Government of Western Australia
Department of Water and Environmental Regulation

Works Approval

Works approval number	W6930/2024/1
Works approval holder	South West Irrigation Management Co-Operative Limited
ABN	54 498 176 490
Registered business address	1 Turnbull Street, HARVEY WA 6220
DWER file number	DER2023/000758
Duration	27/11/2024 to 26/11/2029
Date of issue	27/11/2024
Premises details	Harvey Dam Legal description - Lot 622 on Deposited Plan 31967. Certificate of Title Volume 2532 Folio 383 Lot 637 on Deposited Plan 31967. Certificate of Title Volume 2532 Folio 390 Lot 3004 on Deposited Plan 38418. Certificate of Title Volume 2639 Folio 252 Lot 642 on Deposited Plan 44762. Certificate of Title Volume 2596 Folio 12

Prescribed premises category description (Schedule 1, *Environmental Protection Regulations 1987*)	**Assessed production capacity**
Category 61: Liquid waste facility: premises on which liquid waste produced on other premises (other than sewerage waste) is stored, reprocessed, treated or irrigated.	365 000 tonnes per annual period

This works approval is granted to the works approval holder, subject to the attached conditions, on 27 November 2024, by:

Abbie Crawford

Digitally signed by Abbie Crawford
Date: 2024.11.27 14:00:12 +08'00'

Abbie Crawford
MANAGER, WASTE INDUSTRIES
an officer delegated under section 20 of the *Environmental Protection Act 1986* (WA)

Works approval history

Date	Reference number	Summary of changes
27/11/2024	W6930/2024/1	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 / installation requirements	Infrastructure location
1.	Pipeline	Constructed in accordance with the design drawing as depicted in Schedule 1, Figure 2, Figure 3, Figure 4 and Figure 5 Must be constructed with minimum DN180 PE PN10 pipe. Must include a gate valve for the controlled release of air during construction. Must be fitted with a breather pipe. Must be fitted with an isolation valve capable of preventing discharge to the dam (if required). Pipeline and associated infrastructure to be free of leaks and defects. All pipework conveying treated wastewater must be clearly identified by colour in accordance with AS 2700: 2011 Colour standards general purposes (P12) and AS 3500: Plumbing and drainage-water services. All electrical components and installation for and incidental to the wastewater system, shall be in accordance with AS/NZS 3000 – Wiring Rules. All plumbing work must be carried out in accordance with the *Plumbers Licensing and Plumbing Standards Regulations 2000* (Plumbing Regulations) and meets the plumbing standards as defined in the Plumbing Regulations.	As depicted in Schedule 1, Figure 2

	Infrastructure	Design and construction / installation requirements	Infrastructure location
2.	Diffuser	Constructed in accordance with the design drawing as depicted in Schedule 1, Figure 2, Figure 3, Figure 4 and Figure 5. Must be installed to ensure the diffuser is between 45 and 55 degrees from horizontal. Must be installed a minimum of 1 metre below the typical baseline water level. Must be designed and installed to ensure adequate mixing is undertaken.	As depicted in Schedule 1, Figure 2

Compliance reporting

2. The works approval holder must within 60 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

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

3. The Environmental Compliance Report required by condition 2, must include as a minimum the following:

(a) certification by a suitably qualified, professional engineer 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.

Time limited operations phase

Commencement and duration

4. The works approval holder may only commence time limited operations for an item of infrastructure identified in condition 7, Table 2 where the Environmental Compliance Report as required by condition 2 has been submitted by the works approval holder for that item of infrastructure.

5. The works approval holder may conduct time limited operations for an item of infrastructure specified in condition 7, Table 2 (as applicable):

(a) for a period not exceeding 180 calendar days from the day the works approval holder meets the requirements of condition 6;

(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 5(a).

Time limited operations requirements

6. The works approval holder must notify the CEO in writing at least one (1) week prior to the commencement of time limited operations.

7. During time limited operations, the works approval holder must ensure that the premises infrastructure and equipment listed in Table 2 and located at the corresponding infrastructure location is maintained and operated in accordance with the corresponding operational requirement set out in Table 2.

Table 2: Infrastructure and equipment requirements during time limited operations

	Infrastructure	Operational requirement	Infrastructure location
1.	Pipework, fittings and valves	Must be hydraulically tested to the required pressure and deemed fit for purpose prior to use. Pipeline and associated infrastructure to be free of leaks and defects	As depicted in Schedule 1, Figure 2
2.	Diffuser	Operated so that adequate mixing is undertaken Ensure that a one metre separation distance is maintained between the diffuser and the surface of the dam.	As depicted in Schedule 1, Figure 2

8. During time limited operations, the works approval holder must ensure that the emission(s) specified in Table 3, are discharged only from the corresponding discharge point(s) and only at the corresponding discharge point location(s).

Table 3: Authorised discharge points during time limited operations

Emission	Discharge point	Discharge point location
Treated wastewater	Diffuser	As depicted in Schedule 1, Figure 2

9. During time limited operations, the works approval holder must ensure that the emissions from the discharge point listed in Table 4 do not exceed the corresponding limit when monitored in accordance with condition 10.

Table 4: Emission and discharge limits during time limited operations

Location	Parameter	Unit	Limit
Inflow pipe as depicted in Schedule 1, Figure 6	Volumetric flow rate (cumulative)	m^3/day	1000
	Temperature	°C	<30 °C
	pH	pH units	6.5 – 8.5
	Dissolved Oxygen	mg/L	> 5
	Total dissolved solids	mg/L	2000
	Total suspended solids	mg/L	20
	Electrical conductivity	µS/cm	2500
	Biochemical oxygen demand	mg/L	20
	Turbidity	NTU	<2 (95 percentile) <5 (maximum)
	FRP	mg P/L	0.01
	TP	mg/L	0.33
	NH_4+	mg/L	0.02
	NOx	mg/L	1.7
	TN	mg N/L	3.3
	E.coli	cfu/100 mL	1
	Coliphages	pfu/100 mL	1
	Clostridia	cfu/100 mL	1
	Residual chlorine	mg/L	0.005 mg/L

Monitoring during time limited operations

10. The works approval holder must monitor emissions during time limited operations in accordance with Table 6, Schedule 2.

11. The works approval holder must ensure that monthly monitoring is undertaken at least 15 days apart.

12. The works approval holder must ensure that deep monitoring samples are taken 1 metre from the base of the dam floor.

13. The works approval holder must ensure that:

(a) all water samples are collected and preserved in accordance with AS/NZS 5667.1;

(b) all surface water sampling is conducted in accordance with AS/NZS 5667.6; and

(c) all laboratory samples are submitted to and tested by a laboratory with current NATA accreditation for the parameters being tested.

14. The works approval holder must ensure that all monitoring equipment used on the premises to comply with the conditions of this works approval is calibrated in accordance with the manufacturer's specifications.

Compliance reporting

15. 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 30 calendar days before the expiration date of the works approval, whichever is the sooner.

16. The works approval holder must ensure the report required by condition 15 includes the following:

(a) a summary of the time limited operations, including timeframes and volumes of treated wastewater received;

(b) monitoring results recorded in accordance with condition 10 with a comparison against the output emission limits specified in condition 9.

(c) a summary of the environmental performance of all infrastructure as constructed or installed (as applicable), which includes records detailing the wastewater received at the premises;

(d) a review of the performance and effectiveness of the diffuser to ensure adequate mixing is achieved;

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

(f) where the manufacturer's design specifications and the conditions of this works approval have not been met, what measures will the works approval holder take to meet them, and what timeframes will be required to implement those measures.

Records and reporting (general)

17. 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.

18. 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 7;

(c) monitoring programmes undertaken in accordance with condition 10; and

(d) complaints received under condition 17.

19. 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.

Notifications

20. The works approval holder must, within 7 days of becoming aware of any non-compliance with the conditions of this works approval, notify the CEO in writing of that non-compliance and include in that notification the following information:

(a) which condition was not complied with;

(b) the time and date when the non-compliance occurred;

(c) if any environmental impact occurred as a result of the non-compliance and if so what that impact is and where the impact occurred;

(d) the details and result of any investigation undertaken into the cause of the non-compliance;

(e) what action has been taken and the date on which it was taken to prevent the non-compliance occurring again; and

(f) what action will be taken and the date by which it will be taken to prevent the non-compliance occurring again.

Definitions

In this works approval, the terms in Table 5 have the meanings defined.

Table 5: Definitions

Term	Definition
annual period	a 12 month period commencing from 1 January until 31 December of the immediately same year.
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 Compliance Report	means a report to satisfy the CEO that the conditioned infrastructure and/or equipment has been constructed and/or installed in accordance with the works approval.
EP Act	*Environmental Protection Act 1986* (WA).
EP Regulations	*Environmental Protection Regulations 1987* (WA).
monthly period	means a one-month period commencing from the first day of a month until the last day of that month.
premises	the premises to which this works approval applies, as specified at the front of this works approval 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.
Suitably qualified professional engineer	Means a person who: (a) holds a Bachelor of Engineering recognised by the Institute of Engineers; and (b) has a minimum of five years of experience working in a supervisory area of civil or structural engineering; and

Term	Definition
	(c) is employed by an independent third party external to the works approval holder's business. or is otherwise approved in writing by the CEO to act in this capacity
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	refers to the works described in condition 1, at the premises shown in Schedule 1 of this works approval to be carried out on the premises, subject to the conditions.
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.
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

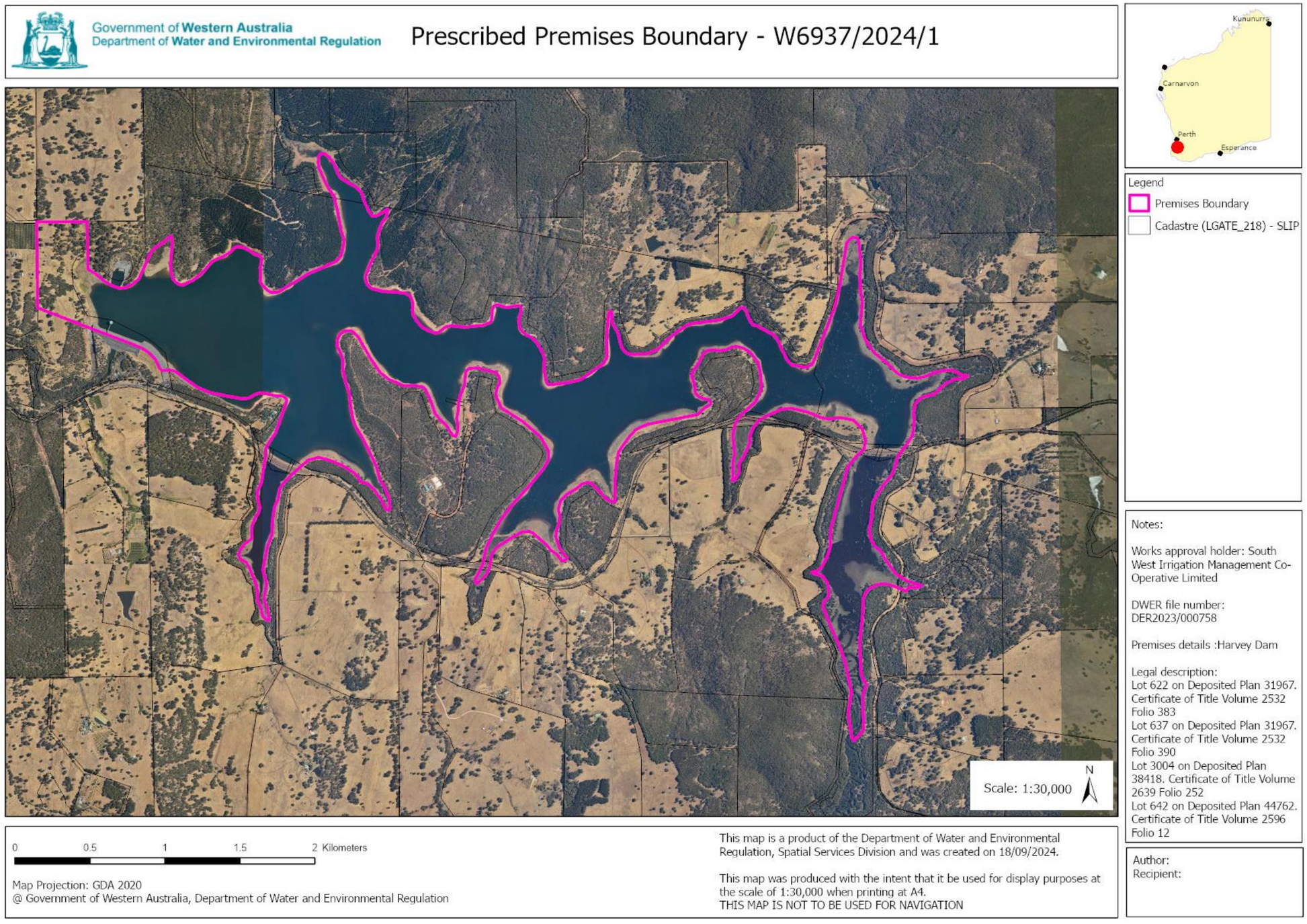

Figure 1: Premises map

Figure 2: Pipeline route and diffuser location

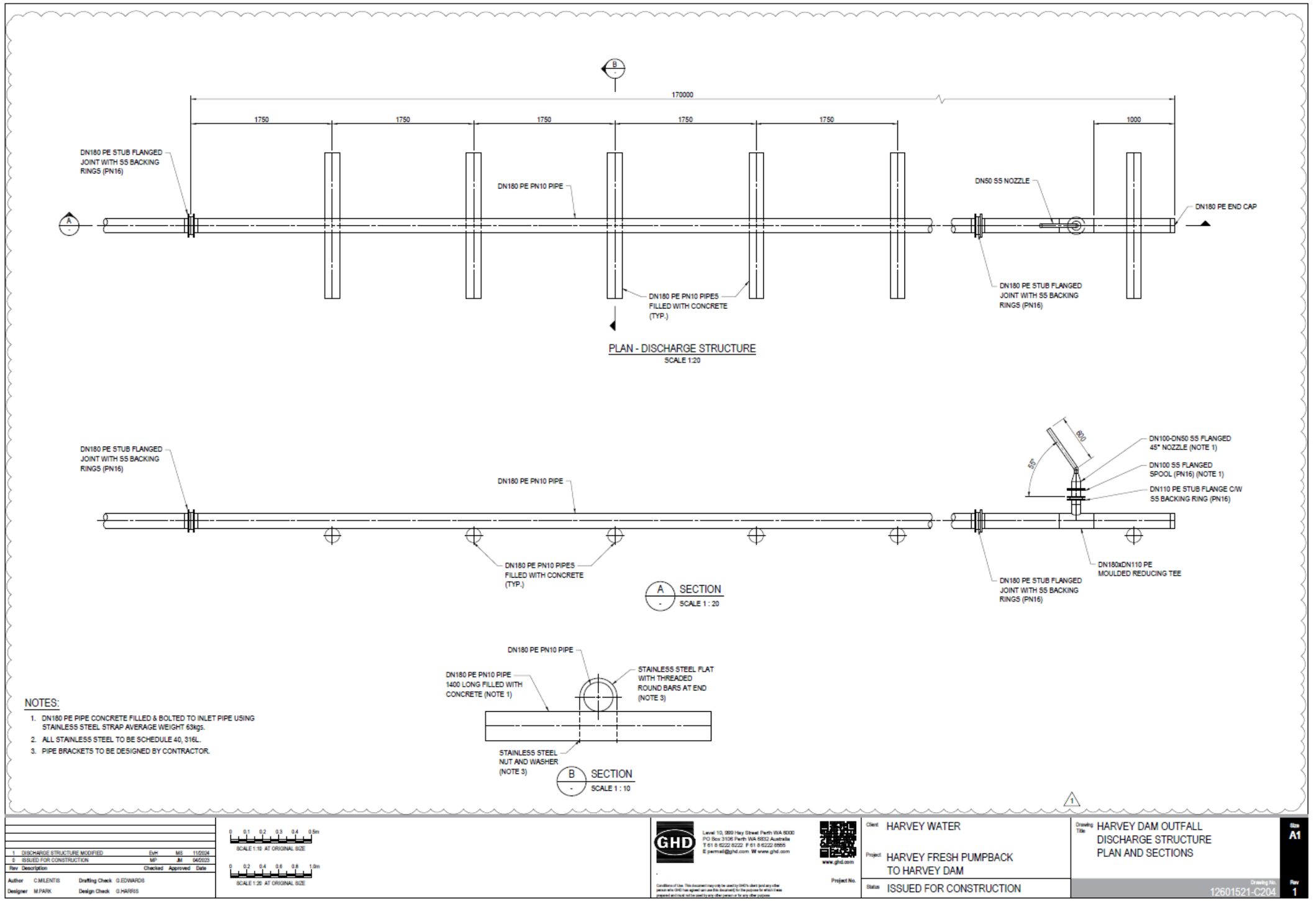

Figure 3: diffuser design and construction specifications

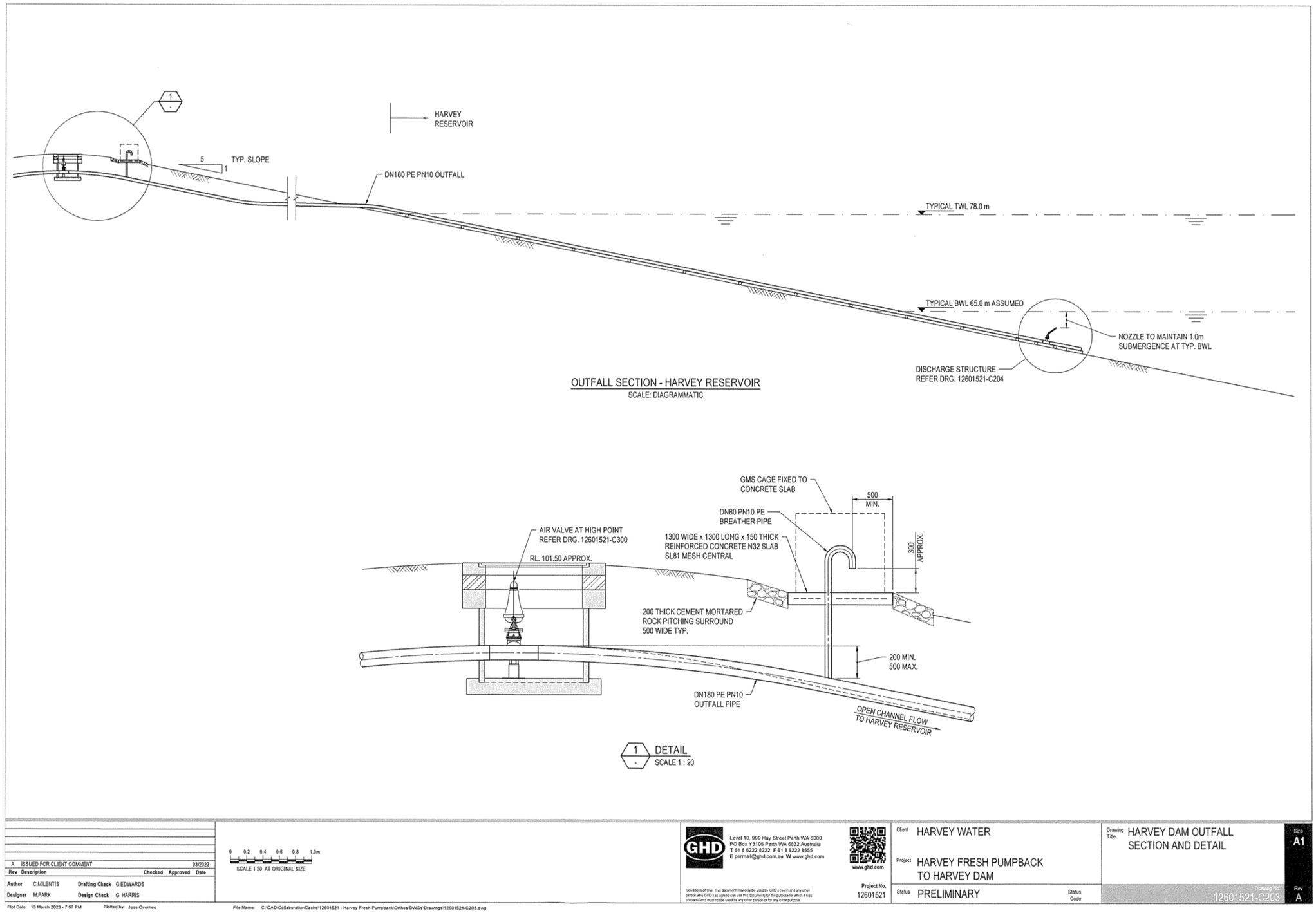

Figure 4: pipeline and diffuser design and construction specifications

Figure 5: Location of steel pipe works (flow meter, sampling location, chlorine analyser), air bleed valve and breather pipe (shepherds crook)

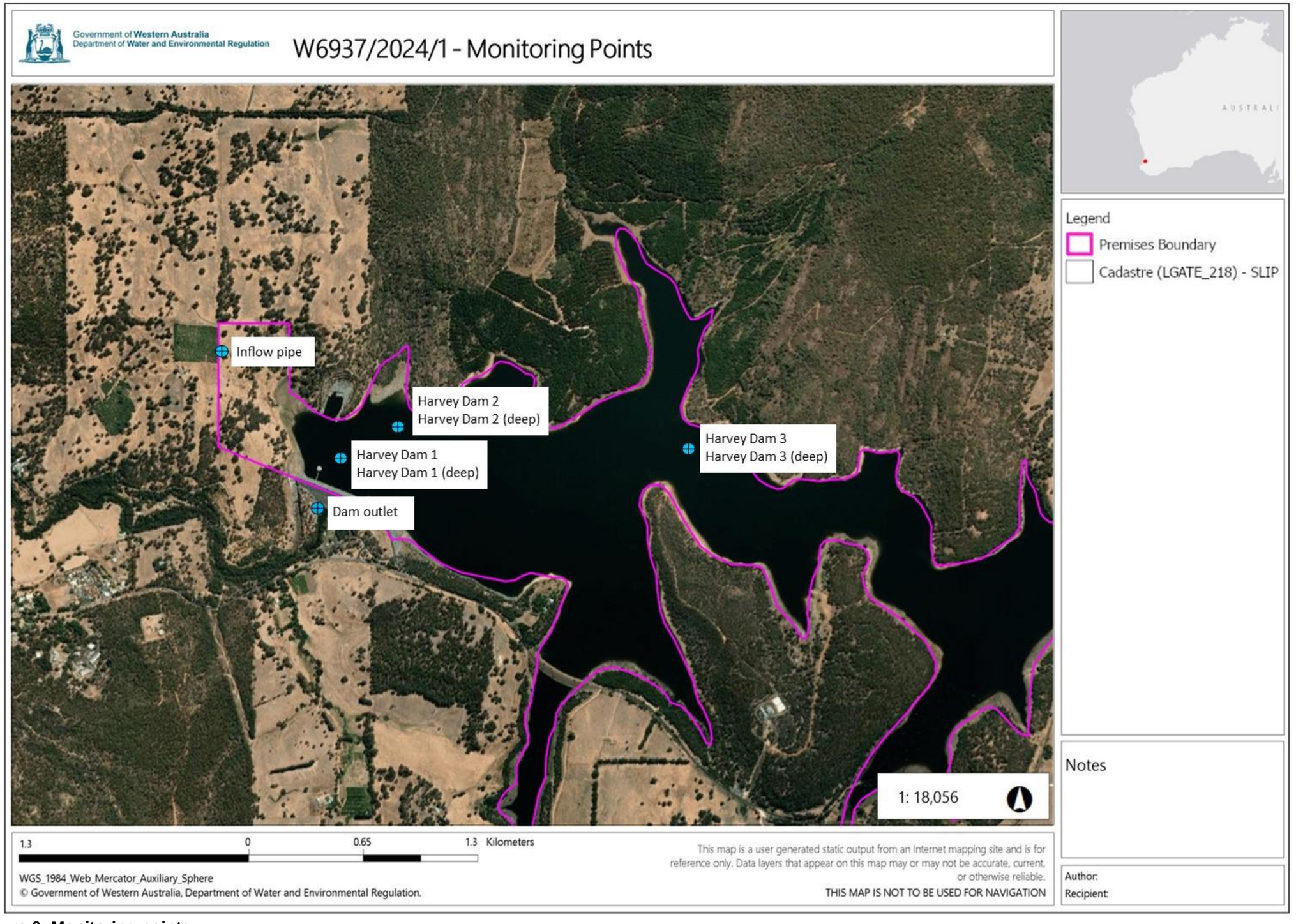

Figure 6: Monitoring points

Schedule 2: Monitoring requirements

Table 6: Monitoring during time limited operations

Location	Analyte Group	Parameter	Unit	Frequency	Averaging Period
Inflow pipe as depicted in Schedule 1, Figure 6	Physical & inorganic parameters	Volumetric flow rate (cumulative)[1]	m^3/day	Daily	Continuous
		pH[1]	pH units		
		Temperature[1]	°C		
		Residual chlorine[1]	mg/L		
All sample locations as depicted in Schedule 1, Figure 6, and as described in Schedule 3, Table 7.	Physical & inorganic parameters	pH[1]	pH units	Monthly	Spot sample
		Temperature[1]	°C		
		Residual chlorine[1]	mg/L		
		Electrical conductivity[1]	µS/cm		
		Total dissolved solids	mg/L		
		Dissolved Oxygen[1]	mg/L		
		Turbidity	NTU		
		Colour (True)	PCU		
		Total suspended solids	mg/L		
		Oil and grease	mg/L		
	Inorganics - Common	Biochemical oxygen demand	mg/L	Monthly	Spot sample
		Chemical oxygen demand	mg O_2/L		
All sample locations as depicted in Schedule 1, Figure 6, and as described in Schedule 3, Table 7.	Metals	Aluminium	µg/L	Monthly	Spot sample
		Antimony	µg/L		
		Arsenic	µg/L		
		Barium	µg/L		
		Beryllium	µg/L		

Location	Analyte Group	Parameter	Unit	Frequency	Averaging Period
		Boron	µg/L		
		Cadmium	µg/L		
		Chromium	µg/L		
		Cobolt	µg/L		
		Copper	µg/L		
		Iron	µg/L		
		Lead	µg/L		
		Lithium	µg/L		
		Manganese	µg/L		
		Mercury	µg/L		
		Molybdenum	µg/L		
		Nickel	µg/L		
		Selenium, Total	µg/L		
		Silica	mg/L		
		Silver	µg/L		
		Strontium	µg/L		
		Sulphur	mg/L		
		Titanium	µg/L		
		Uranium	µg/L		
		Vanadium	µg/L		
		Zinc	µg/L		
All sample locations as depicted in Schedule 1, Figure 6, and as described in Schedule 3, Table 7.	Inorganics - Ionic Balance and Indexes	Bicarbonate Alkalinity as CaCO3	mg/L as CaCO3	Monthly	Spot sample
		Carbonate Alkalinity as CaCO3	mg/L as CaCO3		
		Hydroxide OH- as	mg/L as		

Location	Analyte Group	Parameter	Unit	Frequency	Averaging Period
		CaCO3	CaCO3		
		Total Alkalinity as CaCO3	mg/L as CaCO3		
		Chloride	mg/L		
		Sulphate	mg/L		
		Calcium	mg/L		
		Magnesium	mg/L		
		Potassium	mg/L		
		Sodium	mg/L		
		Hardness as CaCO3	mg/L		
All sample locations as depicted in Schedule 1, Figure 6, and as described in Schedule 3, Table 7.	Inorganics - Organic Carbons	Total Organic Carbon	mg/L	Monthly	Spot sample
		Dissolved Organic Carbon	mg/L		
All sample locations as depicted in Schedule 1, Figure 6, and as described in Schedule 3, Table 7.	Inorganics - Nutrients	Ammonia as N	mg/L	Monthly	Spot sample
		Free Ammonia (unionised) as N by calculation	mg/L		
		Ammonium (NH4+) as N by calculation	mg/L		
		Nitrate as N	mg/L		
		Nitrate as NO3 by calculation	mg/L		
		Nitrite as N	mg/L		
		Nitrite as NO2 by calculation	mg/L		
		NOx as N	mg/L		
		TKN as N by calculation	mg/L		

Location	Analyte Group	Parameter	Unit	Frequency	Averaging Period
		Organic Nitrogen by calc.	mg/L		
		Total Nitrogen	mg/L		
		Phosphate as P	mg/L		
		Reactive Silica	mg/L		
		Chlorophyll-a	mg/m3		
All sample locations as depicted in Schedule 1, Figure 6, and as described in Schedule 3, Table 7.	Microbiological Suite	Thermotolerant Coliforms	cfu/100mL	Monthly	Spot sample
		E.coli	cfu/100mL		
All sample locations as depicted in Schedule 1, Figure 6, and as described in Schedule 3, Table 7.	Amoebae	Thermophilic Amoebae	per 250mL	Monthly	Spot sample
		Thermophilic Naegleria	per 250mL		

Note 1: In-field non-NATA accredited analysis permitted.

Schedule 3: Monitoring coordinates

Table 7: Monitoring location coordinates

Monitoring Point	Easting	Northing	Description
Inflow pipe	399502	6340324	Sampling point located on the inflow pipe from Harvey Fresh WWTP
Dam outlet	399968	6339616	Dam outlet sample tap
Harvey Dam 1	400074	6339823	Sampling location located 100m from the diffuser location
Harvey Dam 1 (deep)	400074	6339823	Sampling location located 100m from the diffuser location (1 metre from dam floor)
Harvey Dam 2	400348	6339980	Sampling location located approximately 400m northeast of the diffuser location
Harvey Dam 2 (deep)	400348	6339980	Sampling location located approximately 400m northeast of the diffuser location (1 metre from dam floor)
Harvey Dam 3	401722	6339887	Sampling location located approximately 1750m east of the diffuser location
Harvey Dam 3 (deep)	401722	6339887	Sampling location located approximately 1750m east of the diffuser location (1 metre from dam floor)