Government of Western Australia
Department of Water and Environmental Regulation

Works Approval

Works approval number	W6894/2024/1
Works approval holder	Andy Well Mining Pty Ltd
ACN	158 108 895
Registered business address	L2, 46 Ventor Avenue West Perth, 6005
DWER file number	DER2024/000001
Duration	04/07/2024 to 03/07/2029
Date of issue	04/07/2024
Premises details	Gnaweeda Project Mining Tenement M51/882 MEEKATHARRA WA 6642 As defined by the Premises map in Figure 1

Prescribed premises category description (Schedule 1, ***Environmental Protection Regulations 1987***)	**Assessed production / design capacity**
Category 6: Mine dewatering: premises on which water is extracted and discharged into the environment to allow mining of ore	1,600,000 tonnes per annual period
Category 64. Class II or III putrescible landfill site: premises on which waste (as determined by reference to the waste type set out in the document entitled "Landfill Waste Classification and Waste Definitions 1996	500 tonnes per annual period

This works approval is granted to the works approval holder, subject to the attached conditions, on 4 July 2024, by:

Jarrod Abrahams
Digitally signed by Jarrod Abrahams
Date: 2024.07.04 14:17:01 +08'00'

SENIOR MANAGER, RESOURCE INDUSTRIES
INDUSTRY REGULATION (STATE-WIDE DELIVERY)
Officer delegated under section 20
of the Environmental Protection Act 1986

Works approval history

Date	Reference number	Summary of changes
04/07/2024	W6894/2024/1	Works approval granted.

Interpretation

In this works approval:

(a) the words 'including', 'includes' and 'include' in conditions mean "including but not limited to", and similar, as appropriate;

(b) where any word or phrase is given a defined meaning, any other part of speech or other grammatical form of that word or phrase has a corresponding meaning;

(c) where tables are used in a condition, each row in a table constitutes a separate condition;

(d) any reference to an Australian or other standard, guideline, or code of practice in this works approval:

(i) if dated, refers to that particular version; and

(ii) if not dated, refers to the latest version and therefore may be subject to change over time;

(e) unless specified otherwise, any reference to a section of an Act refers to that section of the EP Act; and

(f) unless specified otherwise, all definitions are in accordance with the EP Act.

NOTE: This works approval requires specific conditions to be met but does not provide any implied authorisation for other emissions, discharges, or activities not specified in this works approval.

Works approval conditions

The works approval holder must ensure that the following conditions are complied with:

Construction phase

Infrastructure and equipment

1. The works approval holder must:

(a) construct and/or install the infrastructure and/or equipment;

(b) in accordance with the corresponding design and construction / installation requirements; and

(c) at the corresponding infrastructure location; and

(d) within the corresponding timeframe, as set out in Table 1.

Table 1: Design and construction / installation requirements

	Infrastructure	Design and construction requirements	Infrastructure location

1.	Dewatering Pipeline and associated discharge spurs and spigots	a) <u>Dewatering pipelines</u>
		• Approximately 5.5km of HDPE pipleline between Turnberry and St Annes;
		• Pipelines installed parallel to haul roads to limit ground disturbance (where practical);
		• 110-200mm HDPE pipeline capable of carrying 50L/s flow rate;
		• Pipeline installed as per AS/NZ 4130:2009 Standard PE pipes for pressure applications;
		• Pipeline connections as follows:
		  ○ Pipe to Pipe – butt welded;
		  ○ Pipe to pump/flow meter/clarifier (other) – flange connection; and
		• Flowmeters installed at the point of respective abstraction points.
		b) <u>Spur and spigots (discharge points)</u>
		• Along the length of the pipeline will be a series of spurs at approximately 200m intervals and at each spur will be a series of discharge spigots;
		• Each spur fitted with a flow meter and a regulation valve; and
		• Geofabric matting must be installed at each of the discharge spigots (2mx3m), which will act to absorb the energy of the water as it leaves the spigot, allowing it to flow initially over the geofabric before entering the environment (refer to Schedule 1, Figure 4 and 5).
			Shown in Schedule 1, Figure 1

	Infrastructure	Design and construction requirements	Infrastructure location
2.	Turkey nests (x2)	a) Inflow Dam (dirty water) • Lined with HDPE liner or clay lined to provide a sealed containment dam; • Base of dam to be rolled prior to liner installation to ensure no rocks, sticks or sharp items are present that could potentially impact the integrity of the liner; • HDPE liner edges secured in anchor trenches to secure liner (where a HDPE liner is installed); and • 2 x 200mm transfer pipe arrangement approximately 20m long will be installed on a 1 in 50 gradient to allow efficient transfer of water from the inflow dam to outflow dam. b) Outflow Dam (clean water) • Lined with HDPE liner or clay lined to provide a sealed containment dam; • Base of dam to be rolled prior to liner installation to ensure no rocks, sticks or sharp items are present that could potentially impact the integrity of the liner; and • HDPE liner edges secured in anchor trenches to secure liner (where a HDPE liner is installed). c) Standpipe and pump (for servicing water carts) • Standpipe and pontoon pump to be installed adjacent to the outflow dam to service water carts. d) Lamella clarifiers (silt busters) • Deployed as required to manage the sediment load in dewatering water; • To be installed adjacent to the inflow dam; and • Involve water being drawn (pumped) from the inflow dam through the clarifiers before water is directed[1] to the outflow dam. Note 1: this setup would supersede the need to use the transfer pipe arrangement between both dams as standing water would be at a lower level preventing the transfer of water.	Shown in Schedule 1, Figure 1 and Figure 2
3.	Landfill	• Landfill placed to the east of the operation, upstream of surface flows; • Fences to be erected around perimeter of active landfill trenches; • Base of respective landfill trenches be constructed to achieve a 5m separation distance between underlying groundwater; and • Landfill located behind diversion drain to prevent interactions with sheet flows.	Shown in Schedule 1, Figure 1

	Infrastructure	Design and construction requirements	Infrastructure location
4.	Bioremediation pad (Bio Pad)	• Lined with HDPE liner or clay liner to provide a sealed containment dam with a permeability of ≤ $1x10^{-9}$ m/s; • Base of pad to be rolled prior to liner installation to ensure no rocks, sticks or sharp items are present that could potentially impact the integrity of the liner; • be constructed with a minimum gradient of 2% so that the final floor level has a gradient sufficient to enable surface water and leachate to drain to a suitably lined sump; and • be surrounded by a bund constructed to ensure containment of stormwater and leachate and prevent infiltration of external stormwater.	Shown in Schedule 1, Figure 1

2. The works approval holder must use water carts to manage dust lift-off from active construction areas to protect the environment by preventing and, where that is not possible, minimising dust emissions that may cause pollution or environmental harm.

3. The works approval / licence holder must design, construct, and install groundwater monitoring wells in accordance with the requirements specified in Table 2.

Table 2: Infrastructure requirements – groundwater monitoring wells

Infrastructure	Design, Construction, and Installation requirements	Monitoring Well Location(s)	Timeframe
Network of groundwater monitoring wells at St Annes Pit – SAMB001, SAMB002, and SAPB001	Well design and construction: Designed and constructed in accordance with ASTM D5092/D5092M-16: Standard practice for design and installation of groundwater monitoring bores. Well screens must target the part, or parts, of the aquifer most likely to be affected by contamination[1] .	As depicted in Schedule 1, Figure 6	Must be constructed, developed (purged), and determined to be operational prior to discharge of dewater to the St Annes Pit
	Logging of borehole: Soil samples must be collected and logged during the installation of the monitoring wells. A record of the geology encountered during drilling must be described and classified in accordance with the Australian Standard Geotechnical Site Investigations AS1726. Any observations of staining / odours or other indications of contamination must be included in the bore log		
	Well construction log: Well construction details must be documented within a well construction log to demonstrate compliance with ASTM D5092/D5092M-16. The construction logs shall include elevations		

	of the top of casing position to be used as the reference point for water-level measurements, and the elevations of the ground surface protective installations.		
	Well development: All installed monitoring wells must be developed after drilling to remove fine sand, silt, clay and any drilling mud residues from around the well screen to ensure the hydraulic functioning of the well. A detailed record should be kept of well development activities and included in the well construction log.		
	Installation survey: The vertical (top of casing) and horizontal position of each monitoring well must be surveyed and subsequently mapped by a suitably qualified surveyor.		
	Well network map: A well location map (using aerial image overlay) must be prepared and include the location of all monitoring wells in the monitoring network and their respective identification numbers.		

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

4. The works approval / licence holder must, within 60 calendar days of the monitoring wells being constructed, submit to the CEO a well construction report evidencing compliance with the requirements of condition 3.

Construction compliance reporting

5. The works approval holder must within 30 calendar days of an item of infrastructure or equipment required by condition 1 being constructed and/or installed:

(a) undertake an audit of their compliance with the requirements of condition 1 and 3; and

(b) prepare and submit to the CEO an Environmental Compliance Report on that compliance.

6. The Environmental Compliance Report required by condition 5, must include as a minimum the following:

(a) certification by a suitably qualified person that the items of infrastructure or component(s) thereof, as specified in condition 1, have been constructed in accordance with the relevant requirements specified in condition 1;

(b) as constructed plans and a detailed site plan for each item of infrastructure or component of infrastructure specified in condition 1; and

(c) be signed by a person authorised to represent the works approval holder and contains the printed name and position of that person.

Baseline vegetation and soil condition

7. Prior to the commencement of environmental discharges (dewatering discharge to land), the works approval holder must engage a person qualified in vegetation identification and sampling and undertake a baseline assessment of vegetation health and soil quality as detailed in Table 3.

Table 3: Baseline native vegetation health assessment monitoring

Monitoring point	Monitoring requirements	Timeframe
Discharge points along the pipeline as shown in Schedule 1, Figure 3	a) Ground photographs of respective discharge points; b) Aerial (drone) photography of respective discharge points; and c) Written record of vegetation and soil condition for respective specified discharge points.	Baseline native vegetation health assessment must be completed prior to the commencement of discharges to land.

Time limited operations phase

Commencement and duration

8. The works approval holder may only commence time limited operations for an item of infrastructure identified in condition 1 where the Environmental Compliance Report as required by condition 5 and 6 has been submitted by the works approval holder for that item of infrastructure.

9. The works approval holder may conduct time limited operations for an item of infrastructure specified in condition 12 (as applicable):

(a) for a period not exceeding 180 calendar days from the day the works approval holder meets the requirements of condition 5 and 6 for that item of infrastructure; or

(b) until such time as a licence for that item of infrastructure is granted in accordance with Part V of the *Environmental Protection Act 1986*, if one is granted before the end of the period specified in condition 9(a).

General

10. The works approval holder shall immediately recover, or remove and dispose of, spills of environmentally hazardous materials including fuel, oil, or other hydrocarbons, whether inside or outside an engineered containment system.

11. The works approval holder shall ensure that all material used for the recovery, removal, and/or disposal of environmentally hazardous materials is stored in an impermeable container prior to disposal at an appropriately authorised facility.

Operational requirements for infrastructure and equipment

12. During time limited operations, the works approval holder must ensure that the premises infrastructure and equipment listed in Table 4 and located at the corresponding infrastructure location is maintained and operated in accordance with the corresponding operational requirement set out in Table 4.

Table 4: Infrastructure and equipment requirements during time limited operations

Item	Site infrastructure and equipment	Operational requirements	Infrastructure location
1.	Dewatering Pipeline	• Visual inspection of pipeline integrity (check for leaks /operational performance); daily (every 24hrs) for the first month, then weekly thereafter; • If a leak is identified, pumping is to cease immediately, isolate the area of concern, and repairs made prior to pumping recommencing; and • A written log must be maintained for each inspection, including details of management actions implemented (where required), with the record of each inspection signed by the responsible person.	Shown in Schedule 1, Figure 1
2.	In-pit sumps	• Pumps mobilised as required for in-pit dewatering purposes	Not specified
3.	Turkey's Nests (x2)	• Freeboard maintained at minimum level of greater than or equal to 300mm in each dam; • Turbidity of water tested prior to discharge to ensure sediment load is acceptable; daily (every 24hrs) for the first month, then weekly thereafter; • If sediment load is unacceptable then further controls are required to be implemented which include, but are not limited to, diverting water via lamella clarifiers to further reduce sediment loads in the discharge water stream; and • A written monitoring log must be maintained for turbidity monitoring, including details of management actions implemented (where required), with the record of each inspection signed by the responsible person.	Shown in Schedule 1, Figure 1 and Figure 2
4.	Discharge points along the pipeline (spurs and spigots)	• Visual inspection of respective discharge points to assess ponding, erosion, sediment loading and vegetation health; daily (every 24hrs) for the first month, then weekly thereafter; • If discharge is found to be causing ponding, local erosion or increased sediment load then remedial action is to be undertaken to mitigate impacts to the environment; and • A written log must be maintained for each inspection, including details of management	Shown in Schedule 1, Figure 3

Item	Site infrastructure and equipment	Operational requirements	Infrastructure location
		actions implemented (where required), with the record of each inspection signed by the responsible person.	
5.	Discharge point at St Annes Pit	• Freeboard maintained at a minimum level of 6m in each pit used to store dewatering discharge; • Weekly inspections of freeboard levels; and • A written log must be maintained for each inspection, with the record of each inspection signed by the responsible person.	Shown in Schedule 1, Figure 1

6.	Landfill	• Disposal of waste by landfilling must only take place within the landfill areas shown in Figure 1;
		• No more than 500 tonnes per annual period of the following waste types shall be landfilled:
		  • Inert Waste Type 1;
		  • Inert Waste Type 2 (limited to plastics); and
		  • Putrescible waste;
		• Must ensure that the tipping area of the site is not greater than 20m in length and 3 m in vertical height;
		• Landfill to be covered weekly with inert waste type 1 materials or clean fill (minimum 150mm cover layer); and
		• Windblown wastes must be collected and returned to the landfill weekly.
			Shown in Schedule 1, Figure 1

7.	Bioremediation pad (Bio Pad)	• Maintain liner and surrounding bund to prevent discharges to land from bio-remediation activities.	Shown in Schedule 1, Figure 1
8.	Water Cart	• Water carts must always be available at the premises to manage dust emissions from operational areas.	Within the Prescribed Premises boundary depicted in Schedule 1, Figure 1

13. During time limited operations, the works approval holder must ensure that the emission(s) specified in Table 5, are discharged only from the corresponding discharge point(s) and only at the corresponding discharge point location(s).

Table 5: Authorised discharge points

No.	Emission	Discharge point	Discharge point location
1.	Dewatering Discharge	Discharge Spigots along Dewatering Pipeline	Discharge points as shown in Schedule 1, Figures 3
		St Annes Mining Pit	Shown in Schedule 1, Figure 1

Water monitoring during time limited operations

14. The works approval holder must monitor emissions and environmental water quality during time limited operations in accordance with Table 6.

Table 6: Emissions and discharge monitoring during time limited operations

Monitoring location	Parameter[1]	Units	Frequency	Sampling and Analysis Method
1) Raw dewatering water, prior to entering Turkeys Nest (Inflow Dam) 2) Turkeys Nest – Outflow Dam (dewatering water sent for discharge to land, in-pit storage, or reuse for dust suppression) Shown in Schedule 1, Figure 1	Volumetric flow rate	m^3/s	Continuous	Flow meter
	pH[2]	pH units	Daily (every 24hrs) for the first month, then weekly thereafter	AS/NZS 5667.1 Tested by a laboratory with current NATA accreditation
	Electrical conductivity[2]	µS/cm		
	Turbidity[2]	NTU		
	Total Suspended Solids (TSS)	mg/L	Monthly	
	Total Dissolved Solids (TDS)			
	Major ions - Calcium, Magnesium, Sodium, Potassium, Chloride, Sulfate, Bicarbonate			
	Heavy metals - Arsenic, Aluminum, Beryllium, Boron, Cadmium, Cobalt, Chromium, Copper, Iron, Lead, Manganese, Mercury, Nickel, Selenium and Zinc			
3) St Annes Pit (water stored in the pit) Shown in Schedule 1, Figure 1 4) St Annes Pit Bores (monitoring bores installed in accordance with	Standing water levels (groundwater bores only)	mBGL	Baseline (at least once event prior to discharges occurring) Quarterly (during dewatering discharges and for 2 quarters post discharges ceasing)	AS/NZS 5667.1 AS/NZS 5667.11 Tested by a laboratory with current NATA accreditation
	pH[2]	pH units		
	Electrical conductivity[2]	µS/cm		
	Total Suspended Solids (TSS)	mg/L		
	Total dissolved solids (TDS)			
	Major ions - Calcium, Magnesium, Sodium,			

Monitoring location	Parameter[1]	Units	Frequency	Sampling and Analysis Method
Conditions 3 and 4) Shown in Schedule 1, Figure 6	Potassium, Chloride, Sulfate, Bicarbonate			
	Heavy metals - Arsenic, Aluminium, Beryllium, Boron, Cadmium, Cobalt, Chromium, Copper, Iron, Lead, Manganese, Mercury, Nickel, Selenium and Zinc			

Note [1]: Level of detection is required to be sufficient to enable a comparison with ANZECC & ARMCANZ (2000) Australian and New Zealand Guidelines and the Australian and New Zealand Guidelines (ANZG 2023) for Long Term Irrigation Values and Livestock Drinking Water Guidelines

Note [2]: In-field non-NATA accredited analysis permitted

Native vegetation health monitoring

15. Following the commencement of time limited operations, the works approval holder must engage a person qualified in vegetation identification and sampling and undertake an assessment of native vegetation health as detailed in Table 7.

Table 7: Native Vegetation Health Assessment monitoring

Monitoring point	Monitoring requirements	Frequency
Discharge points along the pipeline as shown in Schedule 1, Figure 3	• Ground photographs of respective discharge points; • Aerial (drone) photography of respective discharge points; and • Written record of vegetation and soil condition for respective specified discharge points.	Monthly for the first 3 months then quarterly thereafter

Compliance reporting

16. The works approval holder must submit to the CEO a report on the time limited operations within 30 calendar days of the completion date of time limited operations or 90 calendar days before the expiration date of the works approval, whichever is the sooner.

17. The works approval holder must ensure the report required by condition 16 includes the following:

(a) a summary of the time limited operations, including timeframes and amount of material mined and total dewatering volumes from respective mining areas;

(b) a tabulated and graphical summary of monitoring results obtained during time limited operations under conditions 12, 14 and 15;

(c) a comparison of the environmental monitoring data obtained during the baseline monitoring requirements (condition 7 and 14) against the results obtained during the operational monitoring period (condition 14 and 15);

(d) a summary of the environmental performance of all infrastructure as constructed or installed (as applicable), which includes records detailing the:

(i) Dewatering pipeline;

(ii) Turkey Nests;

(iii) Discharge spurs ad spigots;

(iv) Groundwater monitoring bores; and

(v) Landfill.

(e) a review of performance and compliance against the conditions of the works approval and the Environmental Commissioning Report; and

(f) where conditions have not been met, measures proposed to address compliance, together with timeframes for implementing the proposed measures.

Records and reporting (general)

18. The works approval holder must record the following information in relation to complaints received by the works approval holder (whether received directly from a complainant or forwarded to them by the Department or another party) about any alleged emissions from the premises:

(a) the name and contact details of the complainant, (if provided);

(b) the time and date of the complaint;

(c) the complete details of the complaint and any other concerns or other issues raised; and

(d) the complete details and dates of any action taken by the works approval holder to investigate or respond to any complaint.

19. The works approval holder must maintain accurate and auditable books including the following records, information, reports, and data required by this works approval:

(a) the works conducted in accordance with condition 1;

(b) any maintenance of infrastructure that is performed in the course of complying with condition 1 and 12;

(c) monitoring programmes undertaken in accordance with conditions 12, 14 and 15; and

(d) complaints received under condition 18.

20. The books specified under condition 19 must:

(a) be legible;

(b) if amended, be amended in such a way that the original version(s) and any subsequent amendments remain legible and are capable of retrieval;

(c) be retained by the works approval holder for the duration of the works approval; and

(d) be available to be produced to an inspector or the CEO as required.

Definitions

In this works approval, the terms in Table 8 have the meanings defined.

Table 8: Definitions

Term	Definition
annual period	a 12 month period commencing from 1 July until 30 June of the immediately following year.
Assessment of Site Contamination NEPM	means the National Environment Protection (Assessment of Site Contamination) Measure 1999, as amended from time to time.
ASTM D5092/D5092M-16	means the ASTM international standard for Standard practice for design and installation of groundwater monitoring wells (Designation: ASTM D5092/D5092M-16), as amended from time to time.
AS1726	means the Australian Standard AS1762 Geotechnical site investigations, as amended from time to time.
AS/NZ 4130:2009	means the Australian/New Zealand Standard - Polyethylene (PE) pipes for pressure applications (AS/NZ 4130:2009).
books	has the same meaning given to that term under the EP Act.
CEO	means Chief Executive Officer. CEO for the purposes of notification means: Director General Department administering the *Environmental Protection Act 1986* Locked Bag 10 Joondalup DC WA 6919 info@dwer.wa.gov.au
Department	means the department established under section 35 of the *Public Sector Management Act 1994* and designated as responsible for the administration of Part V Division 3 of the EP Act.
discharge	has the same meaning given to that term under the EP Act.
emission	has the same meaning given to that term under the EP Act.
environmental commissioning	means the sequence of activities to be undertaken to test equipment integrity and operation, or to determine the environmental performance, of equipment and infrastructure to establish or test a steady state operation and confirm design specifications.
Environmental Compliance Report	means a report to satisfy the CEO that the conditioned infrastructure and/or equipment has been constructed and/or

Term	Definition
	installed in accordance with the works approval.
Environmentally hazardous materials	Means hazardous materials (solids, liquids or sludges) such as, but not limited to, animal waste, sewage, chemicals, hydrocarbons, oils, grease, heavy metals, discarded domestic products like paint and cleaning fluids or substances generated as byproducts during commercial/ industrial manufacturing and/or mining processes.
EP Act	*Environmental Protection Act 1986* (WA).
EP Regulations	*Environmental Protection Regulations 1987* (WA).
Inert waste type 1	has the meaning as defined in the Landfill Definitions.
Inert waste type 2	has the meaning as defined in the Landfill Definitions.
Landfill Definitions	Means the document titled *Landfill Waste Classification and Waste Definitions 1996.*
mBGL	means metres below ground level.
monthly	Monthly monitoring carried-out at least 15 days apart and within respective calendar year months.
premises	the premises to which this licence applies, as specified at the front of this licence and as shown on the premises map (Figure 1) in Schedule 1 to this works approval.
prescribed premises	has the same meaning given to that term under the EP Act.
putrescible waste	has the meaning as defined in the Landfill Definitions.
quarterly	quarterly monitoring carried-out at least 45 days apart and within respective quarterly periods of an annual calendar year period.
suitably qualified person	means a person who: • holds a relevant tertiary academic qualification in Mine Engineering and/or Civil Engineering; and has a minimum of five years of experience working in the relevant area/field of expertise.
time limited operations	refers to the operation of the infrastructure and equipment identified under this works approval that is authorised for that purpose, subject to the relevant conditions.
waste	has the same meaning given to that term under the EP Act.
works approval	refers to this document, which evidences the grant of the works approval by the CEO under section 54 of the EP Act, subject to the conditions.

Term	Definition
works approval holder	refers to the occupier of the premises being the person to whom this works approval has been granted, as specified at the front of this works approval.

END OF CONDITIONS

Schedule 1: Maps

Premises maps

The boundary of the prescribed premises is shown in the map below (Figure 1).

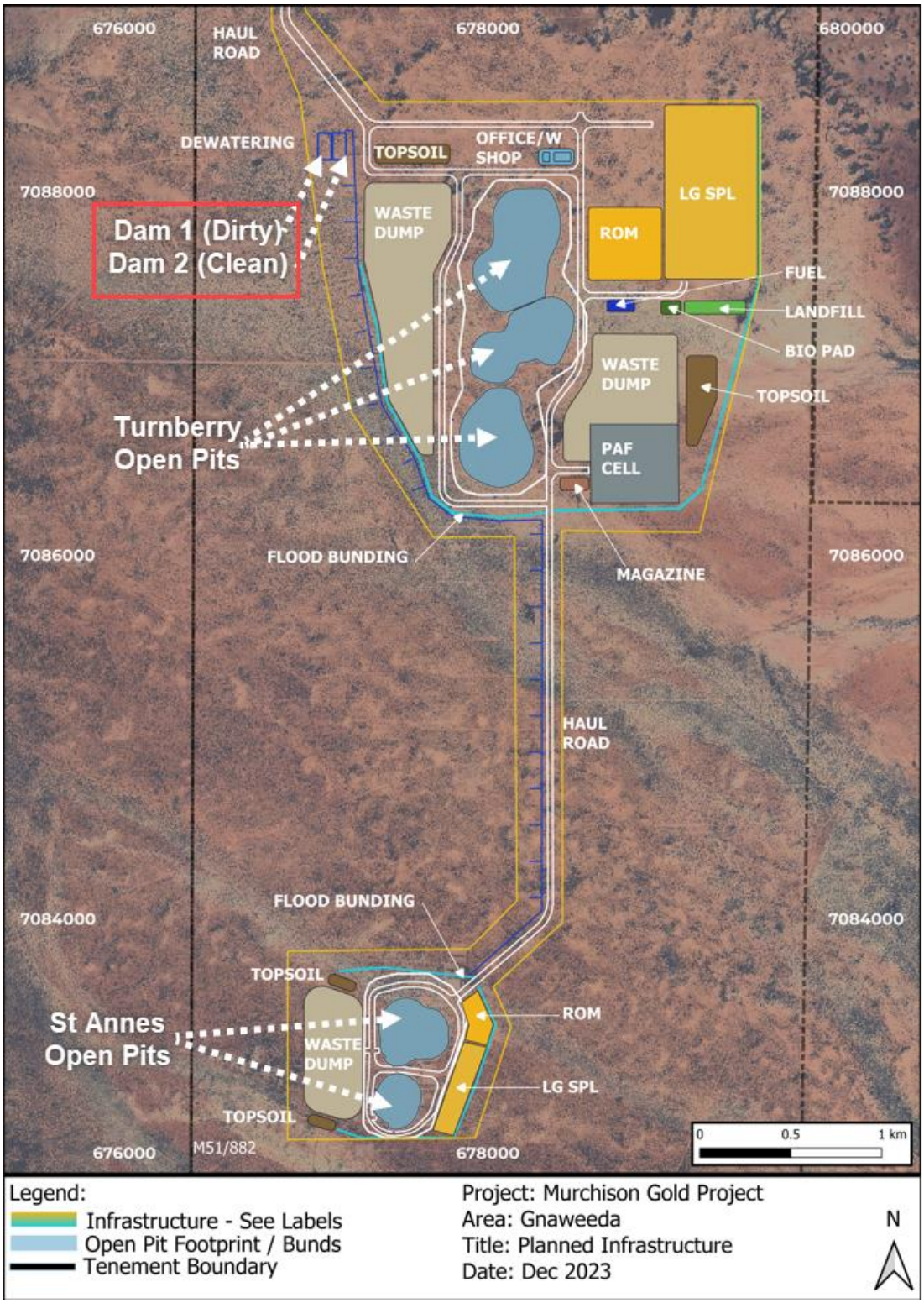

Figure 1: Map of the boundary of the prescribed premises

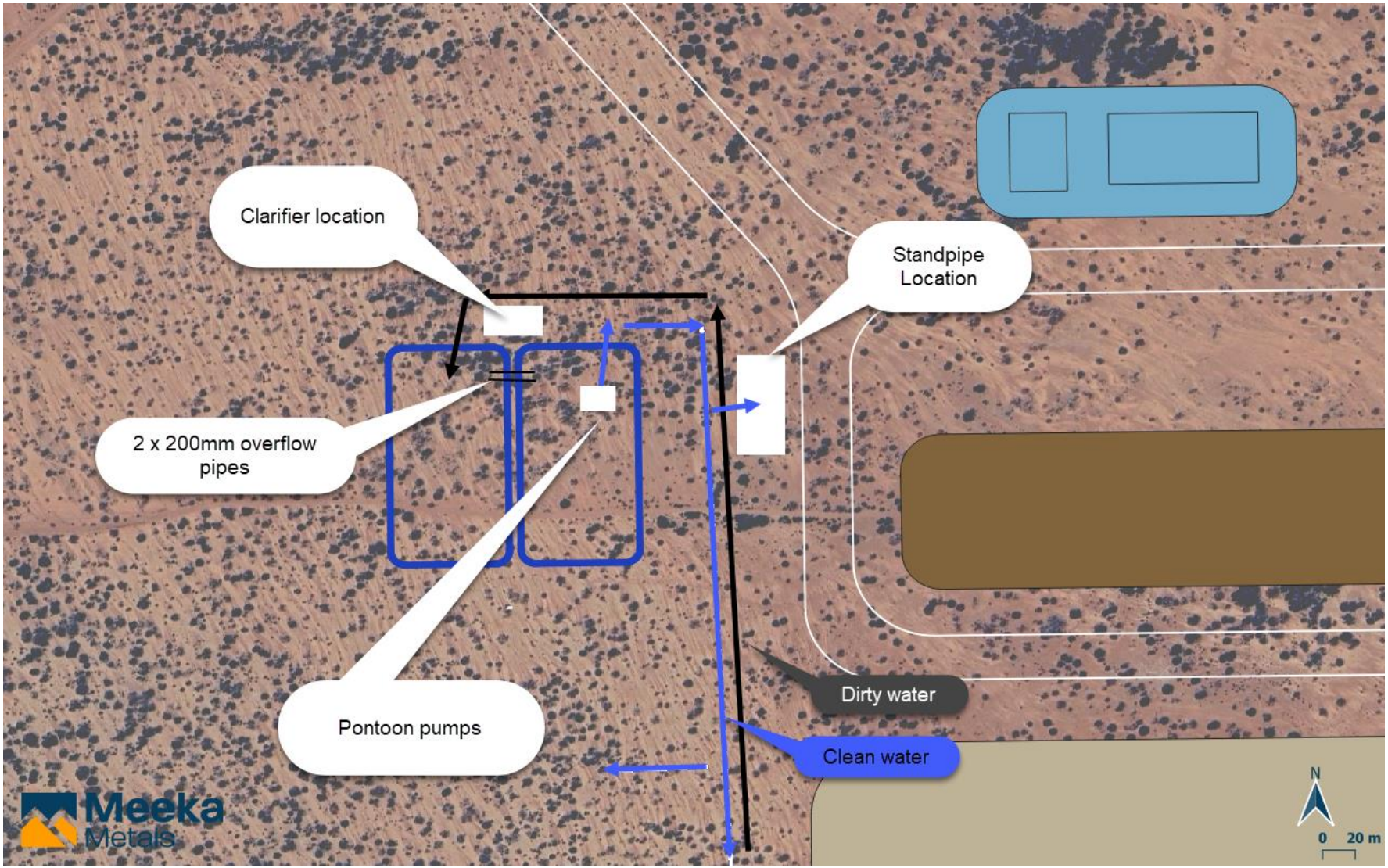

Figure 2: Turkeys nest inflow and outflow dam layout

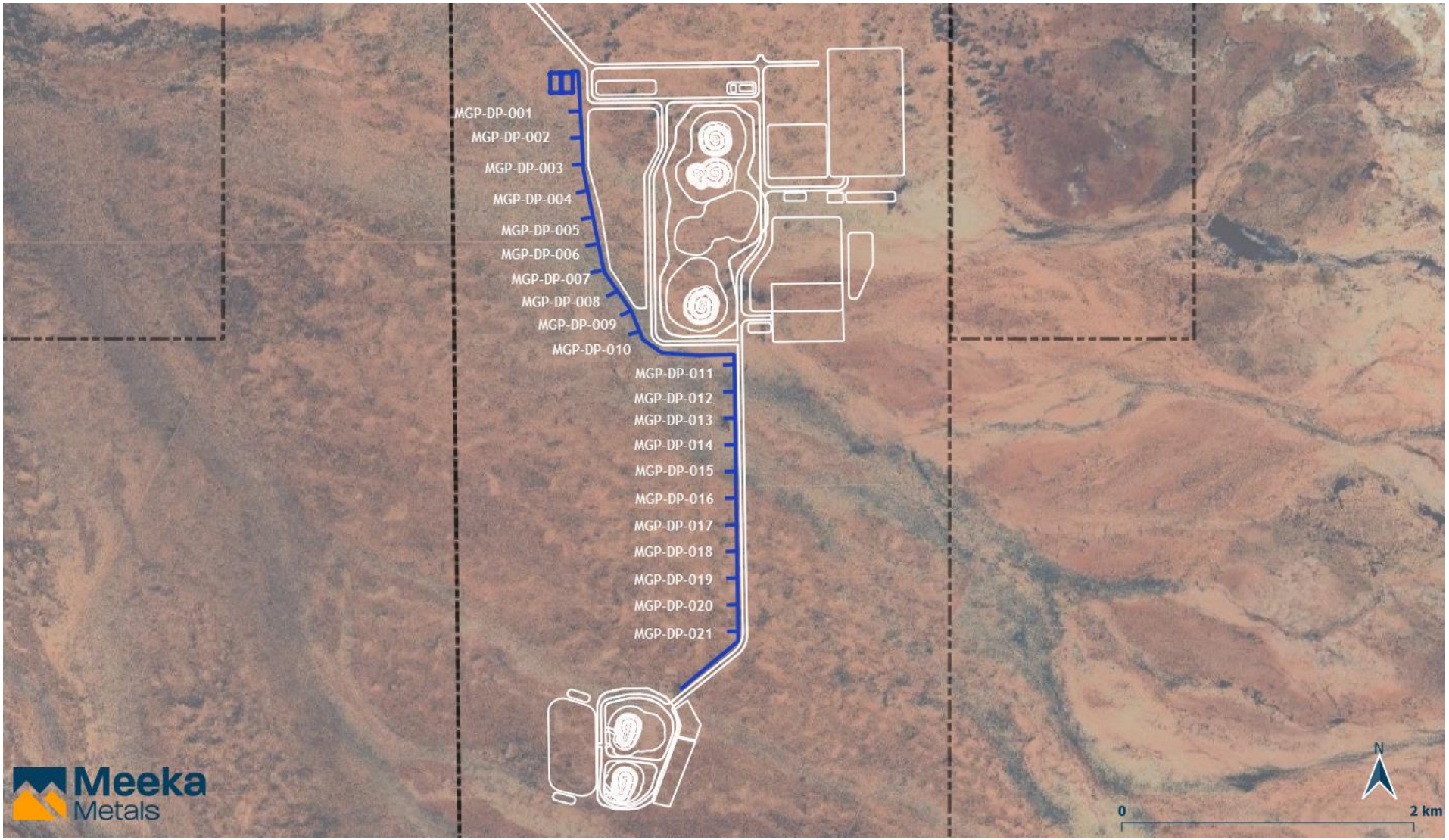

Figure 3: Location of discharge points along the dewatering pipeline

Geofabric for erosion management

Figure 4: Geofabric installation details

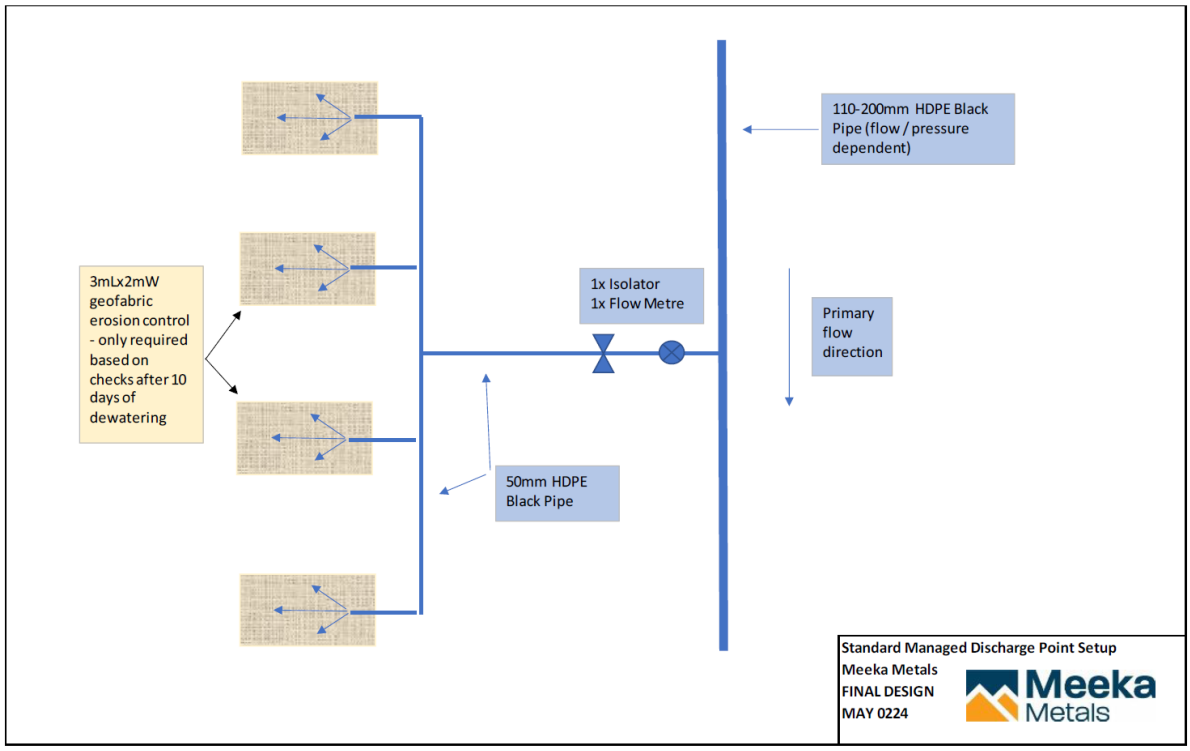

Figure 5: Geofabric layout at spur and spigot locations

St Anne Pit monitoring bore locations

Figure 6: Bore locations at St Annes pit (SAMB001, SAMB002 and SAPB001 – to be installed in accordance with conditions 3 and 4)