirty days of the incident in** accordance **with condition C8 and Appendix 6 of SSD 24319456 (refer to Section 8.1).** • **Review WMP as per condition C6 of SSD 24319456 within three months.** Seepage from surface water storages is mitigated by the TSF Seepage Pond, Process Water Dam Lined Leachate Ponds being constructed with a HDPE liner. Similarly, the proposed Water Management Dam will be constructed with a HDPE liner. In the unlikely event that seepage from these storages is identified, mitigation measures may include ceasing transfers into these storages, or reducing volumes in these storages (via dewatering) until inspection and repair can be undertaken. In the event of a spill, the processes outlined in the PIRMP will be followed to mitigate potential impacts.			

Table 32: Trigger Action Response Plan – Surface Water – Rainfall

Key Element	Trigger/Action/Response	Condition Green	Condition Orange	Condition Red
Surface water – Rainfall	Trigger	Rainfall forecast expected of less than 25 mm over a 24 hour period.	Rainfall forecast expected between 25 mm and 100 mm over a 24 hour period.	Rainfall forecast expected greater than 100 mm over a 24 hour period.
	Action	-	1. Dewater all sediment dams and sumps prior to forecast rainfall. 2. Implement temporary erosion and sediment control measures (refer **Section 4.2.7** and **Section 4.1.6**) for disturbed areas as necessary.	1. Dewater all sediment dams and sumps prior to forecast rainfall. 2. Implement temporary erosion and sediment control measures (refer **Section 4.2.7** and **Section 4.1.6**) for disturbed areas as necessary. 3. Prepare standby pumping equipment prior to rainfall.
	Response	1.Monitor performance of storages during rainfall event. 2.Perform routine inspections as per the WMP.	1 Inspect surface water management system following rainfall within one day following rainfall. 2. Identify necessary repairs within seven days.	1. Inspect surface water management system within one day following rainfall if practicable. 2. Inspect pit top areas and downstream watercourses within one day following rainfall. 3. Identify necessary repairs within seven days.

Table 33: Trigger Action Response Plan – Surface Water

Key Element	Trigger/Action/Response	Condition Green	Condition Orange	Condition Red
Surface water – Discharges and downstream environment	Trigger	No discharges from site.	Discharge from site from LDP of less than 3 hours.	Discharge from site from LDP of greater than 3 hours.
	Action	-	1. Collect water quality samples during discharge from discharge point.	1. Collect water quality samples from discharge point periodically during discharging.
	Response	-	1. Collect water quality samples upstream and downstream during discharge. 2. Inspect the discharge location and downstream watercourse within one day following cessation of discharging. 3. If watercourse scouring is observed, investigate options for rehabilitation or watercourse and investigate potential changes to discharges within one month.	1. Collect water quality samples upstream and downstream during discharge. 2. Inspect the discharge location and downstream watercourse within one day following cessation of discharging. 3. If watercourse scouring is observed, investigate options for rehabilitation or watercourse and investigate potential changes to discharges within one month.
Surface water – Quality - downstream	Trigger	Water quality does not exceed trigger values listed in **Table 27** or **Table 28** at discharge location or downstream water quality sampling location (SWQTP11 or SWQTP33).	Concentrations of at least one analyte exceeds trigger value **in Table 27 or Table 28 at discharge location or downstream water quality sampling location (SWQTP11 or SWQTP33)** following discharge**.**	**Repeated sampling confirms the exceedance of trigger value for at least one analyte in Table 27 or Table 28 at discharge location or downstream water quality sampling location (SWQTP11 or SWQTP33)** following discharge**.**
	Action	-	1. **Alert Mine Manager and Planning Secretary of incident immediately via NSW Major Projects website (in accordance with condition C8 of SSD 24319456).** 2. Notify downstream water users immediately once discharge exceeds 3 hours. 3. **Repeat sampling and analysis.** 4. Review requirements of the Pollution Incident Response Management Plan. 5. Notify the NSW EPA immediately in accordance with Condition R2 of EPL 20179.	

		6. Provide written incident notification to EPA and Planning Secretary in accordance with Condition C8 and Appendix 6 of SSD 24319456 and Condition R2 of EPL 20179 within seven days.
Response	-	1. Investigate if change in surface water quality is due to mining related activity and results in potential harm. Investigate if rising trend in water quality is due to mining related activity. 2. Report investigation findings to the Planning Secretary via the NSW Major Projects website within 30 days of the incident in Accordance with condition C8 and Appendix 6 of SSD 24319456. **3.** Review WMP as per condition C6 of SSD 24319456 within three months.

Table 34: Trigger Action Response Plan – Surface Water Storages and Dams

Key Element	Trigger/Action/Response	Condition Green	Condition Orange	Condition Red
Surface water –Sediment Dams	Trigger	Water levels within the Stormwater Retention Pond and Hera Mine Sediment Basin is at or below the design sediment storage zone (1/3 basin capacity).	Water levels within sediment dam(s) greater than the design *sediment storage zone*.	Uncontrolled discharge from sediment dam.
	Action	-	1. Flocculate stored water if necessary. 2. Dewater from the Sediment Basin to the Process Water Dam at Hera Mine, or from the Stormwater Retention Pond to the Dewatering Pond at Federation Mine.	1. Alert Mine Manager and Planning Secretary of incident immediately via NSW Major Projects website (in accordance with Condition C8 of SSD 24319456). 2. Notify the NSW EPA immediately in accordance with Condition R2 of EPL 20179. 3. Collect water quality samples of sediment dam(s) as well as from the receiving watercourse upstream and downstream of the sediment dam(s) during discharge. 4. Provide written incident notification to EPA within seven days in accordance with Condition R2 of EPL 20179.
	Response	-	-	1. Assess potential harm. 2. Report investigation findings to the Planning Secretary via the NSW Major Projects website within 30 days of the incident in Accordance with Condition C8 and Appendix 6 of SSD 24319456. 3. Review WMP as per Condition C6 of SSD 24319456 within three months.

Key Element	Trigger/Action/Response	Condition Green	Condition Orange	Condition Red
Surface water – TSF Dam wall stability	Trigger	TSF Dam walls intact and stable.	Seepage, slumping, cracking, bulging or other signs of potential dam wall instability.	Dam wall break.
	Action	-	1. Notify Mine Manager and Planning Secretary of incident immediately via NSW Major Projects website (in accordance with Condition C8 of SSD 24319456). 2. Notify the NSW EPA immediately as required by Condition R2 of EPL 20179. 3. Monitor the water levels within the dam- ongoing. 4. Visually monitor the walls- ongoing.	1. Alert Mine Manager and Planning Secretary of incident immediately via NSW Major Projects website (in accordance with Condition C8 of SSD 24319456). 2. Undertake a geotechnical review of dam stability within seven days. 3. Provide written incident notification to EPA within seven days in accordance with Condition R2 of EPL 20179. 4. Undertake any initial remedial action if identified by the geotechnical review within a month.
	Response	-	1. Construct emergency diversion bunds (if safe to do so) to minimise discharges off site. 2. Report investigation findings to the Planning Secretary via the NSW Major Projects website within 30 days of the incident in Accordance with Condition C8 and Appendix 6 of SSD 24319456. 3. Review WMP as per Condition C6 of SSD 24319456 within three months.	1. Assess the potential environmental harm as a result of the dam wall break. 2. Liaise with the NSW EPA regarding the assessment of environmental harm and remediation actions. 3. Report investigation findings to the Planning Secretary via the NSW Major Projects website within 30 days of the incident in Accordance with Condition C8 and Appendix 6 of SSD 24319456. 4. Review WMP as per Condition C6 of SSD 24319456 within three months.

Key Element	Trigger/Action/Response	Condition Green	Condition Orange	Condition Red
Dewatering pump failure	Trigger	Pumps operating normally.	Pump failed during routine testing.	Pump failure during rainfall.
	Action	-	1. Notify Mine Manager or delegated authority immediately. 2. Install backup pump as soon as practicable. 3. Service and repair broken pump.	1. Notify Mine Manager or delegated authority immediately. 2. Install backup pump(s). 3. Collect water quality samples from potential discharge locations and receiving watercourse(s) upstream and downstream. Review water quality TARP in **Table 33.** 4. Construct temporary emergency diversion bunds (if safe to do so).
	Response	-	1. Review pump(s) including backups.	1. Review pump(s) including backups.
Water Supply - Processing plant	Trigger	Supply to processing plant met from preferred sources.	Process water demand exceeds supply.	Failure of groundwater production bores.
	Action	-	1. Notify Mine Manager immediately. 2. Investigate alternate water sources (e.g. dewatering sediment basins).	1. Investigate cause of water shortage. 2. Review water balance as required.
	Response	-	1. Source water .	1. Engage with NRAR, EPA, CSC and DPE regarding additional water licences and alternative sources. 2. Review Water Balance and forecast scenarios within a month.
Water Supply – treatment plant	Trigger	Plant operates per specifications	Plant unable to meet water quality treatment criteria for less than 1 day.	Plant unable to meet water quality treatment criteria for greater than 1 day.
	Action	-	1. Notify Mine Manager immediately. 2. Undertake maintenance on plant.	1. Notify Mine Manager immediately. 2. Implement backup supply of potable water.
	Response	-	1. Review water quality of feed water.	1. Review water quality of feed water. 2. Increase monitoring of treated water.

Key Element	Trigger/Action/Response	Condition Green	Condition Orange	Condition Red
Contaminated Water – TSF	Trigger	WAD Cyanide less than 20 mg/L	WAD Cyanide greater than 20 mg/L	Repeated sampling confirms WAD cyanide greater than 30 mg/L
	Action	-	1. Notify Mine Manager immediately. 2. Repeat sampling. 3. Review historical monitoring results and immediately notify EPA if 90th percentile exceeds 20 mg/L. Provide written notification to EPA within seven days in accordance with Condition R2 of EPL 20179. 4. Provide written non-compliance notification to Planning Secretary in accordance with Condition C9 of SSD 24319456 within seven days.	1. Notify Mine Manager immediately. 2. Cease tailings deposition immediately until rectified. 3. Immediately notify EPA in accordance with Condition R2 of EPL 20179. 4. Provide written non-compliance notification to Planning Secretary in accordance with Condition C9 of SSD 24319456 within seven days.
	Response	-	1. Investigate cyanide removal process.	1. Investigate cyanide removal process. 2. Undertake maintenance or improve cyanide removal process.

Key Element	Trigger/Action/Response	Condition Green	Condition Orange	Condition Red
Contaminated water – Process Water Dam (PWD)	Trigger	WAD Cyanide less than 20 mg/L	WAD Cyanide greater than 20 mg/L	Repeated sampling confirms WAD cyanide greater than 30 mg/L
	Action	-	1. Notify Mine Manager immediately. 2. Repeat sampling. 3. Provide written non-compliance notification to Planning Secretary in accordance with Condition C9 of SSD 24319456 within seven days. 4. Review historical monitoring results and immediately notify EPA if 90th percentile exceeds 20 mg/L. Provide written notification to EPA within seven days in accordance with Condition R2 of EPL 20179.	1. Notify Mine Manager immediately. 2. Shandy process water with raw water. 3. Immediately notify EPA in accordance with Condition R2 of EPL 20179. 4. Provide written non-compliance notification to Planning Secretary and EPA in accordance with Condition C9 of SSD 24319456 and Condition R2 of EPL 20179 within seven days.
	Response	-	1. Investigate cyanide removal process.	1. Investigate potential sources of additional cyanide. 2. Undertake maintenance as required.
Contaminated water – Dewatering Pond (Cyanide)	Trigger	WAD Cyanide less than 20 mg/L	WAD Cyanide is greater than 20 mg/L.	Repeated sampling confirms WAD cyanide greater than 30 mg/L,
	Action	-	1. Notify Mine Manager immediately. 2. Repeat sampling. 3. Provide written non-compliance notification to Planning Secretary in accordance with Condition C9 of SSD 24319456 within seven days.	1. Notify Mine Manager immediately . 2. Shandy contaminated water with raw water. 3. Provide written non-compliance notification to Planning Secretary in accordance with Condition C9 of SSD 24319456 within seven days.
	Response	-	1. Investigate cyanide removal process.	1. Investigate potential sources of additional cyanide. 2. Undertake maintenance as required.

Key Element	Trigger/Action/Response	Condition Green	Condition Orange	Condition Red
Contaminated Water – Hera Water Management Dam	Trigger	WAD Cyanide less than 20 mg/L.	WAD Cyanide is greater than 20 mg/L.	Repeated sampling confirms WAD cyanide greater than 30 mg/L.
	Action	-	1. Notify Mine Manager immediately. 2. Repeat sampling. 3. Provide written non-compliance notification to Planning Secretary in accordance with Condition C9 of SSD 24319456 within seven days.	1. Notify Mine Manager immediately. 2. Shandy contaminated water with raw water. 3. Provide written non-compliance notification to Planning Secretary in accordance with Condition C9 of SSD 24319456 within seven days.
	Response	-	1. Investigate cyanide removal process.	1. Investigate potential sources of additional cyanide. 2. Undertake maintenance as required.
Contaminated water - Hera Federation water pipeline	Trigger	No leaks detected through leak detection infrastructure No leaks detected through visual inspection of pipeline	Leak detected through leak detection infrastructure or visual inspection of pipeline	Pipeline rupture
	Action	-	1. Notify Mine Manager immediately. Follow site PIRMP 2. Assess extent of leakage and potential for migration to external environment 3. Manually shut of pump if auto shut off has not occurred.	1. Notify Mine Manager and Planning Secretary of incident immediately via NSW Major Projects website (in accordance with Condition C8 of SSD 24319456).. 2. Manually shut off pump if auto shut off has not occurred 3. Follow site PIRMP
	Response	-	1. Undertake repair or maintenance as required	1. Investigate cause of rupture and assess potential environmental harm 2. Undertake repair of pipeline

8. INCIDENT AND COMPLAINT MANAGEMENT

8.1. Incident and Non-compliance Protocol

Hera Resources will manage any water related incident or non-compliance at Site in accordance with the incident and non-compliance protocols found in the Environmental Management System (EMS). Any environmental incident or non-compliance at Site in will be managed in accordance with the consent. Incidents and non-compliances have the following definitions in the consent:

- **Incident:** *An occurrence or set of circumstances that causes or threatens to cause material harm and which may or may not be or cause a non-compliance*
- **Non-compliance**: *An occurrence, set of circumstances or development that is a breach of this consent*

Hera Resources will implement incident and non-compliance protocols found in the requirements of Conditions C8 and C9 of SSD 24319456. The incident and non-compliance notifications under these conditions include:

- Incident Notification provided to the Planning Secretary in writing in the Major Projects Portal immediately after becoming aware of the incident.
- Non-compliance notification will be provided to the Planning Secretary in writing in the Major Projects Portal within seven days after Hera Resources becomes aware of the non-compliance. It should be noted that a non-compliance already notified as an incident does not need to also be notified as a non-compliance.

As per item 2 of Appendix 6 of SSD 24319456, written notifications will include the following information:

a. identify the development and application number;
b. provide details of the incident (date, time, location, a brief description of what occurred and why it is classified as an incident);
c. identify how the incident was detected;
d. identify when the Applicant became aware of the incident;
e. identify any actual or potential non-compliance with conditions of consent;
f. describe what immediate steps were taken in relation to the incident;
g. identify further action(s) that will be taken in relation to the incident; and
h. identify a project contact for further communication regarding the incident.

In the event of an incident, and following the incident notification, Hera Resources will prepare an incident report and provide it to the Planning Secretary and any relevant public authorities as determined by the Planning Secretary. Hera Resources will provide the incident report within 30 days of the date on which the incident occurred or as otherwise agreed to by the Planning Secretary.

As per item 4 of Appendix 6 of SSD 24319456, incident reports will include:

a. a summary of the incident;
b. outcomes of an incident investigation, including identification of the cause of the incident;
c. details of the corrective and preventative actions that have been, or will be, implemented to address the incident and prevent recurrence; and
d. details of any communication with other stakeholders regarding the incident.

In the case of an environmental emergency that causes or has potential to cause environmental harm (as per the Protection of Environment Operations Act 1997 (POEO Act)) the Pollution Incident Response Management Plan (PIRMP) will be implemented.

In summary, following a non-compliance, Hera Resources will:

- Notify the Planning Secretary via the Major Project website within seven days of becoming aware of the non-compliance.
- Take all reasonable and feasible measures to ensure that the exceedance ceases and does not recur
- Consider all reasonable and feasible options for remediation (where relevant) and submit a report to the Planning Secretary within seven days describing those options and any preferred remediation measures or other course of action
- Implement remediation measures as directed by the Secretary, to the satisfaction of the Secretary.

Following an incident, Hera Resources will:

- Notify the Planning Secretary via the Major Project website immediately after becoming aware of the incident.
- Take all reasonable and feasible measures to ensure that the incident ceases and does not recur
- Consider all reasonable and feasible options for remediation (where relevant) and submit a report to the Planning Secretary within 30 days describing those options and the required details of consent Appendix 6 item 4 (see above).

Hera Resources will maintain records of any environmental incidents or non-compliance, including any actions undertaken, for the life of the Site.

8.2. Complaints Management

The EMS includes a detailed complaints management procedure. This sub-section records the procedures that will be implemented following the receipt of a water related complaint.

Complaints can be directed to the Company via phone or email. These details are presented in **Table 35.**

Table 35: Contact Details for Complaints

Communication Method	Details
Email	complaints@aureliametals.com.au
Telephone	1300 016 240

1. Any complaints submitted through the complaints mechanism or at community forums (e.g. Community Consultative Committee) are escalated to the Environment Team and added to the complaints register. The Environment Team will determine, and add to the register, the following details:
   - Details of the complaint (date, time, details, complainants contact details).
   - Which relevant activities occurred during the complaint period to investigate the source of the complaint.
   - Whether the complaint was a result of non-compliant activities or an incident as defined in the consent.
   - What corrective or preventative actions are required to avoid the complaint recurring.
   - When corrective or preventative actions need to take place.

   Hera Resources will notify the complainant that the complaint was received and is being investigated within 7 days of receiving the complaint.
2. If relevant, monitoring data for the period will be reviewed to assist in determining the source of the complaint. The complainant will then be contacted to discuss and attempt to resolve the complaint.
3. In the event that the complaint is resolved via Step 2, no further action would be taken. If not resolved, then supplementary monitoring may be undertaken, if relevant to the complaint, within one month of the conclusion of Step 2 in accordance with the procedures identified in **Section 6.**
4. Should the review of the monitoring data indicate that no non-compliance of the relevant criteria was identified, this will be communicated to the complainant. If monitoring data indicates that a non-compliance or incident has occurred, it will be communicated to the complainant and will be managed and reported in accordance with the protocol described in **Section** Error! Reference source not found. and **Section** Error! Reference source not found..
5. Corrective and preventative actions identified as a result of a complaint will be communicated to all relevant personnel through toolbox meetings and/or company memorandums. The relevant EMP will be reviewed and updated to reflect the findings of the complaint investigation if required.

The complaints register will maintained by Hera Resources for the life of the Site and updated monthly. A record of any complaint will be kept for at least the life of the Site after and the record will be produced to any authorised officer if requested as well as made available on the Aurelia Metals website. A summary of annual complaints received will be provided in the Annual Review and made available on the Aurelia website.

8.3. Compensatory Water Supply

As discussed in **Section 8.2**, Hera Resources will provide an alternative long-term supply of water to landholders whose water supply is adversely and directly impacted by operations at the Site. The compensatory water supply will be equivalent in terms of volume and quality to the water loss attributable to operations at the Site.

As part of the provision of the compensatory water supply, Hera Resources will undertake consultation with relevant regulators, including the Planning Secretary and DPE Water. If the Planning Secretary deems a privately-owned licensed groundwater bore may have been impacted by the development, the compensatory water supply will be comprised of a temporary water supply, pending the outcome of any groundwater investigation and/or provision of an alternative long-term supply of water.

As discussed in **Section 8.2**, the water supply will be provided as soon as practicable once it is determined that the water loss is due to operations at the Site. Hera Resources will provide compensation, to the satisfaction of the Planning Secretary if an alternative long-term supply of water cannot be provided.

Should this loss of water occur at a landholder bore, potential mitigation options will also include, to the satisfaction of the Planning Secretary:

- Lower the production pump intake (provided there is capacity in the bore).
- Installation of a deeper production bore to replace or supplement the bore.

These mitigation measures should be discussed with the landholder and relevant regulators. The matter will be referred by Hera Resources to the Planning Secretary for resolution should there be a disagreement between Hera Resources and the landowner regarding water loss attribution or implementation of measures.

9. REPORTING

9.1. Annual Reporting

Hera Resources will prepare an Annual Review each year in accordance with Condition C10, which states:

By the end of September each year after the date of physical commencement of development under this consent, or other timeframe agreed by the Planning Secretary, a report must be submitted to the Department reviewing the environmental performance of the development, to the satisfaction of the Planning Secretary. This review must:

(a) describe the development (including any rehabilitation) that was carried out in the previous financial year, and the development that is proposed to be carried out over the current financial year;

(b) include a comprehensive review of the monitoring results and complaints records of the development over the previous financial year, including a comparison of these results against the:

(i) *relevant statutory requirements, limits or performance measures/criteria;*

(ii) *requirements of any plan or program required under this consent;*

(iii) *monitoring results of previous years; and*

(iv) *relevant predictions in the document/s listed in condition A2(c);*

(c) evaluate total annual water extraction for the development for the year (both direct and indirect) under each water license noting the water year in NSW is from 1 July to 30 June.

(d) identify any non-compliance or incident which occurred in the previous financial year, and describe what actions were (or are being) taken to rectify the non-compliance and avoid reoccurrence;

(e) evaluate and report on compliance with the performance measures, criteria and operating conditions of this consent;

(f) identify any trends in the monitoring data over the life of the development;

(g) identify any discrepancies between the predicted and actual impacts of the development, and analyse the potential cause of any significant discrepancies; and

(h) *describe what measures will be implemented over the next financial year to improve the environmental performance of the development.*

Hera Resources will prepare an Annual Review that meets the requirements of Conditions C10 of SSD 24319456. Hera Resources will submit the Annual Review to CSC. Hera Resources will make the Annual Review publicly available via the Aurelia website.

Hera Resources must also submit and Annual Return in accordance with Condition R1.1 of EPL 20179 which states:

R1.1 The licensee must complete and supply to the EPA an Annual Return in the approved form comprising:

1. *a Statement of Compliance,*
2. *a Monitoring and Complaints Summary,*
3. *a Statement of Compliance – Licence Conditions,*
4. *a Statement of Compliance -Load based Fee,*
5. *a Statement of Compliance -Requirement to Prepare Pollution Incident Response Management Plan,*
6. *a Statement of Compliance – Requirements to Publish Pollution Monitoring Data; and*
7. *a Statement of Compliance – Environmental Management Systems and Practices.*

At the end of each reporting period, the EPA will provide to the licensee a copy of the form that must be completed and returned to the EPA.

9.2. Water Modelling Review

9.2.1. Hydrogeological Model Review

The predictions of the hydrogeological model for groundwater inflow and level drawdown will be compared to calculated groundwater make of the underground workings and observed groundwater monitoring levels every three years.

Where the validation process identifies significant variances between monitored and predicted mine groundwater inflows or the hydrogeological model is underestimating drawdown in groundwater level, then a recalibration process may be required to be undertaken in consultation with an independent reviewer. A summary of the hydrogeological model validation will be prepared as part of the Annual Review.

9.2.2. Site Water Balance

The site water balance will be run every 12 months (minimum) to demonstrate the site has sufficient water licence to cover use. The results of the site water balance will be reported in the Annual Review.

The site water balance will be reviewed and revised every three years (as a minimum) or when there are changes to operations and revised as necessary. Changes to site operations may include to those modelled processes set out in the Water Balance methodology report, including but not limited to: water management operational use (such as dust suppression application areas), catchment areas, processed ore schedule. The site water balance may use historical datasets for comparison to produced results, including site transfers, groundwater take,

As modelled groundwater inflows form an input to the water balance, it is recommended that the water balance is revised after any required groundwater model update or recalibration as discussed in **Section 9.2.1**.

The water balance will include details of all water extracted, dewatered, transferred, used and/or discharged by the Site. Measured groundwater take will be used to compare to any predictions made by the water balance model. Metered site transfers will be used to validate the hydrological model.

This WMP will be updated following revision of the site water balance based on the three yearly review or when there have been changes to site operations which required a revision of the site water balance.

10. ACESS TO INFORMATION

Hera Resources will keep the community and relevant authorities informed of the Site's environmental performance through the implementation of communication measures as required by Condition C15 as stated below.

C15 Within three months of the date of physical commencement of development under this consent, until the completion of all rehabilitation required under this consent, the Applicant must:

(a) make the following information and documents (as they are obtained, approved or as otherwise stipulated within the conditions of this consent) publicly available on its website:

(i) the document/s listed in condition A2(c);
(ii) all current statutory approvals for the development;
(iii) all approved strategies, plans and programs required under the conditions of this consent;
(iv) minutes of CCC meetings;
(v) regular reporting on the environmental performance of the development in accordance with the reporting requirements in any plans or programs approved under the conditions of this consent;
(vi) a comprehensive summary of the monitoring results of the development, reported in accordance with the specifications in any conditions of this consent, or any approved plans and programs;
(vii) a summary of the current phase and progress of the development;
(viii) contact details to enquire about the development or to make a complaint;
(ix) a complaints register, updated monthly;
(x) the Annual Reviews of the development;
(xi) audit reports prepared as part of any Independent Environmental Audit of the development and the Applicant's response to the recommendations in any audit report; and
(xii) any other matter required by the Planning Secretary; and
keep such information up to date, to the satisfaction of the Planning Secretary.

Hera Resources will ensure the above information is available to the public through the Aurelia website (www.aureliametals.com.au.

Other methods Hera Resources will use to communicate with the public (providing and receiving information) include, where appropriate:

- Maintenance of a community hotline (phone number – 1800 437 264) or email (hera.community@aureliametals.com.au) where community stakeholders can seek information.
- A Site specific page maintained on Aurelia's website providing regular updates.
- Mass email notifications will be dispatched using Hera Resource's contact database where necessary.
- Media releases will be prepared and distributed by Aurelia or Hera Resources for Site announcements.
- Surveys will be used where appropriate to gather feedback and inform Site planning and operations.

Presentation of information at community/stakeholder forums including the Community Consultative Committee (CCC)

11. ROLES AND RESPONSIBILITIES

The roles and responsibilities for Hera Resources personnel in relation to this WMP are listed in **Table 36**.

Table 36: Roles and Responsibilities

Position (organisation)	Accountable Task
General Manager (Hera Resources)	• Accountable for the overall environmental performance of Site operations, including the outcomes of the management plans, including this WMP. • Must ensure adequate resources are available to enable implementation of this WMP.
Mine Manager (Hera Resources)	• Responsible for ensuring all mining works are carried out in accordance with all relevant approvals and legislation. • Accountable for ensuring all employees in the respective areas are committed to and implement the requirements of this WMP. • Report any incidences or complaints immediately to the Environment Superintendent. • Ensure all plant and equipment is maintained and operated in a proper and efficient condition.
Environment Superintendent (Hera Resources)	• Ensure the implementation of this WMP part of Site's environmental framework. • Maintain Site's environmental framework and ensure all relevant plans and procedures are reviewed and revised as required. • Undertake or delegate required monitoring in accordance with this WMP. • Manage monitoring programs, results, and data. • Notify incidents and non-compliances to the Mine Manager and relevant regulators. • Implement Trigger Action Response Plans (TARPs) and other corrective and preventative actions. • Manage reporting obligations, including incidents, non-compliances, and annual reports. • Manage employee competence through inductions, training, and awareness programs. • Escalate and act on any complaints received, including dispute resolution, where required. • Facilitate and attend CCC meetings. • Manage community stakeholder engagement. • Manage accessible information on the Aurelia website. • Certify monitoring equipment is setup in accordance with the relevant Australian Standard. • Confirm adequate monitoring equipment is available. • Ensure monitoring data is appropriately recorded and maintained. • Monitoring the prevailing and predicted weather conditions. • Ensure monitoring equipment is maintained appropriately.
All Personnel (Hera Resources / contractors / visitors)	• Follow direction provided by the Environment Superintendent, Mine Manager, and General Manager. • Abide by the conditions of the consent relevant to their works. • Abide by Aurelia's Green Rules and The Aurelia Way. • Show due care not to cause environmental harm. • Notify Environment Team immediately of any actual or potential environmental non-compliance or incident.

12. TRAINING AND AWARENESS

All personnel shall undergo water management awareness training through the induction and re-induction process. Water management shall be a component of the competency based site induction program. The following areas shall be covered in the induction.

- Awareness of water management system and downstream watercourses.
- Awareness of the potential to cause pollution to waters and the necessary controls to mitigate.
- Awareness of monitoring of water take via production bores and impact to landholders.
- Awareness of making timely reporting of any pollution of waters to allow for prompt and appropriate action to be undertaken for the management of the identified pollution.

The Environment Superintendent shall be responsible for ensuring the appropriate water management training is included in the induction.

13. REVIEW AND IMPROVEMENT

This WMP will be reviewed and revised as necessary in accordance with the requirements of Condition C6 of SSD 24319456 which states that reviews must be conducted:

Within three months of:

a) the submission of an incident report under condition C8;

b) the submission of an Annual Review under condition C10;

c) the submission of an Independent Environmental Audit under condition C12; or

d) the approval of any modification of the conditions of this consent (unless the conditions require otherwise);

e) notification of a change in development phase under condition A5; or

f) a direction of the Secretary under condition A3 of Schedule 2

the suitability of existing strategies, plans and programs required under this consent must be reviewed by the Applicant.

As part of the review process Hera Resources will assess the adequacy of the plan to meet the requirements contained in the relevant statutory approvals and any opportunities for improvement. The assessment will include a review of data and related trends identified in the Annual Review, a consideration of recommendations from an Independent Environmental Audit and findings arising from any incident report. If required the plan will be updated in consultation with DPE, EPA and other relevant agencies.

Where there is a revision required under Condition C7 of SSD 24319456, the revised document will be submitted to the Planning Secretary for approval within six weeks of the review.

14. REFERENCES

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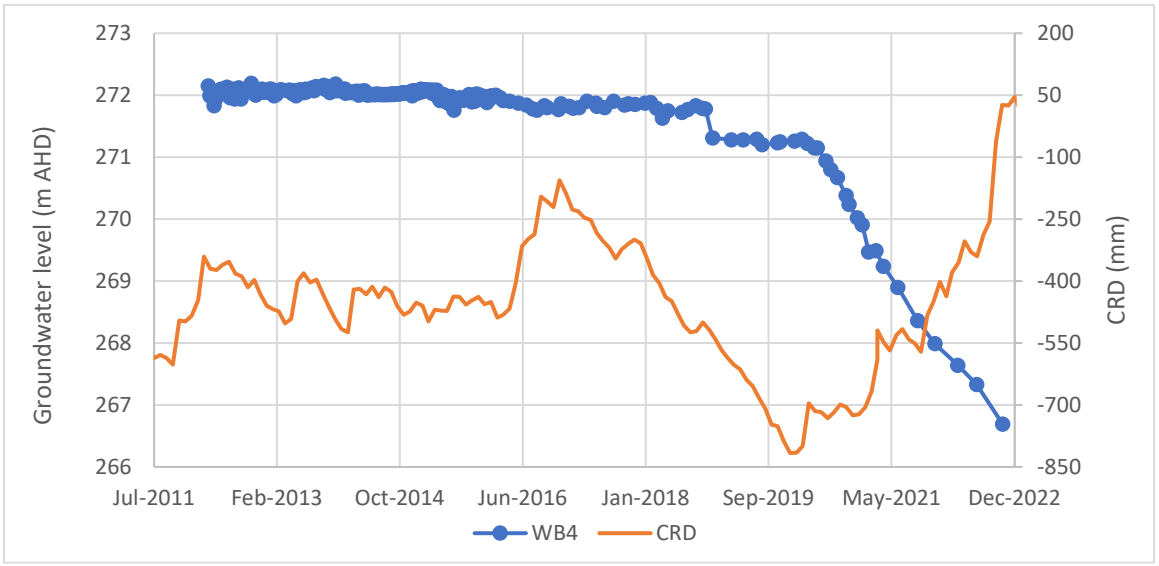
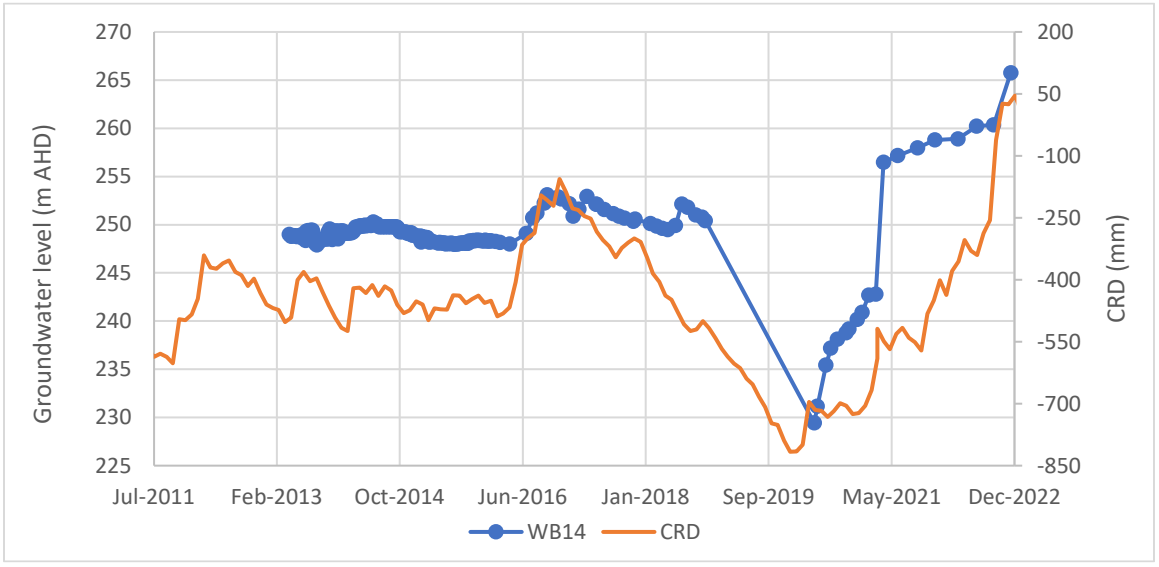
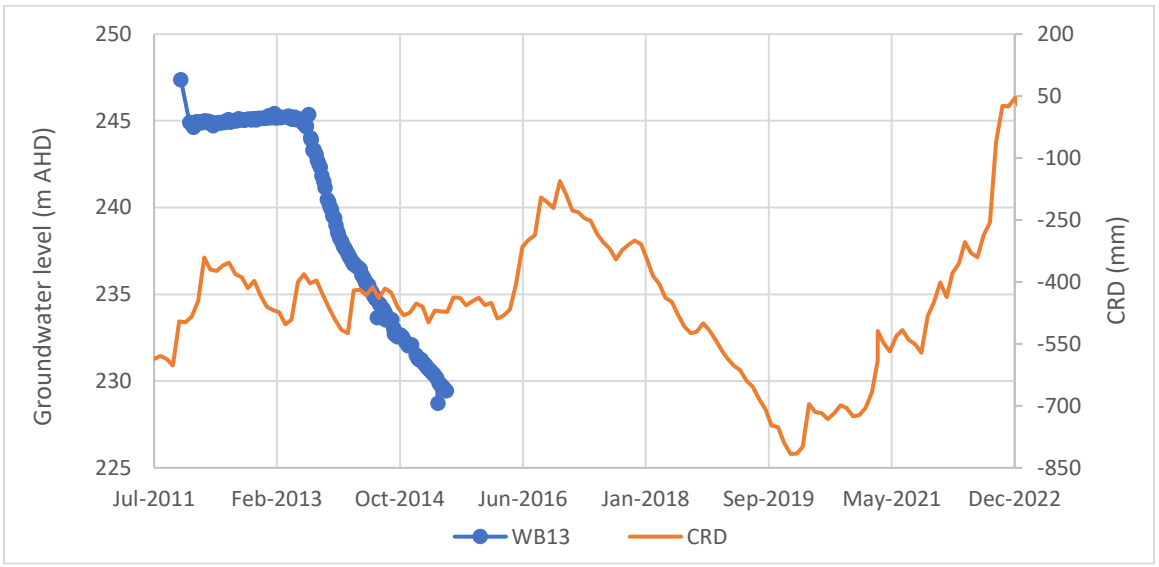
APPENDIX A
GROUNDWATER LEVEL MONITORING DATA

Hera Mine


Groundwater level (m AHD)
CRD (mm)
273
272
271
270
269
268
267
266
200
50
-100
-250
-400
-550
-700
-850
Jul-2011
Feb-2013
Oct-2014
Jun-2016
Jan-2018
Sep-2019
May-2021
Dec-2022
WB4
CRD


Groundwater level (m AHD)
CRD (mm)
270
265
260
255
250
245
240
235
230
225
200
50
-100
-250
-400
-550
-700
-850
Jul-2011
Feb-2013
Oct-2014
Jun-2016
Jan-2018
Sep-2019
May-2021
Dec-2022
WB14
CRD


Groundwater level (m AHD)
CRD (mm)
250
245
240
235
230
225
200
50
-100
-250
-400
-550
-700
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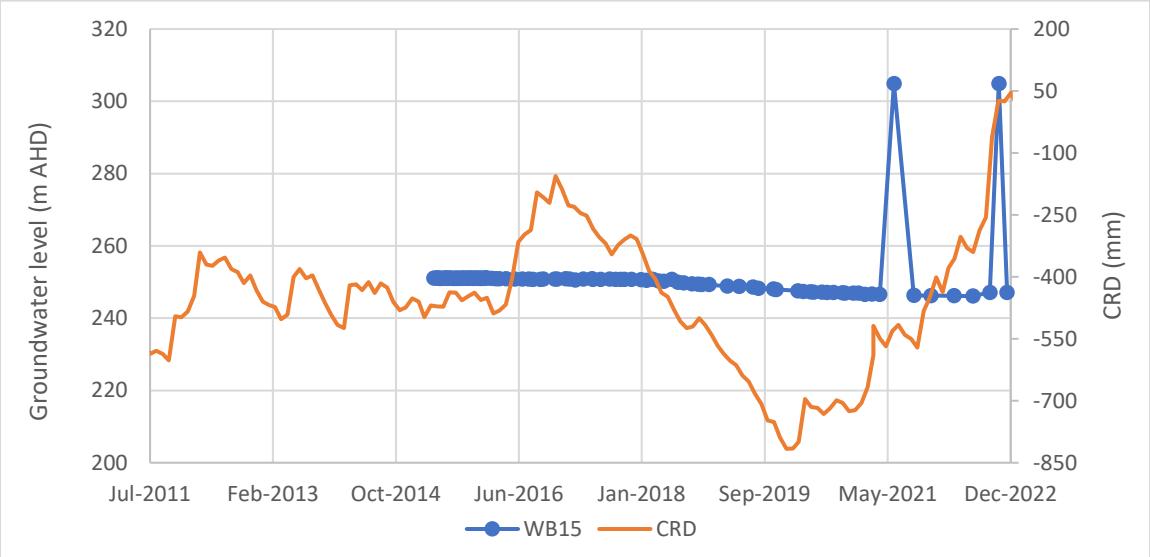
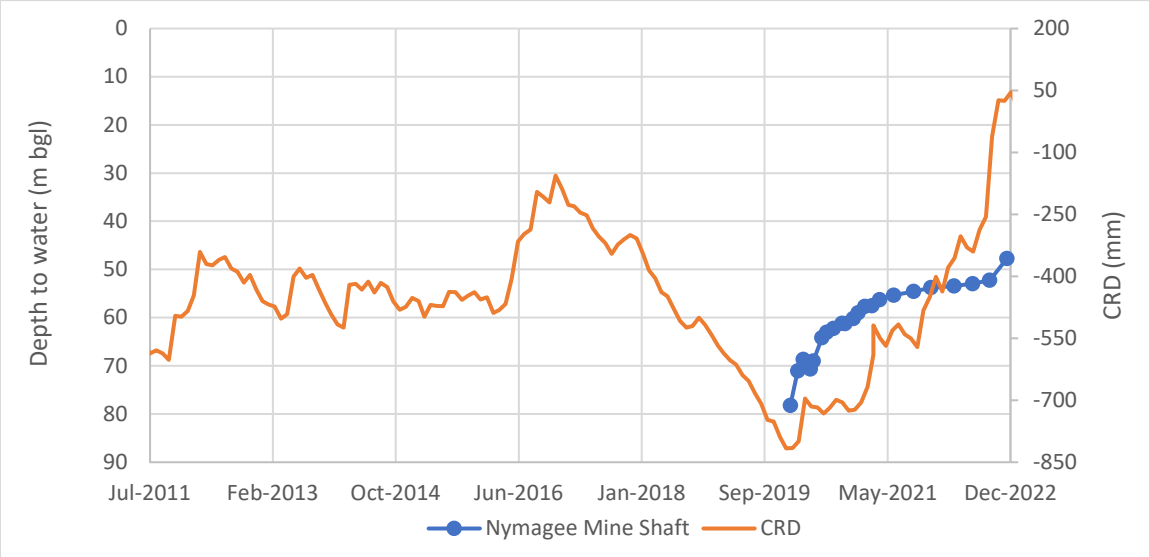
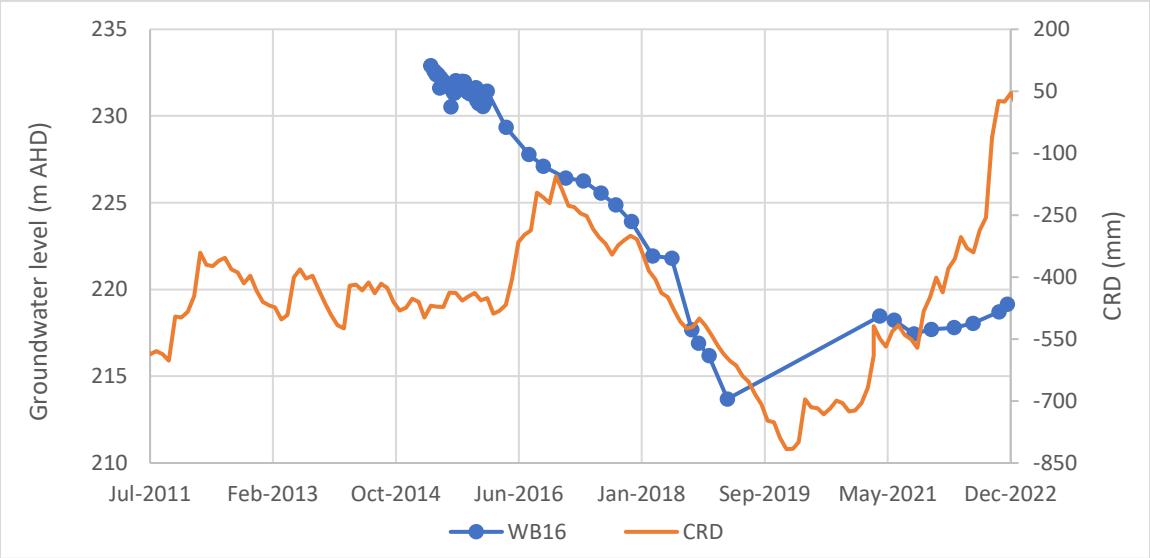
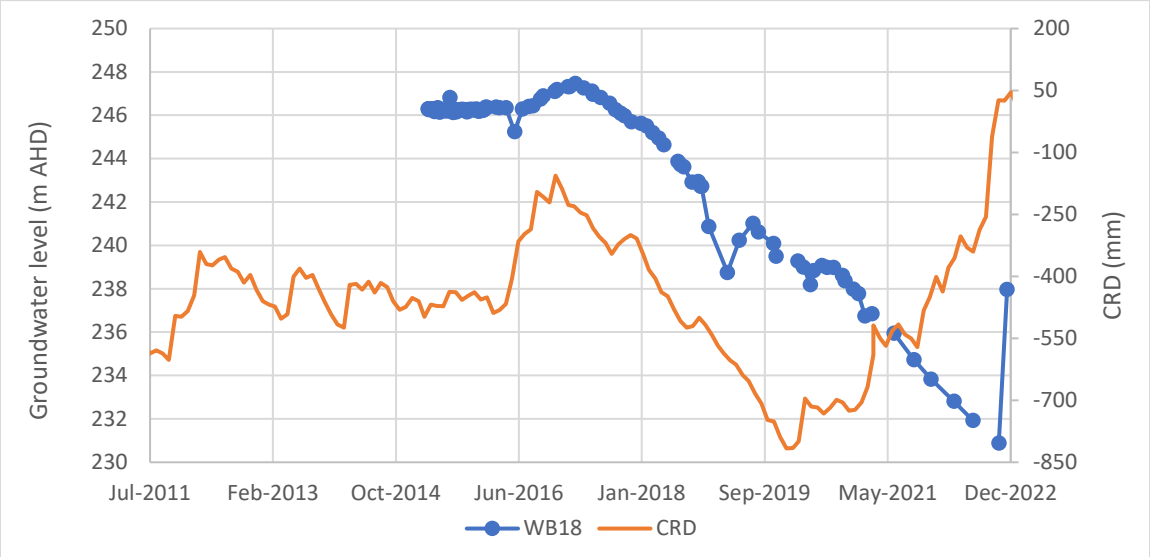
Feb-2013
Oct-2014
Jun-2016
Jan-2018
Sep-2019
May-2021
Dec-2022
WB13
CRD


Groundwater level (m AHD)
320
300
280
260
240
220
200
200
50
-100
-250
-400
-550
-700
-850
CRD (mm)
Jul-2011
Feb-2013
Oct-2014
Jun-2016
Jan-2018
Sep-2019
May-2021
Dec-2022
WB15
CRD


Depth to water (m bgl)
0
10
20
30
40
50
60
70
80
90
200
50
-100
-250
-400
-550
-700
-850
CRD (mm)
Jul-2011
Feb-2013
Oct-2014
Jun-2016
Jan-2018
Sep-2019
May-2021
Dec-2022
Nymagee Mine Shaft
CRD


Groundwater level (m AHD)
235
230
225
220
215
210
200
50
-100
-250
-400
-550
-700
-850
CRD (mm)
Jul-2011
Feb-2013
Oct-2014
Jun-2016
Jan-2018
Sep-2019
May-2021
Dec-2022
WB16
CRD


Groundwater level (m AHD)
CRD (mm)
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248
246
244
242
240
238
236
234
232
230
200
50
-100
-250
-400
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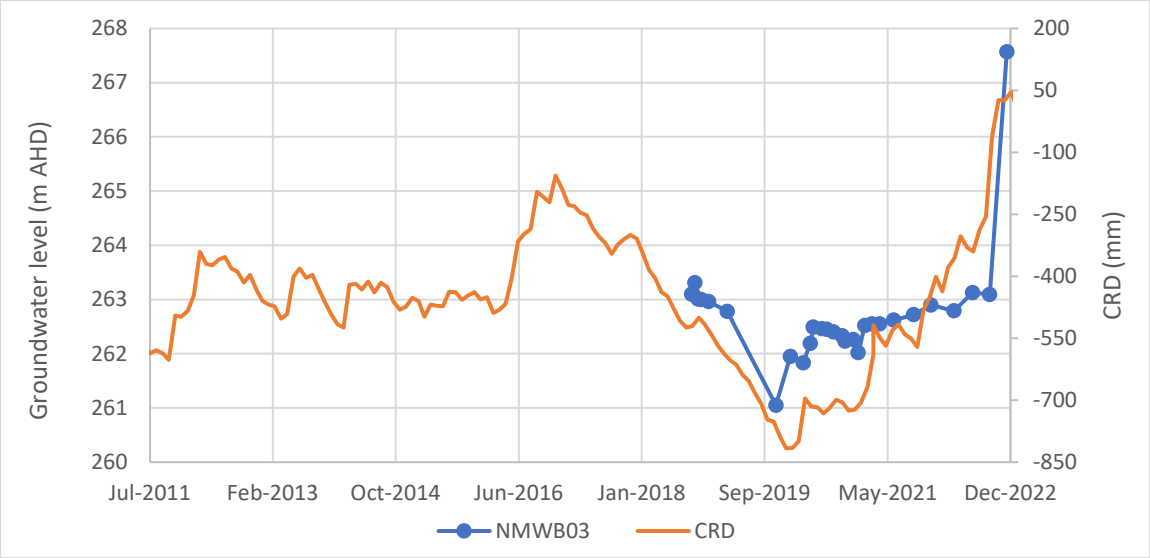
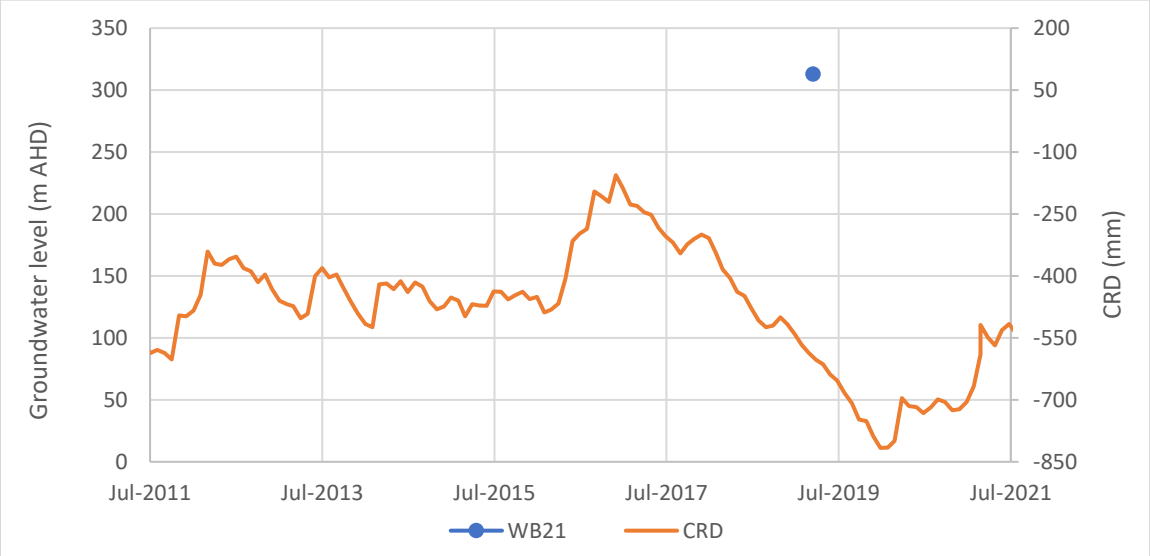
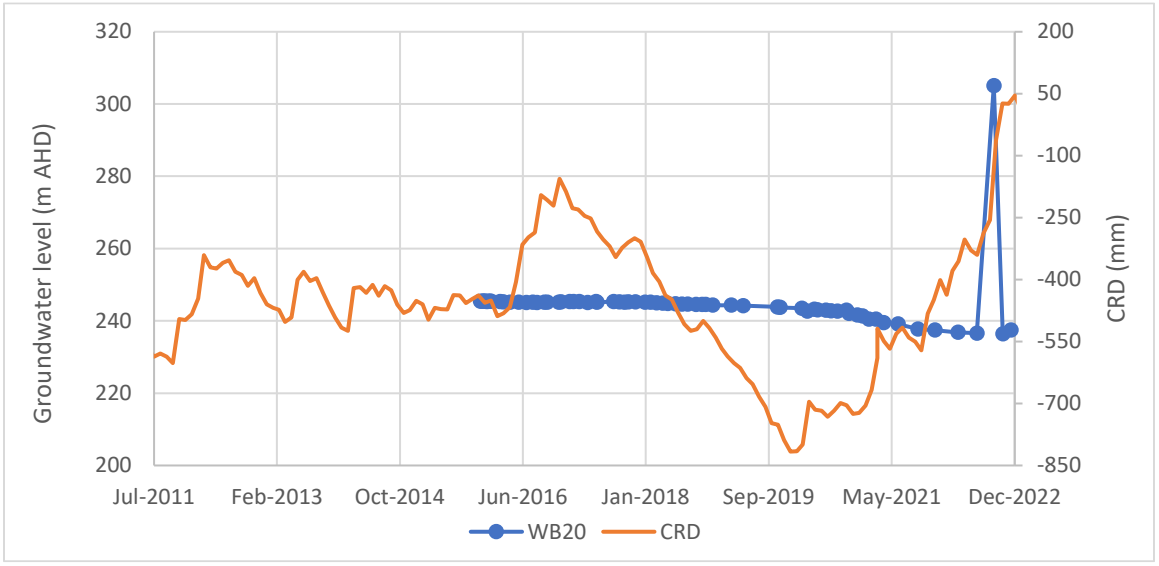
Jan-2018
Sep-2019
May-2021
Dec-2022
WB18
CRD


Groundwater level (m AHD)
CRD (mm)
268
267
266
265
264
263
262
261
260
200
50
-100
-250
-400
-550
-700
-850
Jul-2011
Feb-2013
Oct-2014
Jun-2016
Jan-2018
Sep-2019
May-2021
Dec-2022
NMWB03
CRD


Groundwater level (m AHD)
CRD (mm)
350
300
250
200
150
100
50
0
200
50
-100
-250
-400
-550
-700
-850
Jul-2011
Jul-2013
Jul-2015
Jul-2017
Jul-2019
Jul-2021
WB21
CRD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320
300
280
260
240
220
200
CRD (mm)
200
50
-100
-250
-400
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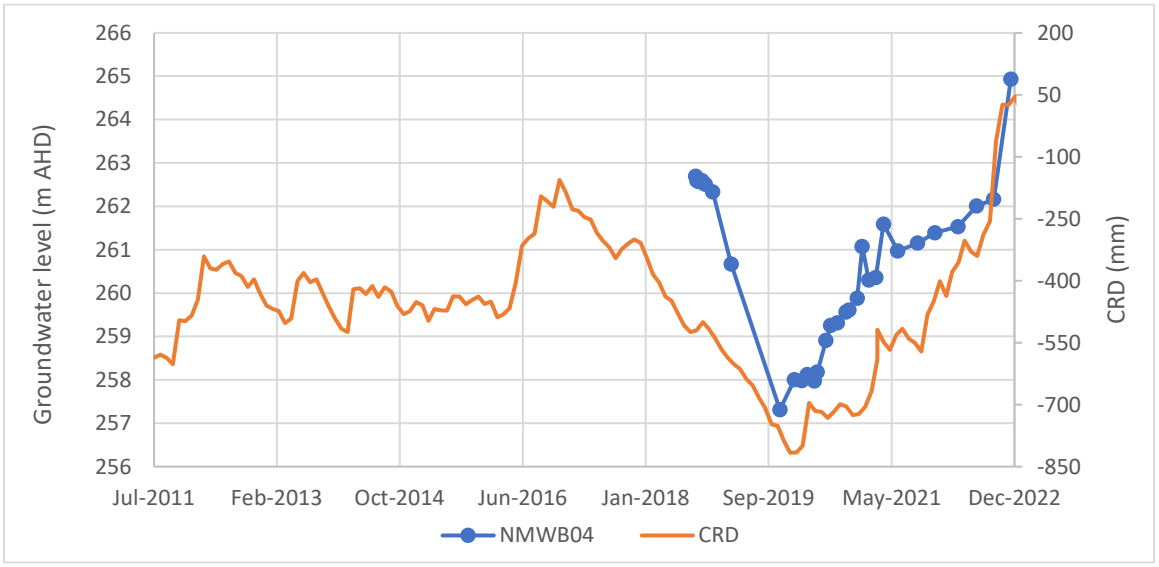
Jan-2018
Sep-2019
May-2021
Dec-2022
WB20
CRD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265
264
263
262
261
260
259
258
257
256
CRD (mm)
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50
-100
-250
-400
-550
-700
-850
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Feb-2013
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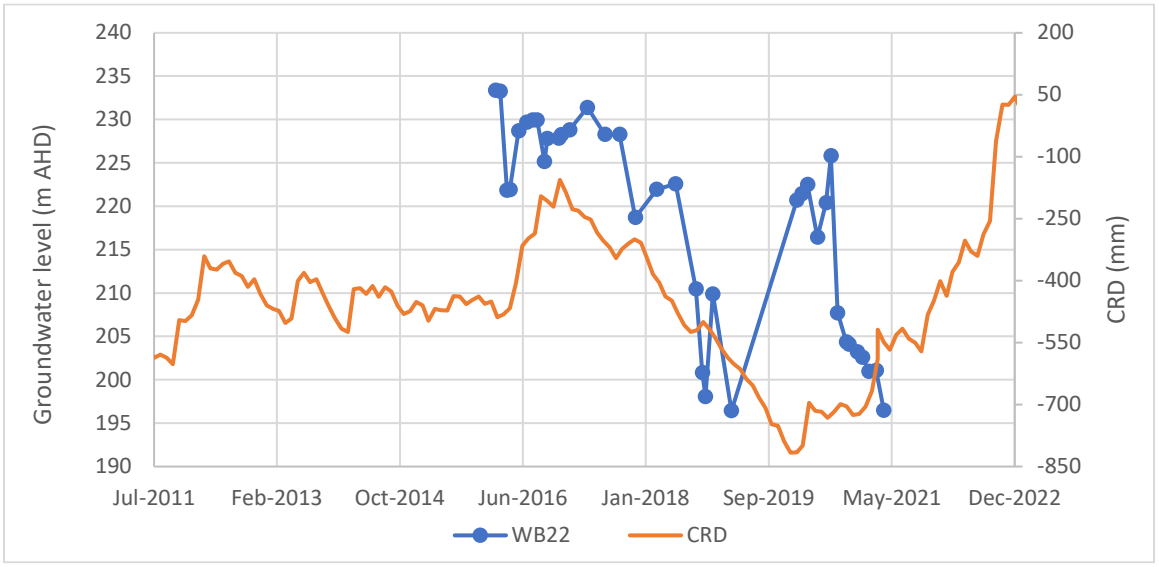
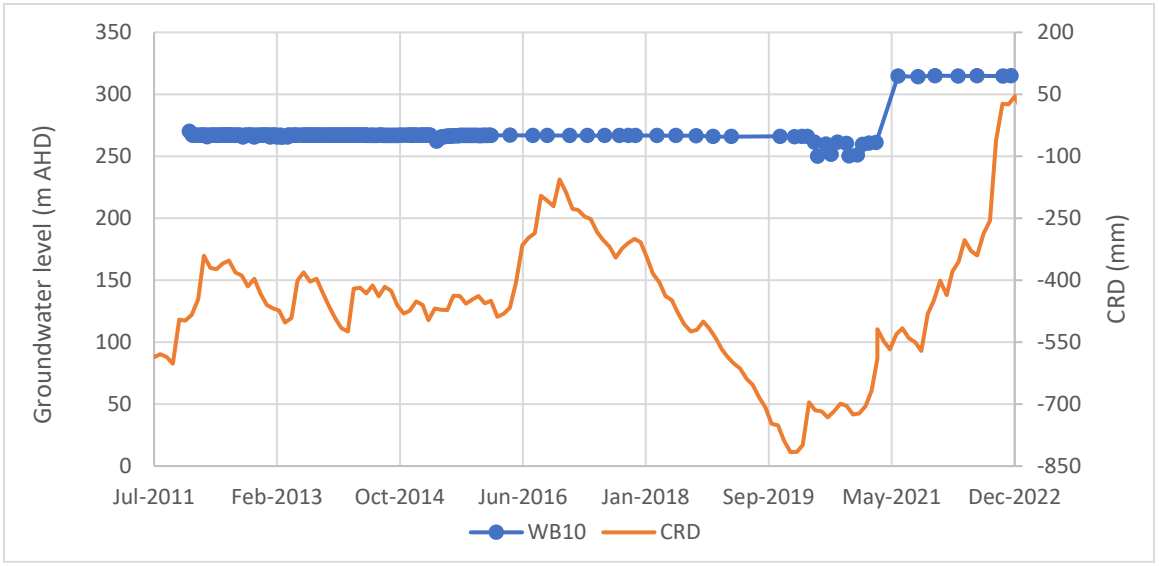
May-2021
Dec-2022
NMWB04
CRD


Groundwater level (m AHD)
240
235
230
225
220
215
210
205
200
195
190
CRD (mm)
200
50
-100
-250
-400
-550
-700
-850
Jul-2011
Feb-2013
Oct-2014
Jun-2016
Jan-2018
Sep-2019
May-2021
Dec-2022
WB22
CRD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CRD (mm)
350
300
250
200
150
100
50
0
200
50
-100
-250
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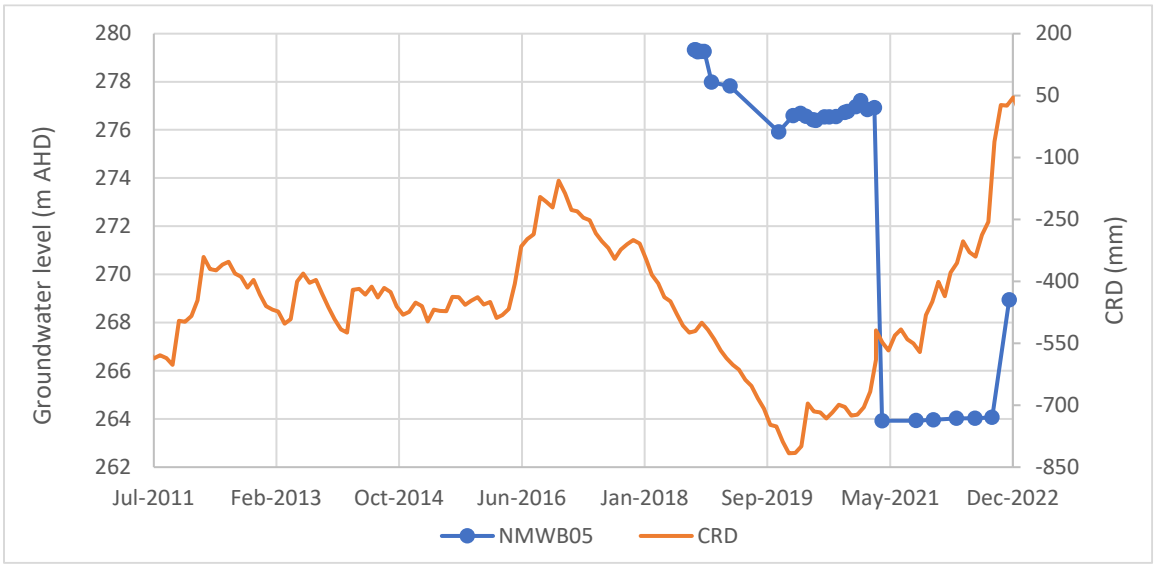
Jan-2018
Sep-2019
May-2021
Dec-2022
WB10
CRD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CRD (mm)
280
278
276
274
272
270
268
266
264
262
200
50
-100
-250
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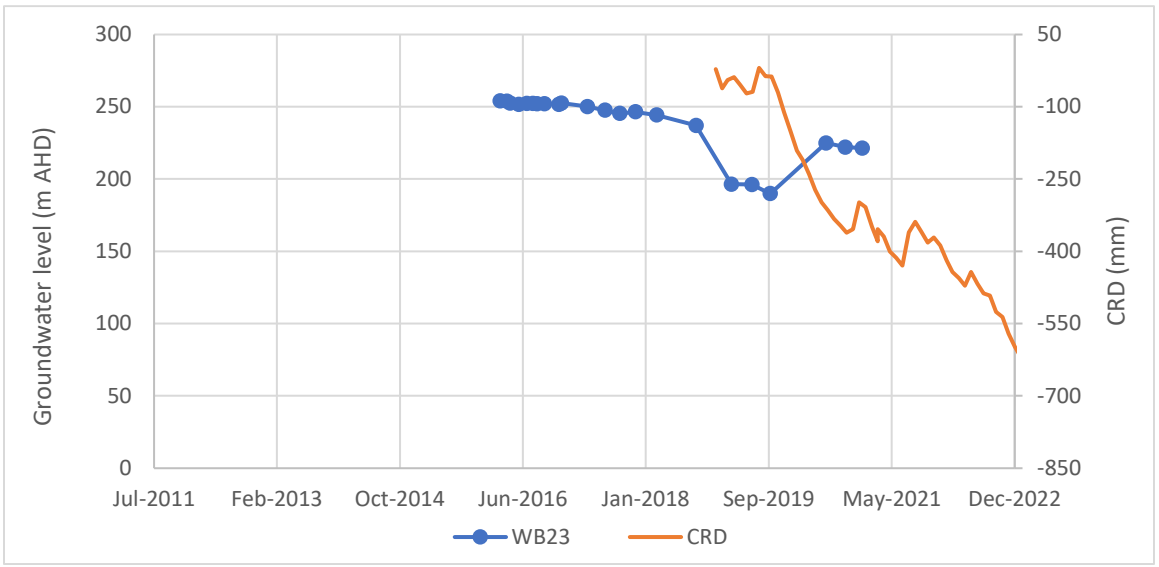
Dec-2022
NMWB05
CRD


Groundwater level (m AHD)
CRD (mm)
300
250
200
150
100
50
0
50
-100
-250
-400
-550
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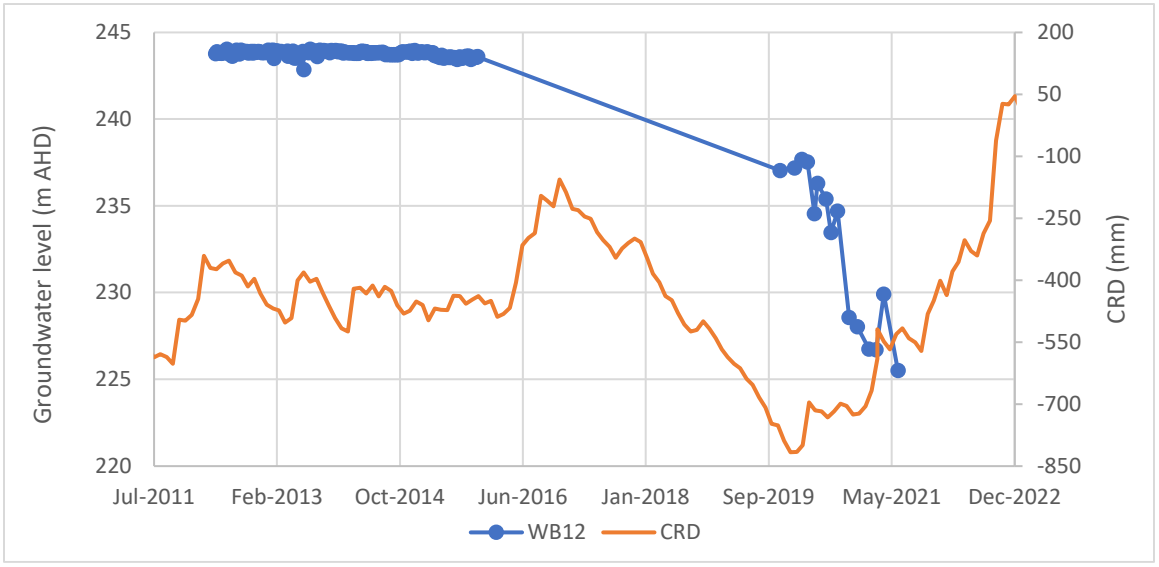
Jan-2018
Sep-2019
May-2021
Dec-2022
WB23
CRD


Groundwater level (m AHD)
245
240
235
230
225
220
CRD (mm)
200
50
-100
-250
-400
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-700
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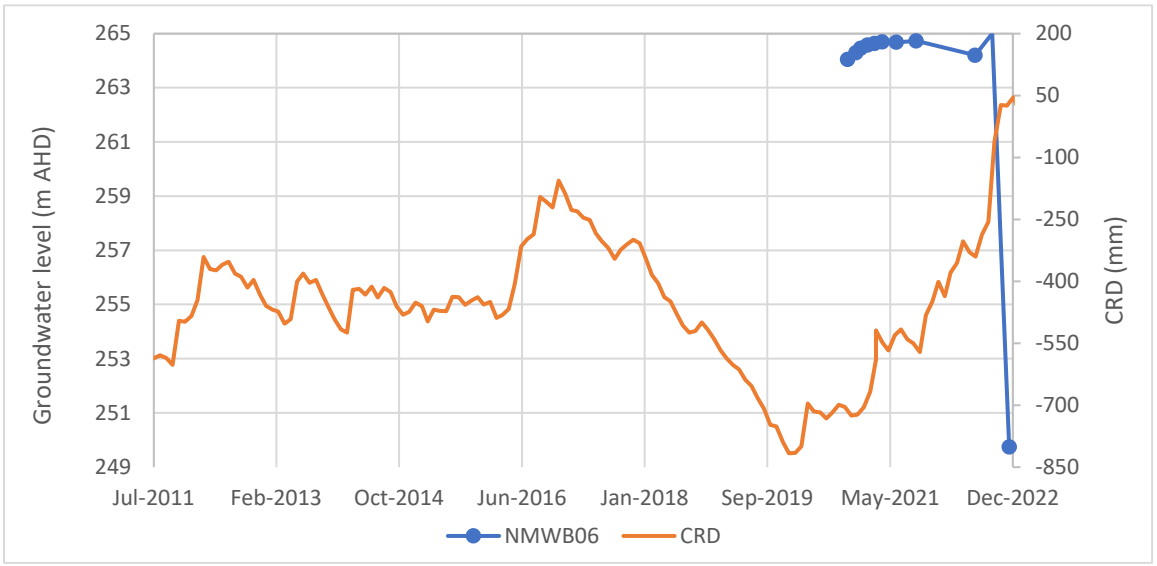
Feb-2013
Oct-2014
Jun-2016
Jan-2018
Sep-2019
May-2021
Dec-2022
WB12
CRD


Groundwater level (m AHD)
265
263
261
259
257
255
253
251
249
CRD (mm)
200
50
-100
-250
-400
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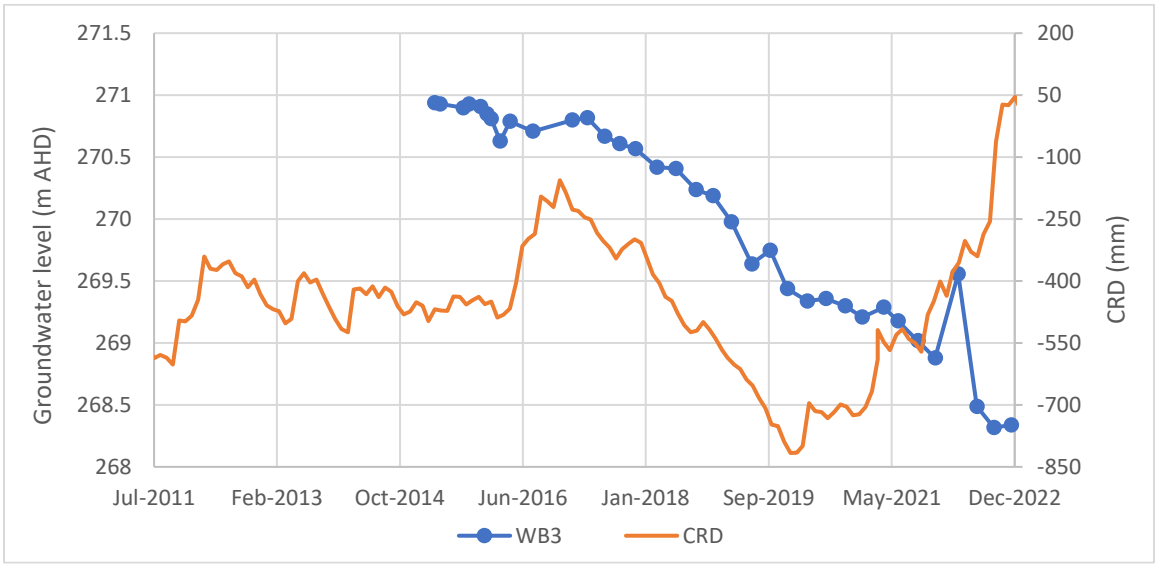
Sep-2019
May-2021
Dec-2022
NMWB06
CRD


Groundwater level (m AHD)
271.5
271
270.5
270
269.5
269
268.5
268
CRD (mm)
200
50
-100
-250
-400
-550
-700
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Feb-2013
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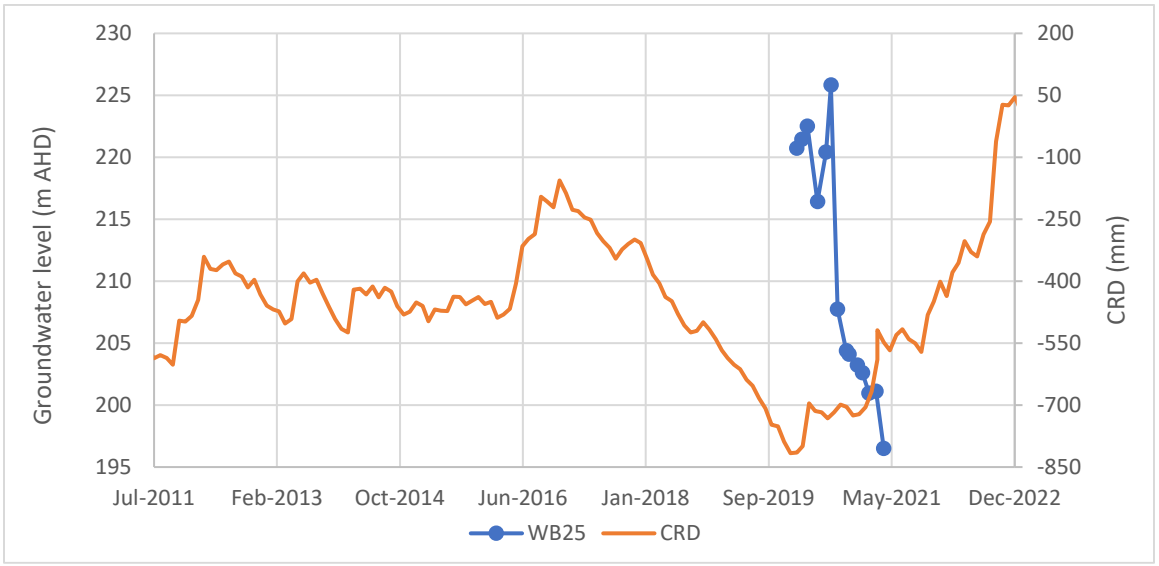
Jan-2018
Sep-2019
May-2021
Dec-2022
WB3
CRD


Groundwater level (m AHD)
230
225
220
215
210
205
200
195
CRD (mm)
200
50
-100
-250
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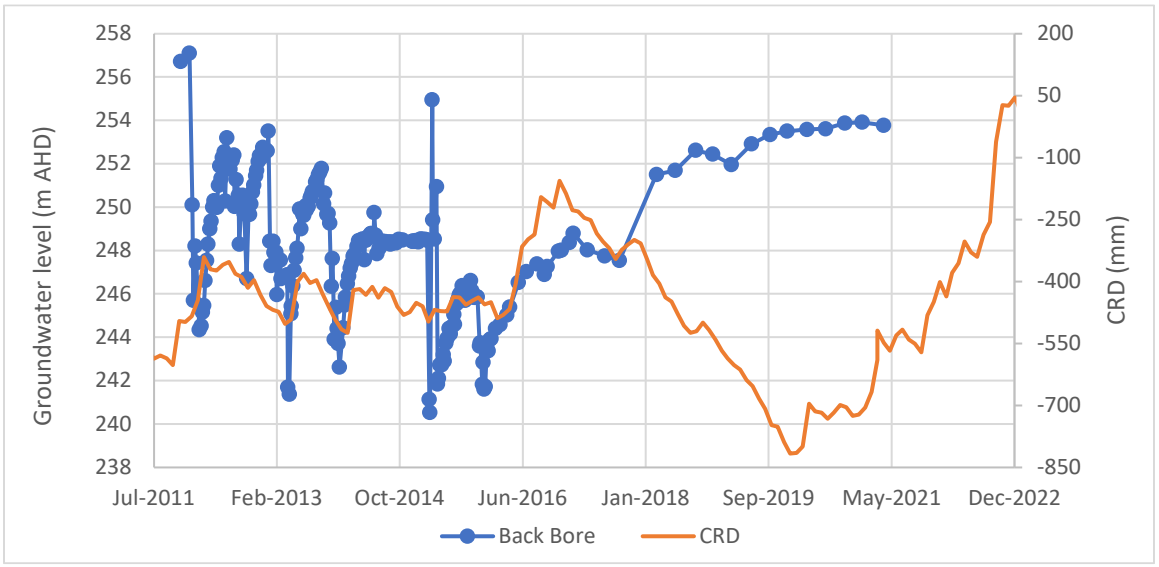
Jan-2018
Sep-2019
May-2021
Dec-2022
WB25
CRD


Groundwater level (m AHD)
258
256
254
252
250
248
246
244
242
240
238
CRD (mm)
200
50
-100
-250
-400
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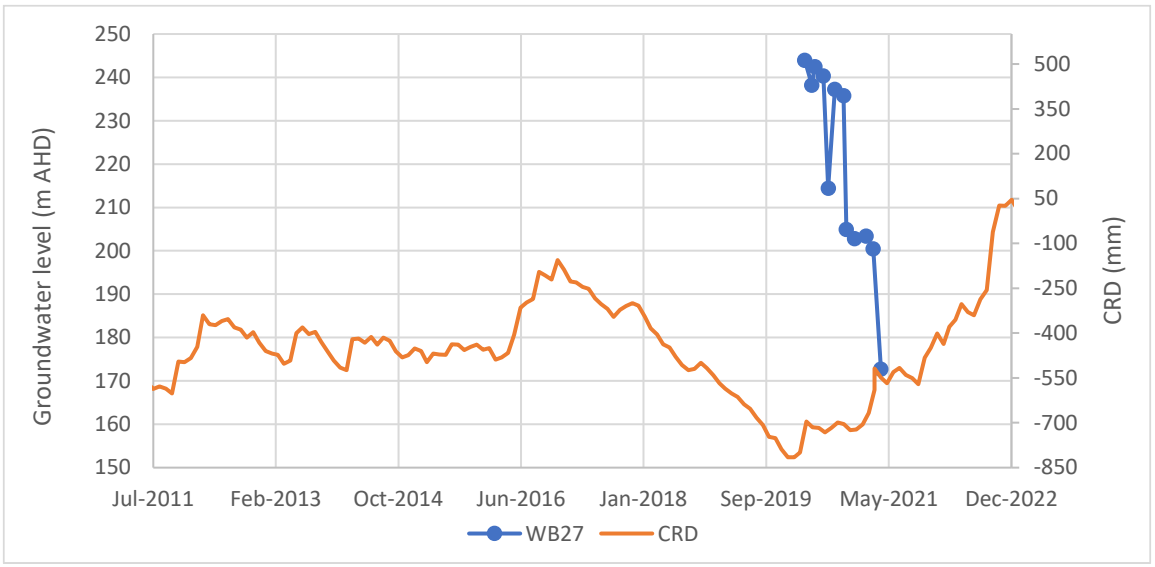
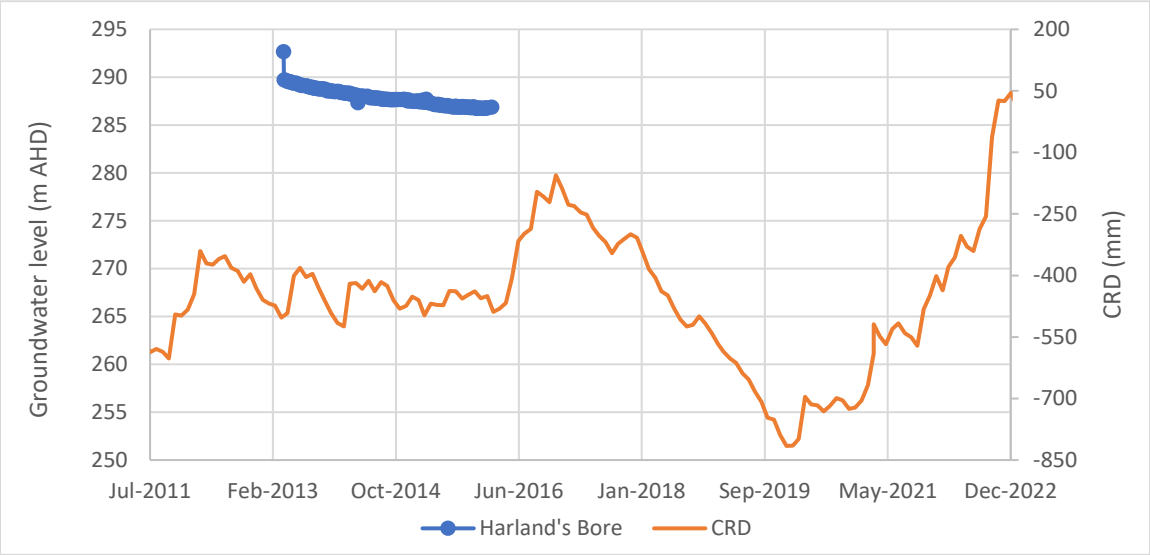
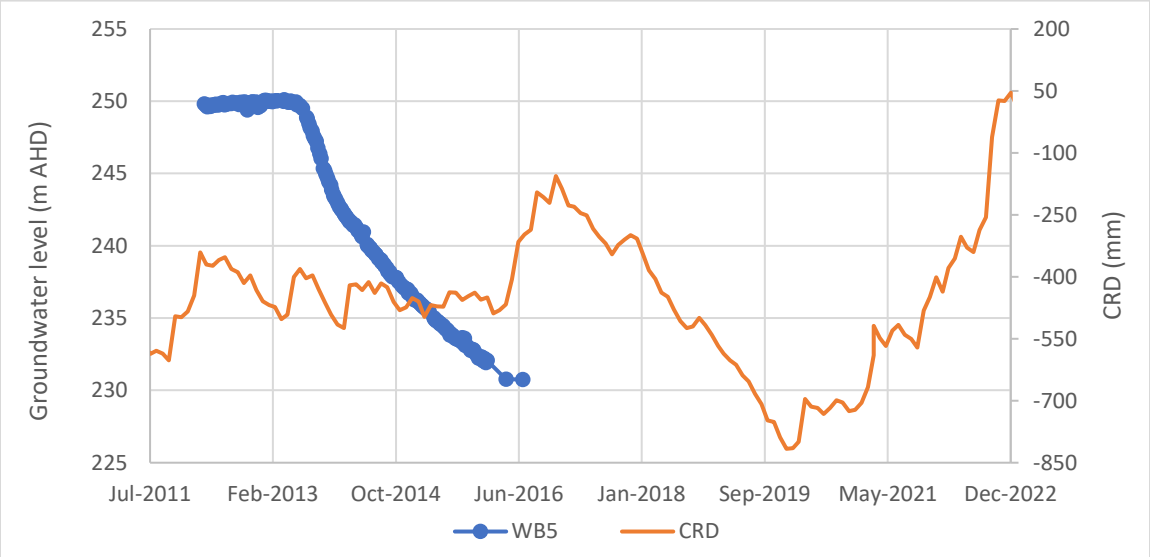
Dec-2022
Back Bore
CRD


Groundwater level (m AHD)
250
240
230
220
210
200
190
180
170
160
150
CRD (mm)
500
350
200
50
-100
-250
-400
-550
-700
-850
Jul-2011
Feb-2013
Oct-2014
Jun-2016
Jan-2018
Sep-2019
May-2021
Dec-2022
WB27
CRD


Groundwater level (m AHD)
295
290
285
280
275
270
265
260
255
250
CRD (mm)
200
50
-100
-250
-400
-550
-700
-850
Jul-2011
Feb-2013
Oct-2014
Jun-2016
Jan-2018
Sep-2019
May-2021
Dec-2022
Harland's Bore
CRD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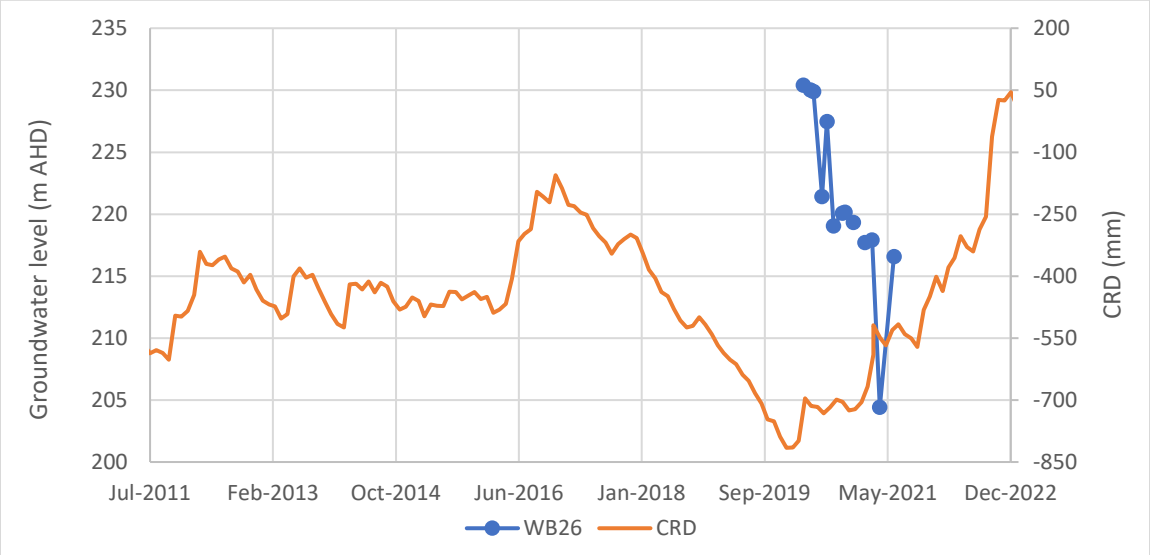
255
250
245
240
235
230
225
CRD (mm)
200
50
-100
-250
-400
-550
-700
-850
Jul-2011
Feb-2013
Oct-2014
Jun-2016
Jan-2018
Sep-2019
May-2021
Dec-2022
WB5
CRD


Groundwater level (m AHD)
235
230
225
220
215
210
205
200
CRD (mm)
200
50
-100
-250
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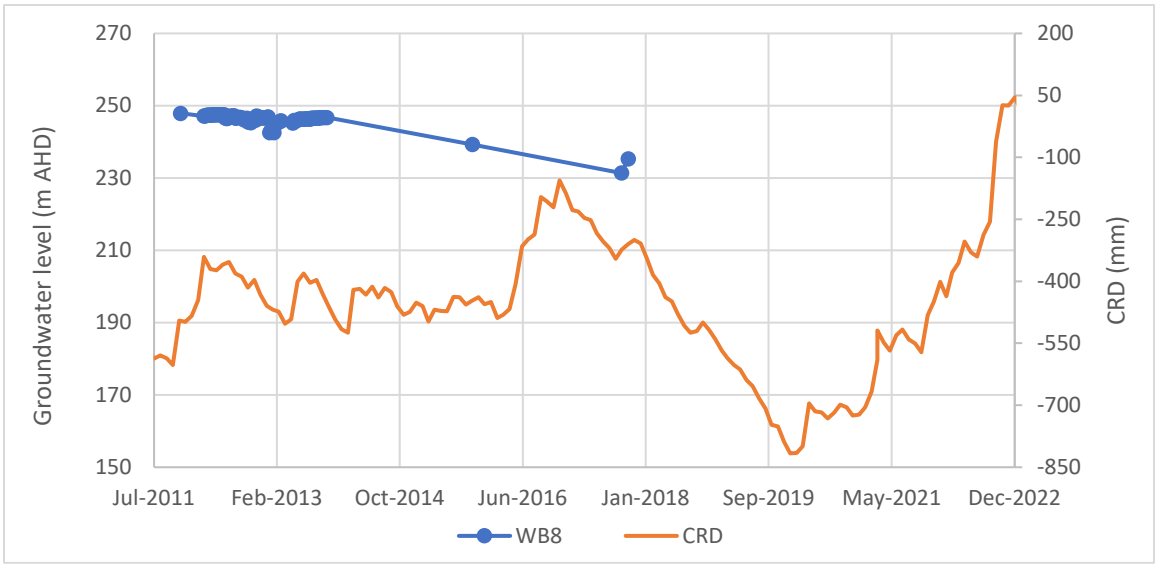
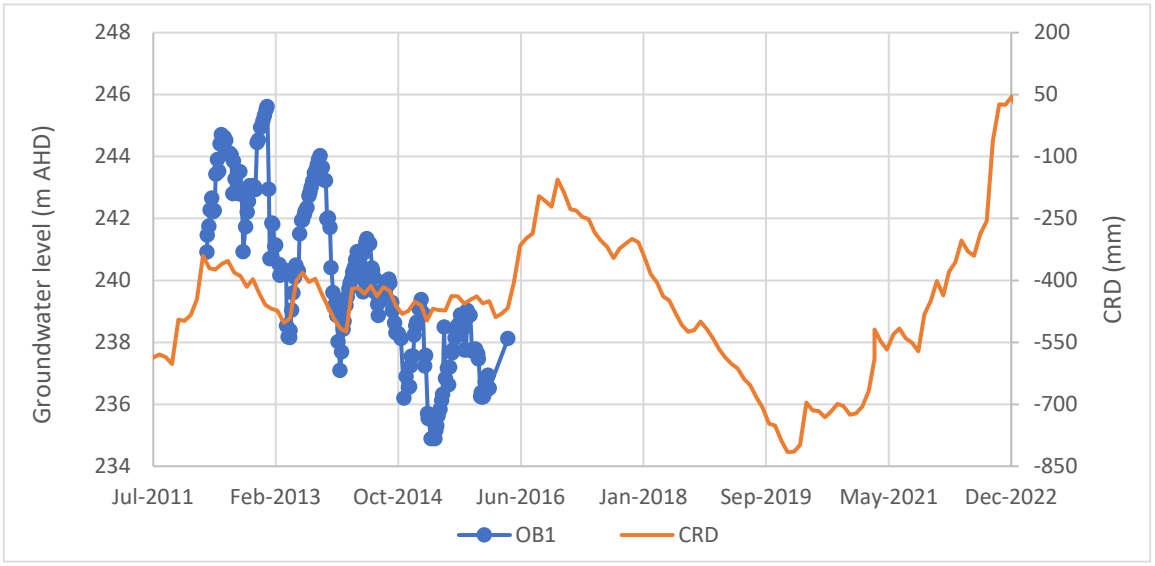
Jan-2018
Sep-2019
May-2021
Dec-2022
WB26
CRD


Groundwater level (m AHD)
270
250
230
210
190
170
150
200
50
-100
-250
-400
-550
-700
-850
CRD (mm)
Jul-2011
Feb-2013
Oct-2014
Jun-2016
Jan-2018
Sep-2019
May-2021
Dec-2022
WB8
CRD


Groundwater level (m AHD)
248
246
244
242
240
238
236
234
200
50
-100
-250
-400
-550
-700
-850
CRD (mm)
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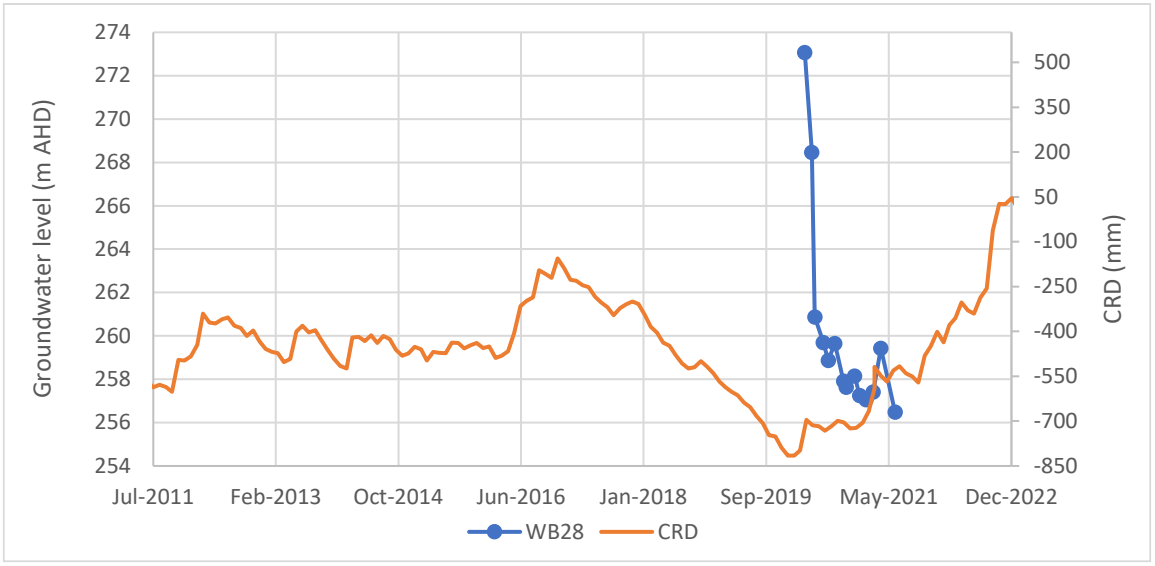
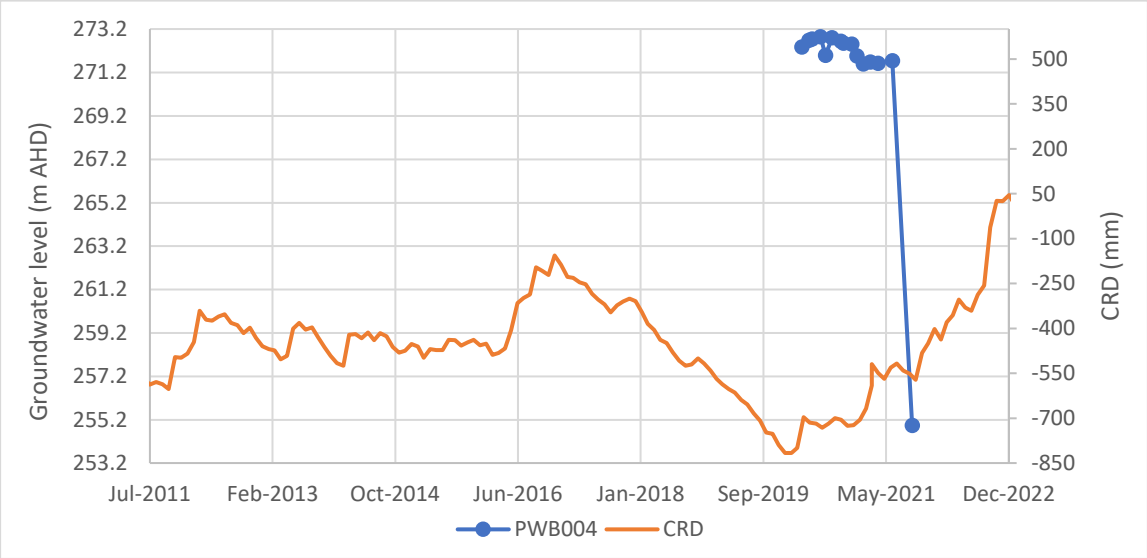
Jan-2018
Sep-2019
May-2021
Dec-2022
OB1
CRD


Groundwater level (m AHD)
274
272
270
268
266
264
262
260
258
256
254
500
350
200
50
-100
-250
-400
-550
-700
-850
CRD (mm)
Jul-2011
Feb-2013
Oct-2014
Jun-2016
Jan-2018
Sep-2019
May-2021
Dec-2022
WB28
CRD


Groundwater level (m AHD)
273.2
271.2
269.2
267.2
265.2
263.2
261.2
259.2
257.2
255.2
253.2
CRD (mm)
500
350
200
50
-100
-250
-400
-550
-700
-850
Jul-2011
Feb-2013
Oct-2014
Jun-2016
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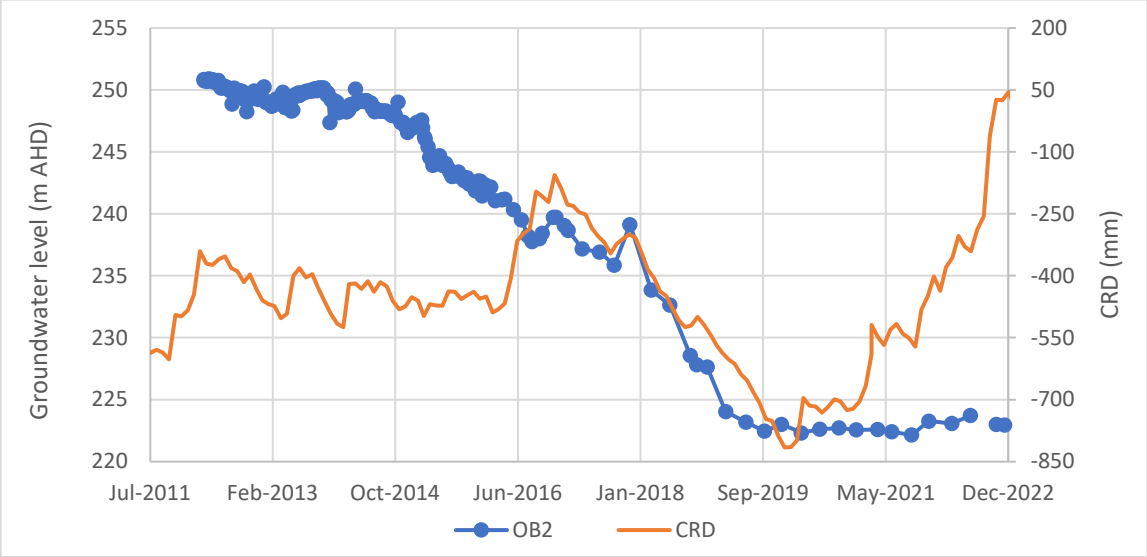
Sep-2019
May-2021
Dec-2022
PWB004
CRD


Groundwater level (m AHD)
255
250
245
240
235
230
225
220
CRD (mm)
200
50
-100
-250
-400
-550
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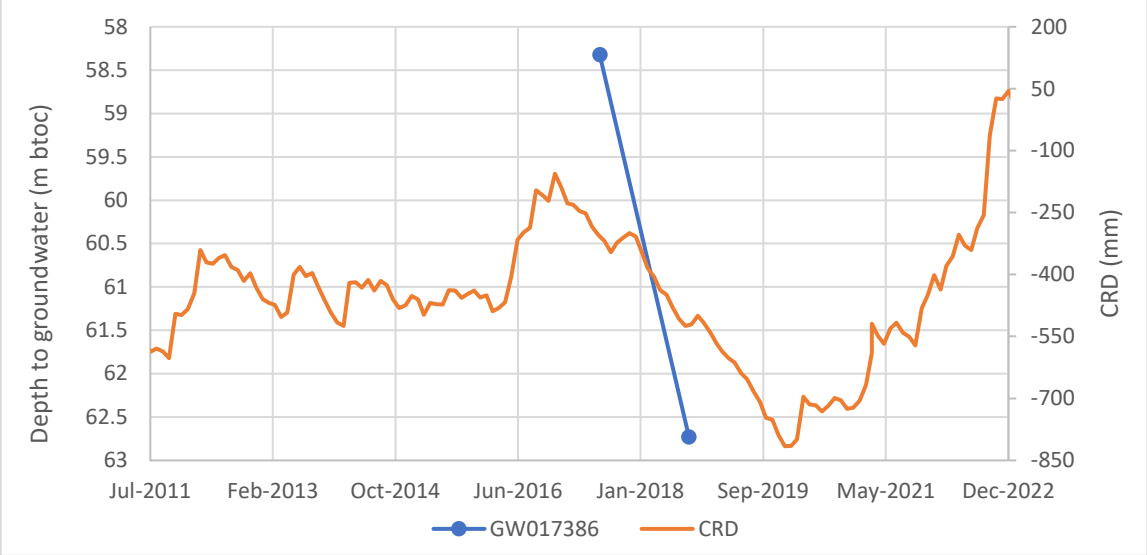
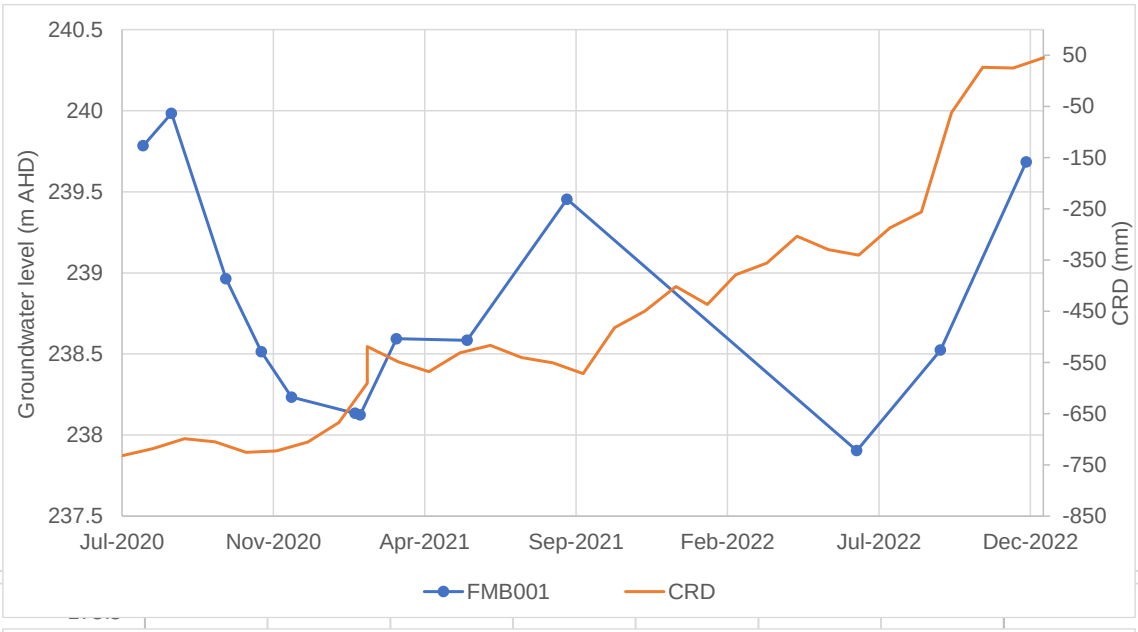
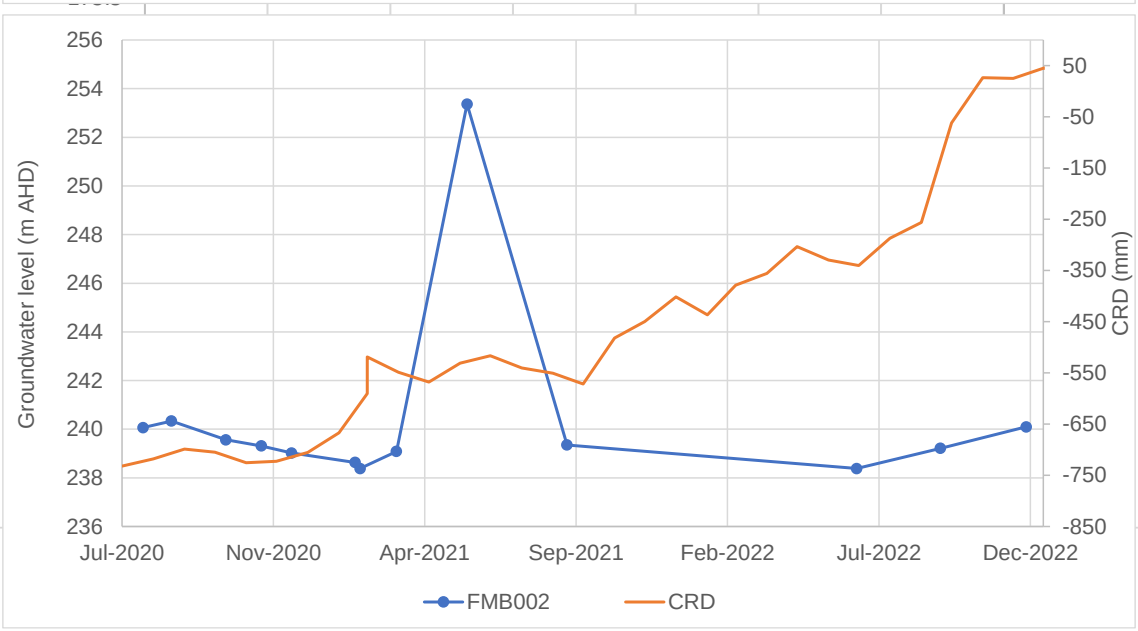
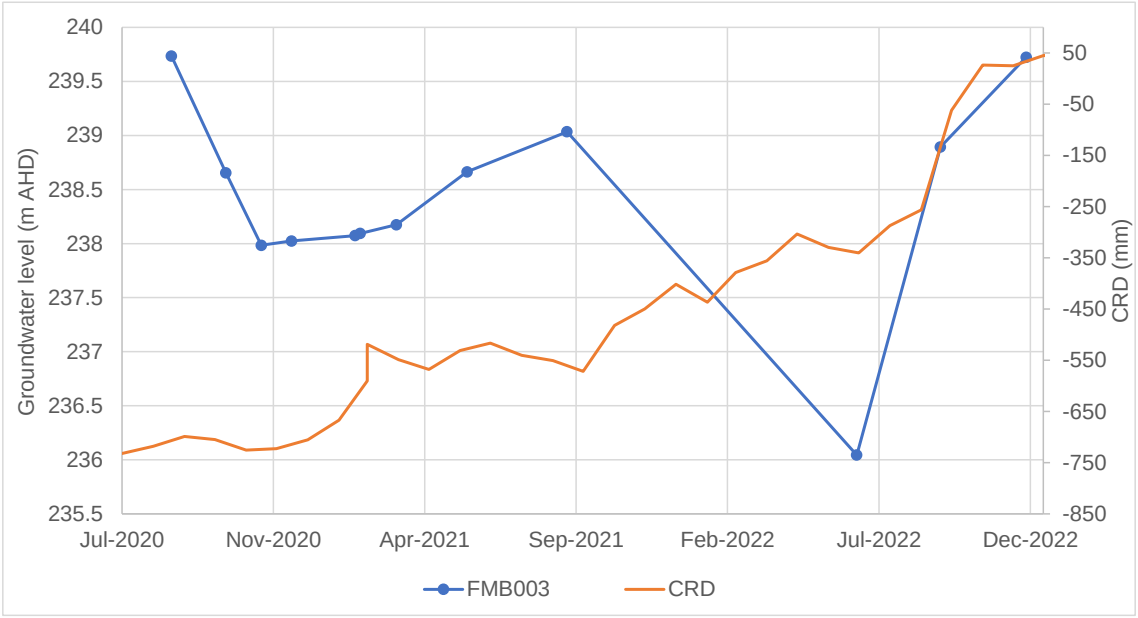
Jun-2016
Jan-2018
Sep-2019
May-2021
Dec-2022
OB2
CRD

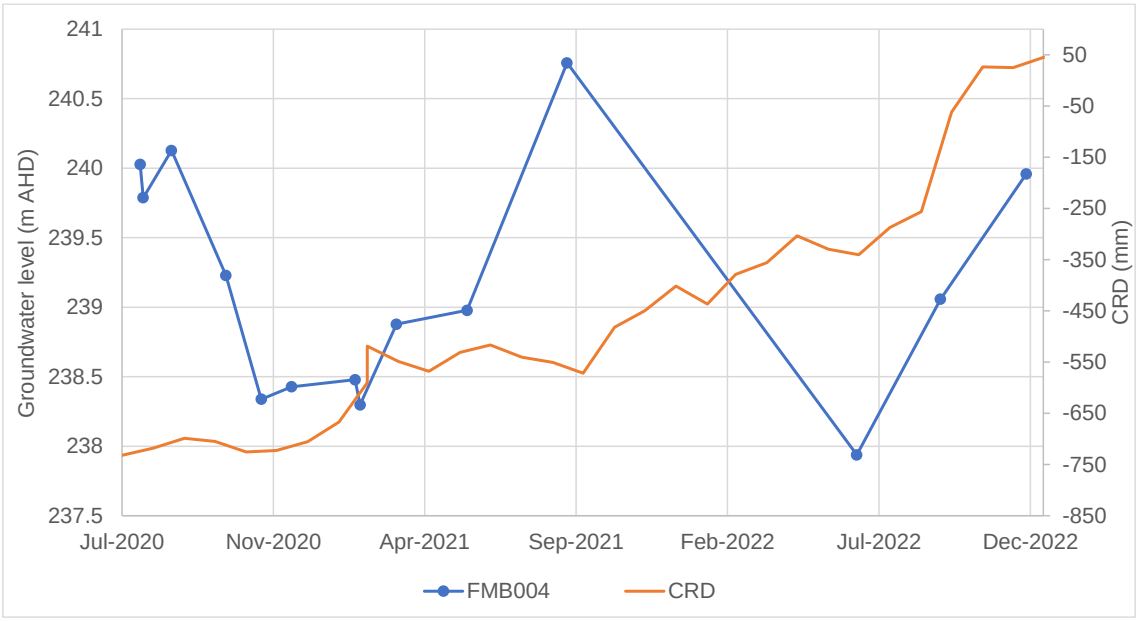

Depth to groundwater (m btoc)
58
58.5
59
59.5
60
60.5
61
61.5
62
62.5
63
CRD (mm)
200
50
-100
-250
-400
-550
-700
-850
Jul-2011
Feb-2013
Oct-2014
Jun-2016
Jan-2018
Sep-2019
May-2021
Dec-2022
GW017386
CRD

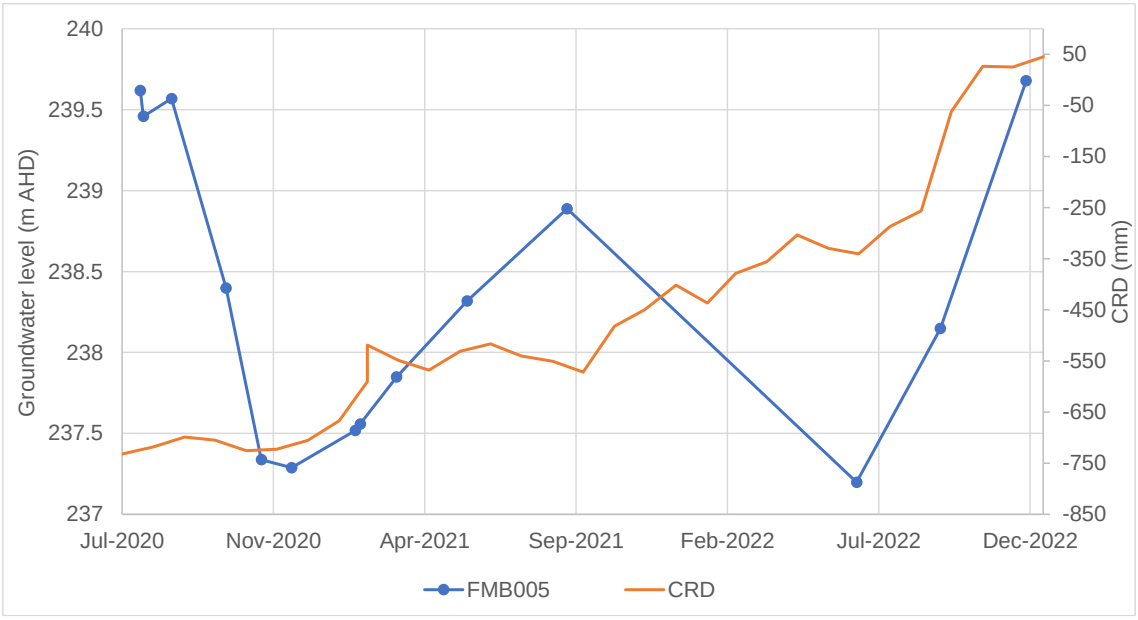
Federation Mine

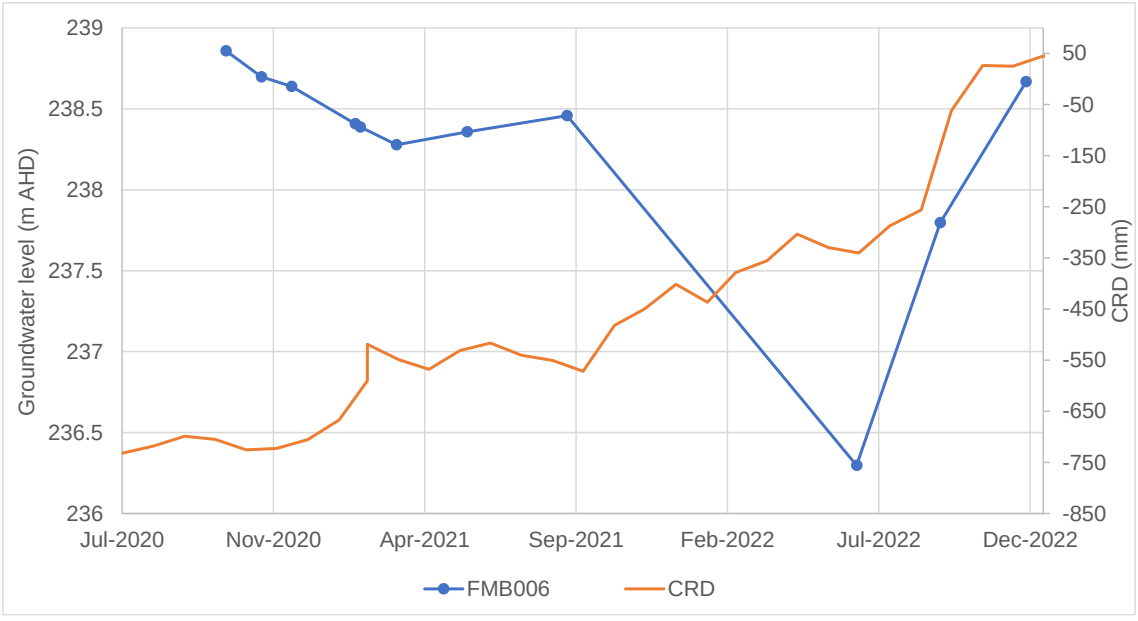


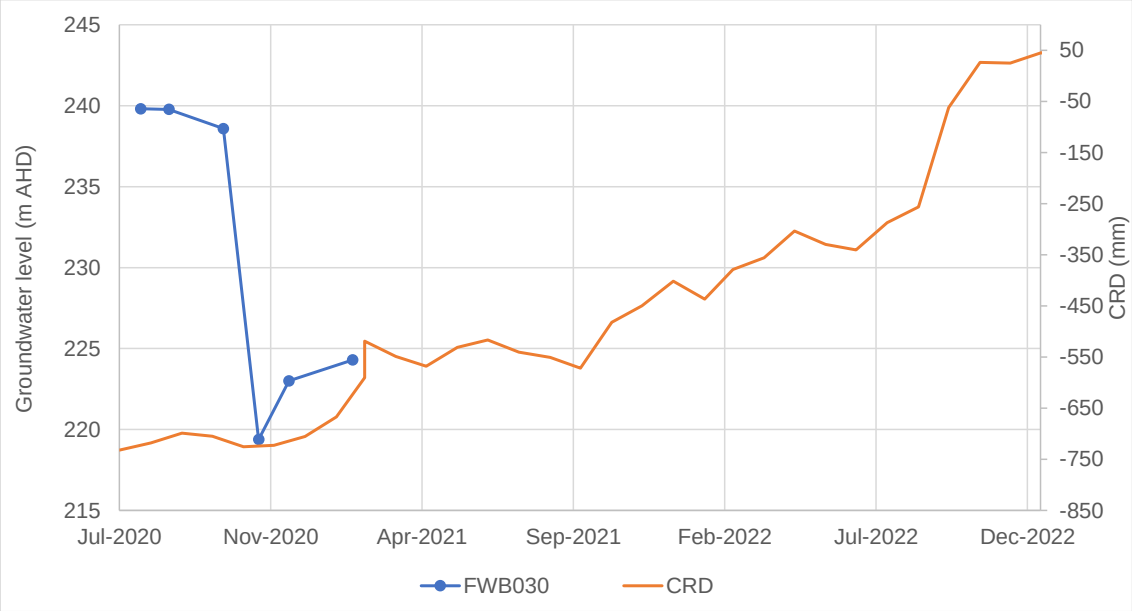





241
240.5
240
239.5
239
238.5
238
237.5
Groundwater level (m AHD)
50
-50
-150
-250
-350
-450
-550
-650
-750
-850
CRD (mm)
Jul-2020
Nov-2020
Apr-2021
Sep-2021
Feb-2022
Jul-2022
Dec-2022
FMB004
CRD


240
239.5
239
238.5
238
237.5
237
Groundwater level (m AHD)
50
-50
-150
-250
-350
-450
-550
-650
-750
-850
CRD (mm)
Jul-2020
Nov-2020
Apr-2021
Sep-2021
Feb-2022
Jul-2022
Dec-2022
FMB005
CRD


239
238.5
238
237.5
237
236.5
236
Groundwater level (m AHD)
50
-50
-150
-250
-350
-450
-550
-650
-750
-850
CRD (mm)
Jul-2020
Nov-2020
Apr-2021
Sep-2021
Feb-2022
Jul-2022
Dec-2022
FMB006
CRD


245
240
235
230
225
220
215
Groundwater level (m AHD)
50
-50
-150
-250
-350
-450
-550
-650
-750
-850
CRD (mm)
Jul-2020
Nov-2020
Apr-2021
Sep-2021
Feb-2022
Jul-2022
Dec-2022
FWB030
CRD

APPENDIX B
GROUNDWATER QUALITY MONITORING DATA

"G:\22\12600422\Tech\Water_quality\12600422-WMP-Appendix_B.pdf"

APPENDIX C
CONSULTATION

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Table C.1: Response to regulators – DPE Water

Regulator recommendation	Explanation	Response
The proponent should confirm the maximum annual groundwater take and demonstrate sufficient entitlement can be acquired if the volume exceeds current held entitlement.	There are inconsistent statements about groundwater inflows in the water management plan. For example, section 4.2.5 estimates there will be 0.3–0.9 ML/day (109.5–328.5 ML/year) groundwater dewatered from the Federation Mine. However, the site water balance estimates a maximum inflow of 122 ML/year. These 2 estimates are significantly different. Based on this, there may be a need for the proponent to access additional water entitlement. An additional impact assessment may also be required. The proponent must confirm the maximum expected groundwater inflows and show that the entitlement held in WAL43173 will be sufficient.	Section 4.2.5 has been corrected to state that inflows are modelled to be 0.3–0.34 ML/day as reported in GHD 2021a. A water security assessment is included in Section 5.3.2 of the WMP. GHD 2021a indicates that total production bore usage to satisfy operational requirements for the Site under the proposed conditions is expected to range from 250 ML to 408 ML. Considered in combination with the forecast groundwater inflows in that year of 122 ML/year, the maximum groundwater extraction forecast by the site water balance model is 530 ML/year. This is within the groundwater entitlement held by Hera Resources (or Aurelia) for the Site under WAL 43173 equivalent to 543 ML/year. Therefore, Hera Resources holds sufficient WAL entitlement for the Site.
The proponent should update and validate the groundwater model (GHD, 2021) with the latest monitoring data. This should be done as part of the next model validation and update due in 2024.	Consent condition B43 (d)(v) of SSD-24319456 requires the validation of the groundwater model and the water balance every 3 years based on the latest monitoring data. As the model was developed in 2021, an update and validation is due in 2024.	The requirement for the groundwater model to be validated once every three years is documented in Section 9.2.1 of this WMP. As documented in Section 9.2.1, the groundwater model will be recalibrated if the validation process identifies significant variances between monitored and predicted mine groundwater inflows or the hydrogeological model is underestimating drawdown in groundwater level. Model validation should occur following commencement of mining.
The proponent should update the water management plan with modelled results following the groundwater model update and validation in 2024. This should include modelled results of the updated mine water balance. For example, groundwater inflows and groundwater requirements from production bores.	Consent condition B43(d)(i) of SSD-24319456 requires the water management plan to include a site water balance that includes predicted inflows and outflows. These flows are based in part on the groundwater model. The site water balance should therefore be updated after any updates to the groundwater model.	The requirement for the site water balance to be reviewed once every three years is documented in Section 9.2.2 of this WMP. Section 9.2.2 has been updated to recommend that this update occurs after the validation of the groundwater model. The recommendation to include the updated water balance results in the WMP has been included in Section 9.2.2.

Table C.2: Response to regulators – DPE Water – 15/12/2023

Condition	Sufficient (Yes/No/Partial)	Document reference and comment	Action required	Response
OBLIGATION TO MINIMISE HARM TO THE ENVIRONMENT, Schedule 2, Condition A1 In addition to meeting the specific performance measures and criteria established under this consent, the Applicant must implement all reasonable and feasible measures to prevent, and if prevention is not reasonable and feasible, minimise, any material harm to the environment that may result from the construction and operation of the development, and any rehabilitation required under this consent.	Partial	Section 4 outlines management measures. However, there is limited commitment to implementation of the sub plans or adopt reasonable and feasible measures to minimise and prevent material harm to the environment.	Include commitment to implement the sub plans and to adopt reasonable and feasible measures to minimise and prevent material harm to the environment.	Refer to Section 4 for commitment to implement subplans and to adopt reasonable and feasible measures to minimise and prevent material harm to the environment (including relevant sections) in accordance with Schedule 2 Condition A1 of the Consent.
Terms of Consent **Schedule 2, Condition A2** The development may only be carried out: (a) in compliance with the conditions of this consent; (b) in accordance with all written directions of the Planning Secretary; (c) generally in accordance with the EIS; and (d) generally in accordance with the Development Layout.	No		Add a commitment that the development will be carried out generally in accordance with the EIS, the conditions of the consent, layout, all written directions etc.	Refer to Section 1.1 for inclusion of this commitment (above Table 1).
Terms of Consent **Schedule 2, Condition A4** The conditions of this consent and directions of the Planning Secretary prevail to the extent of any inconsistency, ambiguity or conflict between them and the document/s listed in condition A2(c). In the event of an	No		Add an acknowledgement that the conditions of the consent and directions of the Planning Secretary prevail to the extent of any inconsistency, ambiguity or conflict between them and the document/s listed in condition A2(c).	Refer to Section 1.1 for inclusion of this commitment (above Table 1).

Condition	Sufficient (Yes/No/Partial)	Document reference and comment	Action required	Response
inconsistency, ambiguity or conflict between any of the document/s listed in condition A2(c), the most recent document prevails to the extent of the inconsistency, ambiguity or conflict.				
Water, Schedule 2, Condition B30 The Applicant must ensure that:				
(a) all surface discharges from the development comply with discharge limits (both volume and quality) set for the development in any EPL or the relevant provisions of the POEO Act;	Partial	Partial commitment identified in the WMP. EPL does not specify limit on surface discharge volumes. Table 26 has no unit of measure for Zinc.	Amend Table 26 to show units of measurements for all listed pollutants. Will the EPL be modified to allow discharge from Federation.	Table 26 has been amended to show units of measurements for all listed pollutants, including Zinc. EPA point 48 licences discharge from the Stormwater Retention Pond within the pollutant limits in the most recent variation to the EPL (October 2023)
(b) the concentration of Weak Acid Dissociable (WAD) cyanide in tailings discharged from the discharge point to the tailings storage facility does not exceed 20 mg/L (90th percentile) and 30mg/L (maximum);	Partial	Partial commitment identified in Section 7.1.3.1 and Table 26. The limits are identified but no commitment to "ensure that: the concentration … does not exceed" the limits within Table 26. Table 2 does not identify correct section of WMP where Condition B30(b) is addressed.	Include commitment to ensure WAD cyanide concentration in tailings discharged to storage "does not exceed" the limits identified in Table 26 of the WMP. Update Table 2 so correct section of WMP are referenced.	A commitment for ensuring the "concentration of Weak Acid Dissociable (WAD) cyanide in tailings discharged from the discharge point to the Tailings Storage Facility and at the discharge point to the Process Water Dam do not exceed the limits specified within **Table** 26**"** has been included in Section 7.1.3.1 and updated in Table 2 of the WMP
(c) the concentration of Weak Acid Dissociable (WAD) cyanide at the discharge point to the process water dam does not exceed 20 mg/L (90th percentile) or 30 mg/L (maximum).	Partial	Partial commitment identified in Section 7.1.3.1. The limits are identified but no commitment to "ensure that: the concentration … does not exceed" the limits within Table 26.	Include commitment to ensure WAD cyanide concentration at the discharge point process water dam "does not exceed" the limits identified in Table 26 of the WMP.	
Water, Schedule 2, Condition B31 The Applicant must ensure that it has sufficient water for all stages	Partial	Partial commitment identified in Section 5.3.2. Water predictions outline that Federation Mine will have sufficient water.	Commit to not exceeding the annual limits of WAL 43173 and if required will adjust the scale of	The commitment to not exceed the limits of WAL43173 and to scale operations to available

Condition	Sufficient (Yes/No/Partial)	Document reference and comment	Action required	Response
of the development, and if necessary, adjust the scale of the development to match its available water supply.		Section 5.3.2 does not commit to adjusting the scale of development to match the available water supply. Section 5.3.2 also states that total groundwater extraction is "expected to" remain under the 543 ML/year limit of WAL 43173. Although it may not be expected or predicted, a statement of commitment to not exceed limit or adjust scale of development is required.	development to match the available water supply.	water supply has been added in Section 5.3.2.
Water, Schedule 2, Condition B32 The Applicant must report on water extracted from the development each year (direct and indirect) in the Annual Review, including water taken under each water licence. Note: Under the Water Act 1912 and/or the Water Management Act 2000, the Applicant is required to obtain all necessary water licences for the development, including during rehabilitation and post mine closure.	No	Commitment not identified in the WMP. Section 3.8 and Section 2.2 do not provide commitment to reporting on water extracted from the development. Section 6.3.2 mentions that water volumes "extracted from production bores and dewatering of the underground workings" will be metered, but this does not commit to measuring total water extracted from "the development" or reporting it in the Annual Review. Section 8.2 Step 4 mentions a "water monitoring report" but no details about this report is included in the WMP.	Provide commitment to report in the Annual Review on water extracted (direct and indirect) under each water license. Provide details regarding the water monitoring report including, but not limited to, its contents and who is responsible for creating and reviewing it.	WALs held for the development are outlined in Section 2.2.2. Only groundwater WALs are held for the Site. In section 6.3.2, a commitment to recording and reporting groundwater take for the annual review, as outlined in Section 9.1 has been included. Inclusion of "c. *evaluate total annual water extraction for the development for the year (both direct and indirect) under each water license noting the water year in NSW is 1 July to 30 June."* Has been included in Section 9.1, Step 4 in Section 8.2 has been corrected to state "review of monitoring data". Previous statement of "water monitoring report" was erroneous. Therefore no description of this can be included in the WMP. All data will be reviewed as part of the Annual review, as stated in Section 9.1.

Condition	Sufficient (Yes/No/Partial)	Document reference and comment	Action required	Response
Water, Schedule 2, Condition B33 The Applicant must provide a compensatory water supply to any landowner of privately-owned land whose rightful water supply is adversely and directly impacted (other than an impact that is minor or negligible) as a result of the development, in consultation with DPE Water, and to the satisfaction of the Planning Secretary.	Partial	Partial commitment identified in Section 8.3 of the WMP. Section 8.2 does not clearly commit to supplying compensatory water "to the satisfaction of the Planning Secretary". Section 8.2 uses the term "would" which is not a commitment to an action/procedure.	Commit to providing compensatory water "to the satisfaction of the Planning Secretary". Modify language/terminology to be more committal. Replace "would" with "will".	Language has been updated throughout the document. Statement added in Section 8.2 to include the " to the satisfaction of the planning secretary" All instances of "would" have been replaced with "will"
Water, Schedule 2, Condition B34 The compensatory water supply measures must provide an alternative long term supply of water that is equivalent, in quality and volume, to the loss attributable to the development. Equivalent water supply should be provided (at least on an interim basis) as soon as practicable after the loss is identified, unless otherwise agreed with the landowner.	Partial	Partial commitment identified in the WMP. Section 8.3 commits to the volume and quality of the compensatory water supply but does not commit to ensuring the compensatory water supply measures "provide an alternative long term supply of water".	Include commitment to "provide an alternative long term supply of water" as described in this condition.	This commitment has been included per the PDF comment received, now states "Hera Resources will provide an alternative long-term supply of water to landholders whose water supply is adversely and directly impacted by operations at the Site. The compensatory water supply will be equivalent in terms of volume and quality to the water loss attributable to operations at the Site."
Water, Schedule 2, Condition B35 If the Applicant and the landowner cannot agree on whether the loss of water is attributed to the development or the measures to be implemented, or there is a dispute about the implementation of these measures, then either party may refer the matter to the Planning Secretary for resolution.	No	Commitment not made in the WMP.	Include commitment to refer matter to the Planning Secretary for resolution should there be a disagreement between Hera Resources and the landowner regarding water loss attribution or implementation of measures.	This has been implemented in Section 8.3. per comment in PDF document received, now states "The matter will be referred by Hera Resources to the Planning Secretary for resolution should there be a disagreement between Hera Resources and the landowner regarding water loss attribution or implementation of measures."

Condition	Sufficient (Yes/No/Partial)	Document reference and comment	Action required	Response
Water, Schedule 2, Condition B36 If the Applicant is unable to provide an alternative long term supply of water, then the Applicant must provide compensation, to the satisfaction of the Planning Secretary.	No	Commitment not made in the WMP.	Include commitment to "provide compensation, to the satisfaction of the Planning Secretary" if Hera Resources is unable to provide an alternative long-term supply of water.	Section 8.3 now states "Hera Resources will provide compensation, to the satisfaction of the Planning Secretary if an alternative long-term supply of water cannot be provided."
Water, Schedule 2, Condition B37 However, conditions B33 to B36 do not apply if the Applicant has a compensatory water agreement with the owner/s of the land and the Applicant has advised the Department in writing of the terms of this agreement. Notes: • The Water Management Plan (see condition B43) is required to include trigger levels for investigating potentially adverse impacts on water supplies. • The burden of proof that any loss of water supply is not due to mining impacts rests with the Applicant.	N/A	The Department has not been advised of such an agreement.	-	-
Water, Schedule 2, Condition B38 In the event of any complaint related to a privately-owned licensed groundwater bore which may, in the opinion of the Planning Secretary, have been adversely and directly impacted as a result of the development (other than an impact that is minor or negligible), the Applicant must, as soon as	No	Commitment not identified in the WMP.	Include commitment to provide "a temporary water supply, pending the outcome of any groundwater investigation and/or provision of an alternative long-term supply of water" to the satisfaction of the Planning Secretary in the event the Planning Secretary deems a privately-owned licensed groundwater bore may have been impact by the development.	Section 8.3 has been updated to include this statement.

Condition	Sufficient (Yes/No/Partial)	Document reference and comment	Action required	Response
practicable, facilitate the provision of a temporary water supply, pending the outcome of any groundwater investigation and/or provision of an alternative long-term supply of water as required under condition B34, the satisfaction of the Planning Secretary.				
Water, Schedule 2, Condition B39 The Applicant shall ensure that the floor and walls of:				
a) the leachate management ponds, seepage collection pond (associated with the tailings storage facility), process water dam and raw water dam are lined to achieve a permeability of no less than 1 x 10-9 m/s to a depth of at least 900 millimetres of clay (or equivalent);	Partial	Partial commitment identified in Section 4.1.1.4 of the WMP. Section 4.2.1.4 commits to lining the Lined Leachate Ponds with HDPE but does not commit to the permeability and depth requirements of this condition. WMP is unclear as to whether HDPE meets the permeability and depth requirements. Section 4.1.1.4 does not specify what the seepage collection pond will be lined with. Table 10 lists all raw water storages. Only tanks are listed, a "raw water dam" is not listed.	Include commitment to adhering to the permeability and depth requirements for the lining of the leachate management ponds as outlined in the condition. Provide justification of use of HDPE. Commit to lining the seepage collection pond with clay or equivalent as outlined in this condition. Clarify that there will be no raw water dam on site and that all raw water will only be stored in the tanks listed in Table 10 of the WMP.	The Lined Leachate Ponds are already constructed with HDPE liner as part of the Federation Exploration Decline Program. This liner is considered by Aurelia to be equivalent to the permeability per the product specification. Section 4.1.1.3 has been amended to state "There are no raw water dams located on site, with all raw groundwater transferred to the tanks listed in Table 10. Therefore, no lining of raw water dams will occur as required by condition B39 (a) of the Consent."
(b) the tailings storage facility (except for the seepage collection pond) is lined to achieve a permeability of no less than 1 x 10-8 m/s to a depth of at least 600 millimetres of clay (or equivalent); and	Yes	Commitment identified in Section 4.1.1.4 of the WMP.	-	-
(c) the water management dam is lined to achieve a permeability of	Yes	Commitment identified in Section 4.1.1.4 of the WMP.	-	-

Condition	Sufficient (Yes/No/Partial)	Document reference and comment	Action required	Response
no less than 1 x 10-9 m/s to a depth of at least 1000 millimetres of clay or equivalent geosynthetic liner.				
Notes: • An alternative permeability standard may be acceptable following completion of an appropriate risk assessment undertaken in accordance with the Environmental Guidelines – Management of Tailings Storage Facilities (VIC DPI, 2004), to the satisfaction of the EPA and the Secretary.	-			
Water, Schedule 2, Condition B40 The clean water diversion around the tailings storage facility shall be designed, constructed and maintained to prevent the probable maximum flood from the catchment upstream of the facility from entering the facility.	Partial	Partial commitment identified in Section 4.1.1.1 of the WMP. Section 4.1.1.1 commits to designing and constructing clean water diversions to divert PMF to the Three Gates Dam but does not commit to maintaining the clean water diversions for the life of the mine. Maintenance is also an important aspect that must be accounted for and detailed.	Show the clean water diversions on Figure 12. Include commitment and procedure to maintain the clean water diversions as required by this condition.	Section 4.1.1.1 and Section 4.2.1.1. now both state "The clean water diversions will be inspected in accordance with the requirements specified in Section 6.1.1."
Water, Schedule 2, Condition B41 The process water dam, raw water dams, stormwater retention pond and lined leachate ponds must be maintained with a minimum freeboard sufficient to accommodate a 1 in 100-year ARI, 72-hour rainfall event without overtopping at all times.	Partial	Partial commitment identified in Section 4.1.1.4 and Section 4.2.1.2 of the WMP. Raw water dam is not relevant as raw water will be stored in tanks. Section 4.2.1.2 states that water will be "permitted to flow from the Stormwater Retention Pond" in rainfall exceeds the 1% AEP design event occurs. The wording of this is misleading. Flow from the pond is not "permitted". The condition simply requires enough freeboard in the	Modify language in Section 4.2.1.2 to remove suggestion that flow from the Stormwater Retention Pond is "permitted" if rainfall exceeds the 1% AEP 72-hour rainfall limit. Include commitment to provide sufficient freeboard in the lined leachate ponds as described in this condition. Note: Until a modification is approved to allow a discharge no discharges offsite are permitted.	Section 4.2.1.2 has been modified to: "In rainfall events exceeding the 1% AEP design event, water may potentially overflow from the Stormwater Retention Pond, as rainfall runoff volumes would exceed the nominated design criteria of the storage. EPA Point 48 licences discharge from the Stormwater Retention Pond. Refer to Section 7.1.2 for EPL concentration limits" Comittment to include sufficient freeboard in the lined leachate

Condition	Sufficient (Yes/No/Partial)	Document reference and comment	Action required	Response
		Stormwater Retention Pond to accommodate a 1% AEP 72-hour rainfall event. Until a modification is approved to allow a discharge there will be no discharges offsite permitted. Commitment to maintain sufficient freeboard in the lined leachate ponds not identified.		ponds: "The Lined Leachate Ponds will be maintained with a minimum freeboard sufficient to contain the 1% AEP, 72-hour duration through transfer to the Dewatering Pond"
Water, Schedule 2, Condition B42 The Applicant must ensure that the development complies with the performance measures in Table 4. Note: Table 4 can be found in Conditions of Consent for SSD-24319456)	Partial	Partial commitment found in Section 5.2 of the WMP. Minor formatting issue in Table 22. The frequency and parameters for monitoring at SWQTP32 and SWQTP33 are unclear. Most likely a formatting issue with table spanning two pages. Section 3.6 has a prediction of "steep hydraulic gradients were predicted around the edges of the Federation Mine and Hera Mine workings, due to the low horizontal hydraulic conductivity of the strata" but does not provide a value. This value is needed so it can be used as a baseline. Section 7.1.1.2 predicts no impact to aquifer water quality. No commitment to ensuring "negligible impact to other groundwater users". No commitment to not exceeding the "minimal impact consideration" in the NSW Aquifer Interference Policy". No commitment to ensure "Negligible change to off-site flood regime, including flows,	Fix formatting of Table 22 to clearly indicate frequency and parameters for SWQTP32 and SWQTP33 Clearly indicate the predicted drawdown on groundwater levels at Federation Mine so comparison can be made to measured values. Include commitment to ensuring negligible impact to other groundwater users. Provide commitment to not exceed the "minimal impact consideration" in the NSW Aquifer Interference Policy". Include commitment to ensure "Negligible change to off-site flood regime, including flows, levels, storage capacity or velocities". Include commitment to store all chemicals and hydrocarbons in appropriately bunded areas according to the relevant Australian Standard. Modify language/terminology to be more committal. Replace "would" with "will".	Table 22 minor formatting change has been made. SWQTP32 and SWQTP33 are of the same frequency and parameters of SWQTP5, SWQTP12, SWQTP10, SWQTP11 and SWQTP31. The trigger values provided in Table 24 for Federation and Hera Mine provide the maximum likely drawdown based on observed data and maximum drawdown predictions in GHD (2021a). The commitment to ensure there will be negligible change to off-site flood regime, including flows, levels, storage capacity or velocities has been included in Sections 4.1.1 and 4.2.1. Commitment to not exceed the minimal impact assessment guidelines and to have minimal impact on groundwater users is now included in 7.1.1. The commitment to store all chemicals and hydrocarbons in appropriately bunded areas according to the relevant Australian Standard is already

Condition	Sufficient (Yes/No/Partial)	Document reference and comment	Action required	Response
		levels, storage capacity or velocities". Section 4.2.2 outlines that all chemical and hydrocarbons will be stored to the relevant Australian Standard. WMP does not commit to bunding. Table 8 says all fuels and oils will be stored with appropriate bunding, but this mentions nothing of chemical and other hydrocarbons. Section 4.2.2 used the phrase "would implement" which is vague and non-committal.		included in Sections 4.1.2 and 4.2.2.
Water, Schedule 2, Condition B43 The Applicant must prepare a Water Management Plan for the development to the satisfaction of the Planning Secretary. This plan must:	Partial	See other comments in review table.	See other actions in review table.	
(a) be prepared by a suitably qualified and experienced person/s;	Yes	Commitment identified in Section 1.2.2 of the WMP.	-	-
(b) be prepared in consultation with DPE Water, EPA, Resources Regulator and Council;	Partial	Commitment identified in Table 6 and Appendix C of the WMP but no details given.	Complete Table 6 and provide Appendix C	The Table and Appendix C has been completed.
(c) describe the measures to be implemented to comply with the water management performance measures in Table 4 and conditions of this consent;	Yes	Commitment identified in Table 8, Section 4.1.1, Section 4.17, Table 16, and Section 4.2 of the WMP.	-	-
(d) include a:	-			
(i) Site Water Balance that:	Yes	Commitment identified in Section 5.3 of the WMP.	-	-
• includes details of: o predicted inflows and outflows;	Partial	Partial commitment identified in Table 20 and Section 5.3.2 of the WMP.	Section 5.3 needs more detail on methodology including the site water model used, assumptions,	Reference to the EIS SWIA (GHD 2021b) has been made which

Condition	Sufficient (Yes/No/Partial)	Document reference and comment	Action required	Response
o sources and security of water supply, including contingency planning for various climate scenarios and allocations; o reporting procedures, including the preparation of an updated annual site water balance; and		Section 7 states that if unpredicted impacts are identified, mitigation measures "would be" implemented. This phrasing is vague and non-committal. Section 5, Site Water Balance, does not include contingency planning for "various climate scenarios and allocations". Identified scenarios that require contingencies are listed in Section 7 as are the TARPS. Section 9.2.2 states the results of the site water balance will be reported in the Annual Review. I take this as the "updated annual site water balance". Section 9.2.2 says that an update "may be required" which is vague and non-committal.	transfers etc. It would be assisted if a process diagram is included with basic rules, flow paths, assumptions. Modify language/terminology to be more committal. Replace "would" with "will", replace "may be required" with "will". Cover all contingencies listed at the start of Section 7 as TARPs in Section 7.3.	includes all site water methodology and assumptions. The language in section 9.2.2 has been updated to include commitment to run site water balance annually and reported in the Annual review, as well as review and revision of the site water balance every three years if considered necessary. The language in Section 9.2.2 has been updated to "will" All contingencies listed in Section 7 have been addressed as TARPs as discussed in Section 7.3.
• measures actual water take from surface and groundwater sources, including accurate metering where possible;	Partial	Commitment not identified in the WMP. The Site Water Balance does not include "actual water take", only future. Section 9.2.2 states the results of the site water balance will be reported in the Annual Review. WMP also does not mention "accurate metering".	The site water balance model should be reviewed every 3 years and revised if required. This should be linked to the review of the groundwater model. However, the site water model should be run at least every 12 months (minimum) to show that the site has sufficient water licence to cover use. Provide better description of how flows are monitored, estimated, metered, dam height levels etc. The locations of accurate meters should be included.	There are no surface water licences required for the project, therefore metering of surface water take is not undertaken. Groundwater take is metered via metering on the production bores and metering of dewatering volumes from the underground workings. Forecast values are therefore the only information required from the water balance, as there is already understanding of groundwater take through metering. This commitment to review and revision of the water balance model on update to Groundwater Model has been included in Section 9.2.2.

Condition	Sufficient (Yes/No/Partial)	Document reference and comment	Action required	Response
				Flows on site are ready manually by environmental superintendent or suitably qualified delegate.
(ii) Surface Water Management Plan, that includes:				
• a detailed description of the water management system, including the; o clean water capture and diversion system; o dirty water system (including sediment detention basins); and o mine water capture system;	Partial	Commitment identified in Section 4.2 of the WMP. Section 2.2.2 states that the Federation Mine Pipeline will be buried as required when in vicinity of watercourse crossings between the two mines. Section 4.2.6 is less committal, stating it will be "buried or installed over small pipe or culvert structure". Though this is not strictly a contradiction, it creates ambiguity regarding the pipeline at watercourse crossings.	Commit to a pipeline construction method in vicinity of watercourse crossings. Show all clean water diversions (current and proposed) on Figures. Describe the mine water capture system and how it is managed.	The pipeline is buried at Strahler second order streams. This statement has been included in Section 2.2.2 and Descriptions of "mine water" are include. Mine water is referred to as "contaminated water" throughout this document. Groundwater is referred to as "raw water".
• detailed plans for the design and management for the emplacement of reject materials and acid or sulphate generating materials;	Partial	Partial commitment not identified in the WMP. No detailed plans for design and management provided.	Include detailed design and management for emplacement of reject materials and acid or sulphate generating materials.	Refer to the Waste Rock Management Plan.
• detailed objectives and performance criteria, including trigger levels for investigating any potentially adverse impacts associated with: o the water management system; o downstream surface water flows and quality; o water supply for other water users; o post-mining water pollution from rehabilitated areas of the development; o surface water quality attributes relevant to water quality impacts	Partial	Partial commitment identified in Section 7.3 and Table 25 of the WMP. TARPs located in Section 7.3. No objective and performance criteria for downstream surface water flows. Section 7.1.3.2 says "surface water quality triggers should be developed based on background sampling at Federation upstream monitoring location SWQTP31". Although Section 3.9 outlines that current baseline data is from low frequency streamflow and	Modify language/terminology in Section 7.1.3.2 to say "will be developed" instead of "should be developed". Include "detailed objectives and performance criteria, including trigger levels for investigating any potentially adverse impacts associated with: post-mining water pollution from rehabilitated areas of the development"	Section 7.1.3.2 has been amended to state "Federation Mine surface water quality triggers **will be** developed based on background sampling at Federation upstream monitoring location SWQTP31" Table 29 outlines surface water resource performance measures Section 7.3.1.1 includes the triggers for investigating changes to downstream surface water flows and quality.

Condition	Sufficient (Yes/No/Partial)	Document reference and comment	Action required	Response
on biological diversity and aquatic ecological integrity;		"unlikely to be reflective of naturally observed conditions", the WMP should commit to using appropriate baseline data should it become available in the future. No detailed objectives and performance criteria for post-mining water pollution from rehabilitated areas.	Include detailed objectives and performance criteria for investigating potentially adverse impacts associated with downstream surface water flows.	Please refer to the Rehabilitation Management Plan for rehabilitation post mining objectives as now stated in Table 2.
• a program to monitor and evaluate: o compliance with the relevant performance measures in Table 5 4 and the performance criteria established above; o the effectiveness of the water management system; o surface water flows and quality in waterbodies that could be affected by the development; o impacts on water users; and o impacts on wildlife from exposure to cyanide or other toxic chemicals; Note: Reference to Table 5 in CoC should be 4.	Partial	Partial commitment identified in Section 6 of the WMP. Surface water flows in waterbodies not captured in parameters in Section 6 of the WMP. No compliance monitoring and evaluation program identified for performance measures in Table 4 of the Conditions of Consent. Little detail provided for program to monitor and evaluate impacts on water users. Section 4.2.5.1 mentions engaging with surrounding landholders and bore users but does not mention frequency or what details are gathered. No details regarding the protective fencing on Federation Mine site. What areas will this protect? Section 7.1.3.3 states that site induction will include procedures for wildlife-related poisoning including contact information for rescue, how to report a wildlife fatality, and whom to report the fatality recorded on site. This	Include program to monitor and evaluate "compliance with the relevant performance measures in Table 4. Include greater detail of program to monitor and evaluate impacts on water users. Provide details regarding protective fencing on Federation Mine site including what areas will be protected. Provide "a program to monitor and evaluate: impacts on wildlife from exposure to cyanide or other toxic chemicals" including, but not limited to, method, frequency, and parameters. Include in the program the steps taken when a wildlife fatality is determined to be caused by cyanide/toxic chemical exposure.	Off site discharge risk at Federation Mine was quantified by the SWIA (GHD 2021b) to be less than the 1% AEP event, The Federation Project Surface Water Impact Assessment (GHD, 2021b) did not identify any downstream surface water users within 10 km downstream of the site. Inclusion of a geomorphic monitoring program is not considered necessary due to the low risk of discharge from the Site and the lack of downstream water users that could be impacted. Note that in the event of discharge from the site, inspection of downstream watercourses will be undertaken as per the TARP outlined in Table 33. Groundwater monitoring bores FMB007, FMB008 and FMB009 are proposed to monitor for radial drawdown from the Federation Mine workings. Trigger values for these bores

Condition	Sufficient (Yes/No/Partial)	Document reference and comment	Action required	Response
		information must be included in the Surface Water Management Plan within this WMP. What is the process if wildlife fatality is determined to be caused by the development? What triggers an investigation into the effectiveness of the safeguards? Section 7.1.3.3 states that "monitoring of surface water quality and potential exposure of wildlife would be undertaken" only if there is discharge of contaminated water into downstream watercourses. This is more reactive/contingency rather than a program to monitor and evaluate.		have been calculated based on the predictions of the Federation Project Groundwater Impact Assessment (GHD, 2021a). Therefore exceedance of the trigger values indicates that groundwater level drawdown impacts are occurring that are greater than the predictions of the EIS. Note that water quality monitoring is to be undertaken daily during any discharge as outlined in Table 22. This includes monitoring locations upstream and downstream of the site. There is a fence around greater Federation Mine site. The same risks to wildlife that are managed at Hera Mine are not present at Federation Mine. For example, Federation does not have a tailings storage facility.
• reporting procedures for the results of the monitoring program; and	No	Commitment not identified in the WMP.	Include "reporting procedures for the results of the monitoring program".	The statement "The results of the monitoring program will be reviewed and reported as outlined in Section 9.1." have been added to Section 6. Section 9.1. states the annual review will include: *a comprehensive review of the monitoring results and complaints records of the development over the previous financial year, including a*

Condition	Sufficient (Yes/No/Partial)	Document reference and comment	Action required	Response
				comparison of these results against the: *(a) relevant statutory requirements, limits or performance measures/criteria;* *(b) requirements of any plan or program required under this consent;* *(c) monitoring results of previous years; and* *(d) relevant predictions in the document/s listed in condition A2(c);*
• a plan to respond to any exceedances of the performance measures or performance criteria, and mitigate any adverse surface water impacts of the development, including contingency strategies for addressing: o any discharge of pollutants from water storages, emplacements, infrastructure and processing areas (including pipelines); and o any identified impacts to waterbodies;	Yes	Commitment identified in Section 7.3 of the WMP. TARPs contain responses to exceedances of performance measure/criteria outlined in Table 24 and Table 25, Table 27, Table 28, Response to pipeline leak (outside of contaminated water management catchment) mentioned briefly in last paragraph of Section 4.1.1.3 of the WMP. If leak detected, pumps will be shutoff. Further details regarding this are not provided. What is the response beyond pump shutdown? What is the threshold of leak detection?	Include additional details for contingency/response plan and mitigation measures in the case of pipeline rupture/leak.	Incident (response) TARP has been included. Site personnel will refer to PIRMP for additional actions
(iii) Groundwater Management Plan, that includes:	-			
• a detailed description of the groundwater management system, including measures to	Yes	Commitment identified in Section 4.1.5 and Section 4.2.1.4 of the WMP.	-	-

Condition	Sufficient (Yes/No/Partial)	Document reference and comment	Action required	Response
minimise acid mine drainage from potentially acid forming material;		Additional details regarding management of PAF waste rock can be found in the Waste Rock Management Plan.		
• detailed objectives and performance criteria, including trigger levels for investigating any potentially adverse impacts associated with the development for: o local and regional aquifers; o groundwater users bores; o groundwater inflows to the mining operations; o seepage/leachate from underground voids, water storages, emplacements, infrastructure and processing areas, and the surface extraction area; and o groundwater dependent ecosystems;	Partial	Partial commitments identified throughout WMP. Objectives and performance criteria for groundwater/aquifers and seepage found in Section 7.3 TARPs in the WMP. Section 4.2.5.1 mentions engaging with surrounding landholders and bore users to ensure groundwater impacts are appropriately management mitigated which is appropriate considering Section 7.1.1.1 states that a complaint in this circumstance is considered a "Stage 1 trigger". However, it is unclear whether there is a regular program for checking in with local groundwater users. Section 4.1.5.1 states that water into and out of underground workings are "metered" at Hera Mine. Section 4.2.5.1 states that material movements and ventilation rates will be recorded "to enable a robust assessment of groundwater inflows to the mine workings". I cannot find any detailed objectives, performance criteria, or triggers levels that would result in an investigation. Table 20 has forecasted groundwater inflows but indication of responses at certain trigger levels.	Include any plans/schedule for regular communication with local groundwater users. Include who is responsible or the communication and what key information is gathered/measured in these communications. Provide "detailed objectives and performance criteria, including trigger levels" for groundwater inflows that would trigger investigations. Provide "detailed objectives and performance criteria, including trigger levels" for investigation impacts associated with GDEs.	Four non-mining associated landholder bores were identified within a 20 km radius of the site. Given there are no predicted impacts to the beneficial use of these bores related to quality or drawdown, it is not considered necessary to develop communication plans. Groundwater monitoring bores FMB007, FMB008 and FMB009 are proposed to be installed to monitor for regional groundwater drawdown. Groundwater inflows have been included in the TARP in Table 30. There were no GDEs identified within 20 km of the Site as outlined in Section 3.8.3 and the Groundwater Impact Assessment (GHD 2021a). Therefore it is not considered appropriate to develop triggers or response plans (additional to the proposed groundwater monitoring program and triggers) that would beneficially be applied for this receptor.

Condition	Sufficient (Yes/No/Partial)	Document reference and comment	Action required	Response
		No detailed objectives/criteria and trigger levels for groundwater dependent ecosystems. The WMP provides supporting evidence that it is highly unlikely that the few potential GDEs on site are impacted by the deep groundwater. However, there is still potential for the GDEs to be impacted and the condition requires objectives/criteria and triggers that would result in an investigation.		
• a program to monitor and evaluate: o compliance with the relevant performance measures listed in Table 5 and the performance criteria established above; o potential acid mine drainage; o the effectiveness of the groundwater management system; o groundwater inflows to the mining operations; o any localised enhanced groundwater inflows associated with faults or other structures; o the effectiveness of the seepage collection and storage system and associated infrastructure in collecting and containing all seepage from the tailings storage facility and all other water storages that receive chemical or salt-laden water; o background changes in groundwater yield/quality against mine-induced changes;	Partial	Partial commitment identified throughout WMP. Minimal detail provided for program to monitor and evaluate post-rehabilitation seepage. A two-year limit on monitoring seems short. A longer program would be more appropriate. Monitoring of groundwater will cover acid mine drainage. More information regarding PAF material can be found in the Waste Rock Management Plan. Section 4.1.5.1 and Section 4.2.5.1 mention recording/metering of groundwater inflows, but no specific monitoring and evaluation program is provided. The method and frequency of monitoring are unclear. Trigger levels that would result in investigation is not clear. (as discussed in previous dot point). Terminology in Section 7.1.1.1 is vague and non-committal. "A	Include commitment and details regarding a longer post-rehab monitoring and evaluation program. Provide more detail regarding recording/metering of groundwater inflows. Include method, frequency, and the personnel responsible. Modify language/terminology to be more committal. In Section 7.1.1.1, change "is recommended to be" to "will be".	Refer to the Rehabilitation Management Plan Daily transfers of water into and out of the underground workings are metered by the mine using flow meters. This is maintained by a delegate of the Environmental Superintendent. Language has been updated to "Will be" where relevant

Condition	Sufficient (Yes/No/Partial)	Document reference and comment	Action required	Response
o any post-rehabilitation seepage from the tailings storage facility o impacts of the development on: – local and regional aquifers; – waterbodies; – groundwater supply of potentially affected landowners;		stage 2 trigger… is recommended to be a rise in groundwater…". This phrase does not provide the commitment to a plan. Section 12 commits to reviewing and revising the WMP as necessary according to Condition C6. I consider this sufficient for evaluating effectiveness of groundwater management system.		
• reporting procedures for the results of the monitoring program; and	No	Commitment not identified in the WMP. Reporting procedure is not clear. Section 8.2 Step 4 mentions a "water monitoring report" but nowhere in the WMP is this report mentioned. It is unclear what this report covers as well as who reviews it and decides if actions are required.	Include details regarding the reporting procedures for results of the monitoring program.	The "water monitoring report" referred to in Section 8.2 was erroneous. Hera Resources will undertake review of all monitoring results as outlined in Section 9.1 as part of the Annual Review..
• a plan to respond to any exceedances of the performance measures or performance criteria, and mitigate any adverse groundwater impacts of the development, including contingency strategies for addressing: o seepage/leachate of pollutants from underground voids, water storages, emplacements, infrastructure and processing areas, and surface extraction area; o any localised enhanced groundwater inflows associated with faults or other structures; and	Partial	Partial commitment identified in TARPs in Section 7.3 of the WMP. Section 7.2 and Section 7.3 does not outline a plan to mitigate/provide contingency for adverse groundwater impacts of seepage/leacher of pollutants into groundwater. The responses in the TARPs are primarily commitments to investigate and report instead of mitigating the effects of the trigger. Section 4.1.5.1 and Section 4.2.5.1 mention recording/metering of groundwater inflows, but no trigger levels are required, and no response plan is clearly outlined.	Modify TARPs in Section 7.3 to provide specific mitigation measures for the triggering event. Include TARPs associated with enhanced groundwater inflows. Include trigger levels and appropriate mitigation responses.	Details for mitigating potential seepage or leachate into groundwater are addressed in the TARP in Table 31. A TARP for enhanced groundwater inflows has been incorporated into Table 30.

Condition	Sufficient (Yes/No/Partial)	Document reference and comment	Action required	Response
		TARPs associated with "faults or other structures" provides responses associated with the faults, but do not response to the enhanced groundwater flows which is what this condition requires.		
(v) a program to validate the water balance and groundwater model for the development every 3 years, and compare monitoring results against modelled predictions.	Partial	Partial commitment identified in Section 9.2.1 of the WMP. Lack of detail provided regarding the validation program. The WMP does not indicate what level of variance is "significant". Section 9.2.1 states a recalibration process "may be required". This is vague and non-committal. Section 9.2.1 states water balance prediction will be compared to "calculated" groundwater make The prediction should be measured to groundwater take that is measured, not calculated. Actual volumes are required for comparison.	Provide more detail regarding the program for validating the water balance including, but not limited to defining what constitutes "significant variances". Modify language/terminology to be more committal. Change "may be required to be undertaken" to "will be undertaken". Commit to using measured groundwater take when comparing to predictions. Provide clarity regarding the sources of values for the water balance. I.e., which values are actual measurements, which are estimations, etc.	These requirements have been updated within section 9.2.2.
Water, Schedule 2, Condition B44 The Applicant must not commence construction until the Water Management Plan is approved by the Planning Secretary.	No	Commitment not identified in the WMP. Table 2 of the WMP indicates that this condition is addressed in Section 10, which it is not.	Include commitment to "not commence construction until the Water Management Plan is approved by the Planning Secretary". Provide correct reference in Table 2 "Where Addressed" column.	Now addressed in Section 1.1.
Water, Schedule 2, Condition B45 The Applicant must implement the Water Management Plan as approved by the Planning Secretary.	No	Commitment not identified in the WMP. Table 2 of the WMP indicates that this condition is addressed in Section 10, which it is not.	Include commitment to "implement the Water Management Plan as approved by the Planning Secretary".	Now addressed in Section 1.1.

Condition	Sufficient (Yes/No/Partial)	Document reference and comment	Action required	Response
			Provide correct reference in Table 2 "Where Addressed" column.	
WATER, Schedule 2, Condition B46 Only consolidated paste fill material may be used as tailings material to backfill stopes.	No	Commitment not identified in the WMP. Table 1 states that the "preferred backfill method at Federation Mine is cemented paste fill using tailings". The phrasing here suggests there is flexibility in stope backfill method. Hera Mine is not mentioned.	Provide clarity and commitment that "only consolidated paste fill material may be used as tailings material to backfill stopes" in both Hera Mine and Federation Mine.	This phrasing has been updated in Table 2
WATER, Schedule 2, Condition B47 The Applicant must ensure material used to backfill stopes is physically and chemically stable.	No	Commitment not identified in the WMP. Note: This can be addressed in other management plan such as EMS or WRMP or Rehabilitation Strategy.	Include commitment to "ensure material used to backfill stopes is physically and chemically stable". This commitment does not specifically need to be addressed in the WMP and can be addressed in the EMS or WRMP	This has been included in Section 6.4
WATER, Schedule 2, Condition B48 The Applicant must commission a suitably qualified and experienced person to:	No	Commitment not identified in the WMP.	Include commitment to "commission a suitably qualified and experienced person" for the items described in part (a), (b), and (c) of this condition.	This has been included in Section 6.4
(a) carry out trials to clarify the physical and leaching characteristics of the paste fill and set technical specifications for the production of the consolidated paste fill material to meet the performance measures in Condition B47;	No	Commitment not identified in the WMP.	Include commitment to carry out trials to clarify paste fill characteristics and set specifications as described in this condition.	This has been included in Section 6.4
(b) prepare a program for the ongoing testing of the consolidated paste fill material to ensure it meets these technical specifications; and	No	Commitment not identified in the WMP.	Include commitment prepare ongoing testing program of paste fill material.	As described in the outcomes of the report to be prepared as discussed in Section 6.4
(c) prepare a report on the findings of the trial and proposed	No	Commitment not identified in the WMP.	Include commitment to prepare a report on the trial findings and	This has been included in Section 6.4

Condition	Sufficient (Yes/No/Partial)	Document reference and comment	Action required	Response
implementation of the testing program, to the Secretary's satisfaction prior to backfilling stopes with consolidated paste fill material.			testing program implementation "to the Secretary's satisfaction prior to backfilling stopes with consolidated paste fill material"	
WATER, Schedule 2, Condition B49 The Applicant must implement the approved program in Condition B48(b).	No	Commitment not identified in the WMP.	Include commitment to "implement the approved program in Condition B48(b)".	This has been included in Section 6.4
SUBSIDENCE, Schedule 2, Condition B50 The Applicant must ensure that all stopes and associated backfilling maintains long term stope stability and that the development results in negligible subsidence impacts or environmental consequences.	No	Commitment not identified in the WMP.	Include commitment to "ensure that all stopes and associated backfilling maintains long term stope stability and that the development results in negligible subsidence impacts or environmental consequences" such as erosion and mobilisation of sediment.	A report to document the findings of the trial and proposed implementation of the testing program will be developed to the satisfaction of the Secretary, prior to any backfilling of stopes with consolidated paste fill materials. The report and ongoing monitoring program will determine whether consolidated material will maintain long term stope stability and will not affect the predictions in the EIS that subsidence will be negligible, in accordance with Condition B50.
Management Plan Requirements, Schedule 3, Condition C5 Management plans required under this consent must be prepared in accordance with relevant guidelines, and include where relevant:	Partial	Limited information on the specific conditions and compliance with all sub conditions.	Ensure that all of the sub conditions of this requirement are addressed.	-
(a) summary of relevant background or baseline data;	Yes	Background information briefly described in Section 3.	-	-
(b) details of:				

Condition	Sufficient (Yes/No/Partial)	Document reference and comment	Action required	Response
(i) the relevant statutory requirements (including any relevant approval, licence or lease conditions);	Partial	Addressed in Section 2.	Include information in Section 2.3 on how these policies are relevant and have been addressed. If not relevant say that it isn't and why.	This has been updated within the relevant sections, with reference to relevant section
(ii) any relevant limits or performance measures and criteria; and	Partial	Section 4, 5 and 6 partially addresses management measures, water balance and monitoring.	Provide more detail on performance measure as outlined above	Table 29 indicates the required performance measures specified by the Consent and how these are met through various sections of the report.
(iii) the specific performance indicators that are proposed to be used to judge the performance of, or guide the implementation of, the development or any management measures;	As above	As above	As above	Performance indicators for the site include operation of the site within the trigger values set out in Section 7.1.
(c) any relevant commitments or recommendations identified in the document/s listed in condition A2(c);	As above	As above	As above	The commitments within the surface water and groundwater impacts assessments and the EIS have been committed to within this plan. An example of this is inclusion of a discharge point on the Stormwater Retention Pond, as recommended by the SWIA (GHD 2021b).
(d) a description of the measures to be implemented to comply with the relevant statutory requirements, limits, or performance measures and criteria;	As above	As above	As above	The water management measures described in Section 4.1 and Section 4.2 describe how the site will be operated to comply with the relevant performance criteria. The water monitoring program and contingency plans provide the framework to respond to any unexpected incidents that may arise in contravention of these performance measures.
(e) a program to monitor and report on the:	As above	As above	As above	

Condition	Sufficient (Yes/No/Partial)	Document reference and comment	Action required	Response
(i) impacts and environmental performance of the development; and	As above	As above	As above	
(ii) effectiveness of the management measures set out pursuant to paragraph (d);	As above	As above	As above	
(f) a contingency plan to manage any unpredicted impacts and their consequences and to ensure that ongoing impacts reduce to levels below relevant impact assessment criteria as quickly as possible;	Yes	Section 7 provides a brief description of situations were unpredicted impacts are identified and their management.	-	-
(g) a program to investigate and implement ways to improve the environmental performance of the development over time;	As above	As above	-	-
(h) a protocol for managing and reporting any:	Partial	See comments across all plans and need for consistency with EMS etc		-
(i) incident, non-compliance or exceedance of any impact assessment criterion or performance measure;	As above	As above		This section has been made consistent with EMS
(ii) complaint; or	As above	As above		This section has been made consistent with EMS
(iii) failure to comply with other statutory requirements;	As above	As above		This section has been made consistent with EMS
(i) public sources of information and data to assist stakeholders in understanding environmental impacts of the development; and	As above	As above		This section has been added (Section 10) and is consistent with EMS
(j) a protocol for periodic review of the plan.	Yes	Addressed in Section 12	-	-
Note: The Planning Secretary may waive some of these requirements if they are unnecessary or unwarranted for particular management plans.	N/A	Not applicable	-	-

Condition	Sufficient (Yes/No/Partial)	Document reference and comment	Action required	Response
	General			
Address comments in PDF.				Comments provided in the PDF have been addressed (refer to Table C.3)
Revision of Strategies, plans and programs, reporting auditing, Schedule 2 Condition C6 to C15			Address comments across all plans and reflect EMS requirements.	EMS requirements have been included in this report
Table 2 does not list all related conditions and some sections are not cross referenced properly E.g. Condition B30(b) is not addressed in Section 4.1.1.4, Condition B44 is not addressed in Section 10.			Update Table 2 to include correct section references.	
Language/terminology across the WMP is vague and non-committal. Stating that an action "must", "may", "could", "would", "should" or "can" be done provides no commitment to an action. The plan needs to states what actions will be taken and commit to them.			Modify language/terminology to be less vague. Use "will" and "shall" instead "must", "may", "could", "would", "should" and "can".	
Consider restructuring the plan as it is confusing in the way information is presented.			Restructure the WMP so that relevant information is collated in one section. If references to other areas of the document are required, ensure they are correct.	This is the preferred structure for Hera Resources. It is consistent across other plans developed for Hera and Federation
The TARPs in Section 7.3 do not adequately outline Reponses/contingencies to mitigate the effects of the relevant triggers. Most outline that investigations and reporting but not the response and action to mitigates the trigger.			Modify responses in TARPs to outlined response and contingencies that mitigate the effects of the triggering event.	The "response" section of the TARP provides mitigation measures for the triggering effect where possible. Where these have not been included, mitigation measures will be implemented depending on the event and best practice at the time of occurrence
Responsibilities – should be allocated to a position rather than the "environment team" for virtually everything			Specify role for actions, procedures, reporting etc	The roles have been allocated per the EMS. The roles have been allocated to Environment Superintendent or suitably qualified delegate to allow flexibility and adaptive management per staff rosters/shifts.

Table C.3: Response to regulators – DPE Water – 15/12/2023

Section	Comment	Response
Table of contents	Appendices C to E are not included. Include in next version or as additional files	These are now included.
Section 2.3	Include information on how these policies are relevant and have been addressed. If not relevant do not include.	A reference to the relevant section and how these policies have been addressed is now included.
Section 2.4	Complete Table 6 and provide Appendix C	Table 6 has been updated. See Appendix C (this Appendix)
Section 4.1	The separation of existing and additional management measures is confusing. Section 4.1.3 talks about LDPs and 4.2.3 talks about the site being a zero discharge site.	Existing management measures refer to those currently in place at Hera Mine. Additional Management measures refer to those required for Federation Mine. Language has been clarified in Section 4.2.3
Section 4.1 Table 8	How is water use monitored. Apart from production bores are any flows metered?	Metered transfers are manually read and include: Extraction from all production bores Back Tank Three Gates Tank Raw Water Tank TSF decant to PWD Gland water Mill Water Domestic water, Underground inflows, Underground outflows Tailings inflows and outflows TSF storage volume TSF sprinklers RO water
Section 4.1 Table 8	Allocates to individual roles (not just team). Some responsibilities should be allocated to operations/mining. Enviro team does not do everything on a mine site. eg interception of groundwater underground	The roles have been allocated to the Environmental Superintendent or suitably qualified delegate. The Environmental Superintendent is ultimately responsible for these actions and Hera Resources would like to retain flexibility in delegation of these roles.
Section 4.1.1 Figure 12	Where are the clean water diversions? They need to be clearly marked	Figure has been updated
Section 4.1.1 Figure 13	Where are the licensed discharge points	These licenced discharge points are technically on the same dam, due to its enlargement. Sediment pond LDP 3 and 4
Section 4.1.1.1	How is clean water managed? Is all diverted around the site or is some used? Is there sufficient water licence available to cover this capture and use?	The site is located within the Western Division. Water within the Western Division may be harvested and used for any purpose under the Harvestable Rights Order (2006) for the Western Division.

		Hera
Section 4.1.1.1 Table 9	Does the site water balance assume this is constructed?	The site water balance assumed the existing volume of 3.2ML.
Section 4.1.1.1	Include commitment and procedure to maintain the clean water diversions as required by this condition.	Reference to Section 6.1.1 has been included, which describes the site inspection frequency requirements.
Section 4.1.4	What monitoring is undertaken in the irrigation area?	No monitoring is undertaken within the irrigation area, considering the low volumes and current beneficial use of the land and groundwater. It would be unlikely that the beneficial use of groundwater would be altered through irrigation.
Section 4.1.6.2	Has federation been considered?	Refer to Additional Water Management Measures Section 4.2
Section 4.2	It would be preferable to have the required water management measures for the entire site together.	Hera Resources would prefer the management measures to be separated per other plans utilised by site personnel.
Section 4.2 Table 16	Consider who really is responsible for these tasks.	Table 16 has been updated to outline additional detail regarding the controls for 'Areas disturbed by mining'
Section 4.2 Table 16	are these flows metered?	Production bore values will be metered. Groundwater inflow volumes will be metered. There is a commitment to meter these in Section 4.2.5.1
Section 4.2.1 Figure 15 Section 4.2.1 Figure 15	Show location of the proposed licensed discharge point Include the LDPs	The LDP has been included on the stormwater retention pond
Section 4.2.1 Figure 16	Is this the proposed licensed discharge point?	Yes, this has been amended.
Section 4.2.1 Figure 16	What is the capacity of the RO plant. Where does the brine go from the RO plant?	The existing RO plant at Hera is to be used to provide water potable water to the project. This will be augmented with potable water purchased from Cobar Shire Council as required. Potable water will be transported from Hera or CSC to supply. Brine will continue to be sent to the irrigation area at Hera Mine as previously approved.
Section 4.2.1 Figure 16	Indicate which flows are metered, which dams have level sensors.	All existing dams have manual read flood gauge. Metered flows include: Extraction from all production bores Back Tank Three Gates Tank Raw Water Tank TSF decant to PWD Gland water

		Mill Water Domestic water, Underground inflows, Underground outflows Tailings inflows and outflows TSF storage volume TSF sprinklers RO water
Section 4.2.1.1	Are there clean water diversion drains at Hera. Not shown on the figure.	The figure in question is related to Federation Mine. The Clean water diversions at Federation Mine are included on this Figure.
Section 4.2.1.2	Will this be a licenced discharge point?	Yes, a LDP at the spillway of the Stormwater Retention Pond exists and has been amended in text
Section 4.2.1.4	How has this depth been determined. Is it based on a storm event? What is assumed in the water balance?	This 30 cm freeboard value was adopted as specified in the Federation Decline Exploration WMP. This value is nominal in nature and seeks to prevent discharge via pumping. The water balance assumed a conservative value of 80%.
Section 4.2.3	Section 4.1.3 talks about LDPs and 4.2.3 talks about the site being a zero-discharge site. It is confusing the way that this matter is addressed acrossed sections.	The Federation Site (Section 4.2.3) has been designed as zero discharge, up to the nominated design criteria. However, this does not prevent any discharges in any storm event, only those exceeding the design criteria (1% AEP 72 hour duration storm, which are larger than what is required to design up to). The site water balance predicted this would be rarer than the 1% AEP. However, a discharge point is also included on the Stormwater Retention Pond. The text in section 4.2.3 has been clarified.
Section 4.2.3	Until this modification is approved there will be no discharges offsite permitted.	No discharge from site will occur outside of the EPL. Licenced discharge may occur.
Section 4.2.5.1	Are water meters used to record volumes pumped? How is this information captured?	Groundwater extractions are metered via production bores. The water transfers on site are recorded manually by environmental superintendent or suitable delegate.
Section 4.2.5.1	What does this entail?	Engagement would entail communication written or verbal communication and reporting procedures.
Section 4.2.6	Who is responsible for maintaining pipeline including inspections? How will be insured that it is undertaken. Is leak detection and inspection undertaken on all pipelines that carry contaminated water or slurry?	The Federation pipeline will be inspected weekly by the environmental superintendent or suitable delegate. Pipeline inspection reporting procedures will entail recording on the site INX system. Leak detection will be installed on the Federation pipeline as stated in text. Transfer lines conveying contaminated water will be inspected every fortnight per other site inspections. All pumps and pipelines transferring contaminated water, outside of the contaminated water management catchments are fitted with automatic shutoff mechanism capable of detecting leaks in the pipeline and immediately shut off the pumps.

Section 4.2.7	Include commitment to implement the sub plans (surface and groundwater) and adopt reasonable and feasible measures to minimise and prevent material harm to the environment.	This statement has been incorporated into this section.
Section 5	This section could be better integrated. Has the site water balance model been updated to include Federation? The description is not clear. The site water balance model must be updated and run at least every 12 months.	A description of the implementation of the model has been added, with references to the conceptual figures included and relevant sections of the WMP included. Reference to the relevant sections regarding model runs, review and update have been made.
Section 5.2	How is water use monitored. Apart from production bores are any flows metered?	Transfers are simulated using known pump rates and pump triggers. The modelled transfers were for water storage operation and management rules were derived from information provided by Hera Resources.
Section 5.3	More details are required on the methodology used, assumptions, transfers etc. Would be assisted if a process diagram included with basic rules.	A conceptual overview of the water management transfers occurring on site are shown in Figure 15 and Figure 16 of the WMP. Readers should refer to the publicly available methodology report provided in the Surface Water Impact Assessment (GHD 2021b) for further information regarding the water balance methodology and results as stated in text.
Section 5.3 Table 20	Include the calculation for year 1 of operation for comparison	The water balance showing year 8 of the operation demonstrates the peak water year in terms of groundwater licensing demands. We have provided year 1 for means of comparison, however note this will be superseded once operations commence and will require updating as part of annual water balance updates.
Section 5.3.1	The EPL does not allow for this.	Site infrastructure cannot be sized for extreme or rare rainfall events. New water management infrastructure has been sized for the 1% AEP 72-hour design storm. It is not feasible to design for a larger event than this, given the site water requirements. No discharge from site will occur outside of the EPL. This design criteria (1% AEP 72 hour design storm event) is far more conservative than the typical design requirements per Landcom (2004) and DECC (2008) – Mines and Quarries. The EPL does allow for discharge from EPA Point 48 from the Stormwater Retention Pond.
Section 5.3.2	Is there sufficient/appropriate water licence in place to cover surface water interception and use.	Incidental surface water interception (in managing dirty water or contaminated water) is exempt from surface water licencing per the Water management Regulation (General) 2018, under the WM Act 2000. The interception of clean water has been minimised as far as practicable through the site design. The assessments undertaken for the EIS indicate entitlement held by Hera Resources or Aurelia can be manage the required groundwater take for operations for the life of project. There are no requirements for surface water licensing of farm dams on first or second order streams, as the site is in the Western Division in accordance with the Western Division Harvestable Rights Order (2006).
Section 6.1.1	Quarterly site inspections should be changed to monthly site inspections. 3 months is a long time to miss issues across the site.	Inspections of water infrastructure is carried out fortnightly on site and recorded in the INX system. The Federation to Hera pipeline is to be inspected weekly. These recommendations have been included in text.

		The requirement includes inspection when greater than 20 mm in 24 hours is forecast and following the event.
Section 6.1.2	Quarterly inspections should change to monthly. 3 months is a long time to miss an issue. How are the depths of dams managed? Do they have level sensors? Is the system telemeterised or manually operated valves? Who is responsible for managing pumps?	This inspection requirement is for desilting. It is unlikely that siltation would occur in a shorter period than this. As stated in text, water levels rely on visual inspection from the main Site office, however there are water level gauges installed in dams. The environmental superintendent or suitably qualified delegate is responsible for the operation of pumps. These statements are now included in the text.
Section 6.2	Regular monitoring of the dam with the proposed discharge point will need to undertaken.	Monitoring will be undertaken within the Stormwater retention pond per the frequency specified in the EPL for EPA point 48.
Section 6.3.1 Table 23	Increase to quarterly which is consistent with current plan for Hera.	Frequency will not be increased. EPL20179 specifies yearly monitoring for EPA 7, EPA 27, EPA 28, EPA 29, EPA 30, and EPA 40.
Section 7.1.2.1	Should there be a limit on oil and grease?	A limit has been provided for Oil and Grease based on quality triggers in EPL and to be consistent with recommendations in preceding sentence.
Section 7.3 Table 30	Need to follow all notification and reporting requirements in appendix 6. Applies to all of these TARPS.	The TARPs reference Condition C8 and Condition C9 of SSD 24319456. Conditions C8 and C9 reference Appendix 6 of SSD 24319456. The requirements of Appendix C of SSD24319456 are outlined in Section 8.1.
Section 8	Provide consistent approach across all plans that meet the conditions of consent.	The approach has been made consistent across all plans.
Section 8.2	Commit to providing compensatory water "to the satisfaction of the Planning Secretary". Modify language/terminology to be more committal. Replace "would" with "will".	This phrase has been included in Section 8.2. Language has been updated to "will"
Section 8.3	Include commitment to refer matter to the Planning Secretary for resolution should there be a disagreement between Hera Resources and the landowner regarding water loss attribution or implementation of measures. Include commitment to "provide compensation, to the satisfaction of the Planning Secretary" if Hera Resources is unable to provide an alternative long-term supply of water.	These phrases have been included in Section 8.3
Section 8.3	Include commitment to provide "a temporary water supply, pending the outcome of any groundwater investigation and/or provision of an alternative long-term supply of water" to the satisfaction of the Planning Secretary in the event the Planning Secretary deems a privately-owned licensed groundwater bore may have been impact by the development.	These phrases have been included in Section 8.3
Section 9	Provide consistent approach across all plans that meet the conditions of consent.	The approach has been made consistent across all plans.
Section 9.1	Change language to will so commitment is clear	Language updated from "is required to" to "will"

Section 9.2.2	The site water balance model should be reviewed at least every 3 years and revised if required. This should be linked to the review of the groundwater model. The site water model should be run at least every 12 months (minimum) to show that the site has sufficient water licence to cover use.	These phrases have been integrated into Section 9.2.2. The link to review of the hydrogeological model is already included in Section 9.2.2.
Section 9.3	Ensure reporting requirements are consistent across all plans especially EMS. Specific requirements in Appendix 6	Incident and complaint reporting requirements have been provided in Section 8.1, including reference to Appendix 6 of SSD 24319456.
Section 10	Who is responsible for managing surface dams, pumping records, operation of the systems that prevent uncontrolled discharges etc.	The responsible person is the environmental superintendent or suitably qualified delegate.
Section 10 Table 36	Specify role	The role is the environmental superintendent or suitably qualified delegate.
Section 11	Specify responsible person.	The role is the environmental superintendent or suitably qualified delegate.

Department of Planning, Housing and Infrastructure

Our ref: SSD-24319456-PA-33

Mark Williams
Environmental Superintendent
Hera Resources Pty Limited
Address 353 Burthong Road
Nymagee, NSW, 2831

15/04/2025

Subject: Federation Mine – Consultation Request

Dear Mr. Williams

I refer to your submission dated 11 May 2025, requesting the Planning Secretary's agreement that consultation with nominated stakeholders is not required while making minor and administrative changes while revising management plans following approval of Modification 2 of the Development Consent for the Federation Mine (SSD- 24319456).

The Department notes that Modification 2 of the federation Mine project allowed:

- extension of haulage hours and increase of ore haulage up to 600,000 tpa
- Reclamation of tailings storage for paste backfill
- Minor rearrangement of infrastructure, including a new water tank.

The Traffic Management Plan, however, is proposed to be revised in consultation with TfNSW, Cobar Shire Council and Bogan Shire Council and not CPHR.

Accordingly, as nominee of the Planning Secretary and in accordance with Schedule 2 Condition A23, I agree with your request and advise that consultation not be required for the following plans:

- Water Management Plan
- Waste Rock Management Plan
- Air Quality and Green House Gas Management Plan
- Noise Management Plan
- Environmental Management Strategy
- Blast Management Plan
- Hazardous Materials Management Plan
- Biodiversity Management Plan

- Rehabilitation Strategy

Please ensure you make the management plans publicly available on the project website at the earliest convenience.

If you wish to discuss the matter further, please contact Wayne Jones on (02) 6575 3406.

Yours sincerely

Stephen O'Donoghue
Director
Resource Assessments

As nominee of the Planning Secretary