Government of Western Australia
Department of Water and Environmental Regulation

Licence

Licence number	L6248/1991/8
Licence holder	Water Corporation
Registered business address	John Tonkin Water Centre 629 Newcastle Street LEEDERVILLE WA 6007
DWER file number	DER2013/001029-1
Duration	01/11/2013 to 31/10/2036
Date of amendment	01/06/2023
Premises details	Karratha No. 1 Waste Resource Recovery Facility Lot 1933 Millstream Road KARRATHA WA 6714 Legal description - Lot 500 on Plan 74743 Lot 600 on Plan 74155 Lot 3921 on Plan 216652 Crown Reserve 35053 As defined by the coordinates in Schedule 1

Prescribed premises category description (Schedule 1, *Environmental Protection Regulations 1987*)	**Assessed design capacity**
Category 54 Sewage facility premises – (a) on which sewage is treated (excluding septic tanks); or (b) from which treated sewage is discharged onto land or into waters.	10 000 m^3 per day

This licence is granted to the licence holder, subject to the attached conditions, on 1 June 2023, by:

Abbie Crawford

Digitally signed by Abbie Crawford
Date: 2023.06.01 15:25:26 +08'00'

Abbie Crawford

A/MANAGER, WASTE INDUSTRIES

an officer delegated under section 20 of the *Environmental Protection Act 1986* (WA)

Licence history

Date	Reference number	Summary of changes
07/10/2000	L6248/1991/1	Licence re-issue – First licence noted in Industry Licensing System
07/10/2001	L6248/1991/2	Licence re-issue
07/10/2002	L6248/1991/3	Licence re-issue
07/10/2003	L6248/1991/4	Licence re-issue
07/10/2004	L6248/1991/5	Licence re-issue
01/11/2006	L6248/1991/6	Licence re-issue
01/11/2008	L6248/1991/7	Licence re-issue
24/03/2010	L6248/1991/8	Licence amendment for AACR submission date
18/06/2012	W5138/2012/1	Works Approval issued for construction on WRP and associated infrastructure
05/09/2013	W5434/2013/1	Works Approval issued for construction of the offsite contingency/evaporation/infiltration basins and associated infrastructure
01/11/2013	L6248/1991/8	Licence re-issue
24/12/2015	L6248/1991/8	Licence amendment for completion of Works Approval W5138/2012/1 and W5434/2013/1 in standardised format
26/04/2016	L6248/1991/8	Notice of Amendment of Licence expiry dates
19/05/2016	L6248/1991/8	Licence amendment to outline Storage Pond lined to achieve a permeability of $1x10^{-9}$
01/06/2023	L6248/1991/8	Licence amendment for renaming premises, AER and AACR reporting timeframes, the reconstruction of 10 sludge drying beds, and the construction of 3 temporary sludge drying beds.

Interpretation

In this licence:

(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 licence:

  (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 licence requires specific conditions to be met but does not provide any implied authorisation for other emissions, discharges, or activities not specified in this licence.

Licence conditions

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

Construction phase

Infrastructure and equipment

1. The licence holder must construct the infrastructure in accordance with the corresponding design and construction requirements as set out in Table 1.

Table 1: Design and construction requirements

Infrastructure	Design and construction requirements
Ten sludge drying beds (Figure 6)	Construction of sludge drying beds numbered 1 to 10, as depicted in Figure 6; Designed and constructed in accordance with AS 3735; and Lined with concrete to achieve a permeability of ≤ 2.96 x 10^{-9} m/sec as per the requirements set out in Schedule 3.
Three temporary sludge drying beds (Figure 7)	To be constructed to the following dimensions: • Bed in Area 1: 60 m wide by 25 m long; • Bed in Area 2: 70 m wide by 65 m long; • Bed in Area 3: 70 m wide by 75 m long; Soils to be compacted and mounded up with a 500 mm wide and 300 mm high embankment; Lined with a 1 mm thick liner consisting of linear low-density polyethylene or high density polyethylene, to achieve a permeability of 1 x 10^{-9} m/sec or less; All pipework, sumps, fittings and joins are to be constructed of impervious material and are to be free from leaks and defects; and The leachate drains are to be maintained to ensure they are free from leaks and defects, and that leachate from the sludge drying beds is directed back to the either a treatment pond or inlet of the WWTP.

Compliance reporting

2. The licence holder must within 30 calendar days of an item of infrastructure required by condition 1 being constructed:

(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 civil 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.

Operation phase

4. The licence holder shall only allow waste to be accepted on to the Premises if:

(a) it is of a type listed in Table 2; and

(b) the quantity accepted is below any limit listed in Table 2; and

(c) it meets any specification listed in Table 2.

Table 2: Waste acceptance

Waste Type	Quantity Limit	Specification
Sewage	10 000 m^3 per day	Accepted through sewer inflow(s) and tankered waste only

Note 1: Additional requirements for the acceptance of controlled waste are set out in the *Environmental Protection (Controlled Waste) Regulations 2004*.

5. The licence holder shall ensure that the wastes accepted onto the Premises are only subjected to the processes set out in Table 3 and in accordance with any process requirements described in that table.

Table 3: Waste processing

Waste Type	Process	Process requirements
Sewage	Physical, biological and chemical treatment	Treatment of sewage waste shall be limited at or below the treatment capacity of 10 000 m^3/day.
Sewage sludge	Storage and disposal	• To be stored in Geobags within the three temporary sludge drying beds, or within refurbished sludge drying beds 1-10. • Collected leachate to be returned to treatment ponds; and

Waste Type	Process	Process requirements
		• Removal of sludge and biosolids in accordance with the document 'Western Australian Guidelines for Biosolids Management', Department of Environment and Conservation, (December 2012 or updated version), or to a licensed landfill facility.

6. The licence holder shall ensure that waste material is only stored and/or treated within vessels or compounds provided with the infrastructure detailed in Table 4.

Table 4: Containment infrastructure

Vessel or compound	Material	Requirements
Inlet works (Drum Screen)	Grit and Screenings	Stored in a sealed bin or in a container within a hardstand area which returns sludge leachate to the start of the treatment process
Anaerobic Ponds 1 and 2	Wastewater	Geosynthetic clay lined to achieve a permeability of $<10^{-9}$ m/s or equivalent
Oxidation Ponds 1a, 1b, 2, & 3	Wastewater	Lined with compacted in-situ soils
Oxidation Ponds 4 – 6	Wastewater	Geosynthetic clay lined to achieve a permeability of $<10^{-9}$ m/s or equivalent
Storage Pond	Treated wastewater	Geosynthetic clay lined to achieve a permeability of $<10^{-9}$ m/s or equivalent
Sludge Drying Beds Beds 1 to 10 (Figure 6)	Sewage sludge	Maintained in accordance with manufacturer's recommendations, to be free of leaks and defects and to achieve a permeability of $\leq 2.96 \times 10^{-9}$ m/sec. Beds 11 to 24 are not authorised to store sludge.
Three temporary Sludge Drying Beds (Figure 7)	Sewage sludge	Maintained in accordance with manufacturer's recommendations, to be free of leaks and defects and to achieve a permeability of $\leq 1 \times 10^{-9}$ m/sec.

7. The licence holder shall manage all wastewater treatment and storage ponds such that:

(a) overtopping of the ponds does not occur;

(b) the integrity of the containment infrastructure is maintained;

(c) trapped overflows are maintained on the outlet of ponds to prevent carry-over of surface floating matter; and

(d) vegetation and floating debris (emergent or otherwise) is prevented from encroaching onto pond surfaces or inner pond embankments.

8. The licence holder shall ensure stormwater runoff resulting from site drainage is prevented from entering the wastewater treatment ponds and sludge drying beds, or causing erosion of the outer pond or bed embankments.

9. The licence holder shall:

(a) implement security measures at the site to prevent as far as is practical unauthorised access to the site; and

(b) undertake regular inspections of all security measures and repair damage as soon as practicable; and

(c) ensure the entrance gates are closed and locked when the site is closed or unmanned.

Emissions

10. The licence holder shall ensure that where waste is emitted to land from the emission points in Table 5 (and identified on the map of emission points in Schedule 1) it is done so in accordance with the conditions of this Licence.

Table 5: Emissions to land

Emission point reference	Description	Source including abatement
L1	Discharge from Storage Pond to offsite contingency evaporation/infiltration basins	Treated wastewater not used for offsite Shire reuse is discharged to offsite contingency evaporation/infiltration basins

Monitoring

11. The licence holder shall ensure that:

(a) all water samples are collected and preserved in accordance with AS/NZS 5667.1 unless indicated otherwise in the relevant table;

(b) all wastewater sampling is conducted in accordance with AS/NZS 5667.10;

(c) all groundwater sampling is conducted in accordance with AS/NZS 5667.11; and

(d) all laboratory samples are submitted to and tested by a laboratory with current NATA accreditation for the parameters being measured unless indicated otherwise in the relevant table.

12. The licence holder shall ensure that:

(a) monthly monitoring is undertaken at least 15 days apart;

(b) quarterly monitoring is undertaken at least 45 days apart; and

(c) six monthly monitoring is undertaken at least 5 months apart.

13. The licence holder shall undertake the monitoring in Table 6 according to the specifications in that table.

Table 6: Monitoring of emissions to land

Monitoring point reference	Parameter	Units	Frequency
M1	Volumetric flow rate (cumulative)[1]	m^3/day	Continuous
	pH[1]	pH units	Quarterly
	Biochemical Oxygen Demand	mg/L	
	Total Suspended Solids		
	Total Dissolved Solids		
	Total Nitrogen		
	Ammonium Nitrogen		
	Nitrate + Nitrite Nitrogen		
	Total Phosphorus		
	E.coli[2]	cfu/100 mL	

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

Note 2: Actual units are to be reported except where the result is greater than the highest detectable level of 24,000 cfu/100mL. In this case the reporting of the highest detectable level is permitted.

14. The licence holder shall undertake the monitoring in Table 7 according to the specifications in that table.

Table 7: Monitoring of inputs and outputs

Input/Output	Monitoring point reference	Parameter	Units	Averaging period	Frequency
Sewage - Inlet Flow	Inflow meter	Volumetric flow rate (cumulative)	m^3/day	Monthly	Continuous
Treated wastewater directed to the Water Recycling Plant for tertiary treatment	M1	Volumetric flow rate (cumulative)			
Treated wastewater discharged to offsite evaporation/infiltration basins	M1	Volumetric flow rate (cumulative)			

15. The licence holder shall undertake the monitoring in Table 8 according to the specifications in that table.

Table 8: Monitoring of ambient groundwater quality

Monitoring point reference and location	Parameter	Units	Averaging period	Frequency
MB1/14; MB2/14; MB3/14; MB4/14; MB5/14; MB6/11; MB/A; MB/B; and MB/C.	Standing water level[1]	m(AHD) mBGL	Spot sample	Quarterly
	pH[1]	pH units		
	Electrical conductivity	µS/cm		
	Total Nitrogen	mg/L		
	Ammonium Nitrogen			
	Nitrate + Nitrite-Nitrogen			
	Total Phosphorus			

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

Records and reporting

16. The licence holder must record the following information in relation to complaints received by the licence 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 licence holder to investigate or respond to any complaint.

17. The licence holder must:

(a) undertake an audit of their compliance with the conditions of this licence during the preceding annual period; and

(b) prepare and submit to the CEO an Annual Audit Compliance Report in the approved form by 1 October each year.

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

(a) the calculation of fees payable in respect of this licence;

(b) the works conducted in accordance with condition 1 of this licence;

(c) any maintenance of infrastructure that is performed in the course of complying with condition 6 of this licence;

(d) monitoring programmes undertaken in accordance with conditions 13, 14 and 15 of this licence; and

(e) complaints received under condition 16 of this licence.

19. The books specified under condition 18 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 licence holder for the duration of the licence; and

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

20. The licence holder must:

(a) prepare an environmental report that provides information in accordance with Table 9 for the preceding annual period, and

(b) submit the environmental report to the CEO by 1 October each year.

Table 9: Environmental reporting requirements

Condition or table (if relevant)	**Parameter**	**Format or form[1]**
-	Summary of any failure or malfunction of any pollution control equipment and any environmental incidents that have occurred during the annual period and any action taken	None specified
Condition 13 Table 6	Monitoring of emissions to land	None specified
Condition 14 Table 7	Monitoring of inputs and outputs	None specified
	Methodology and calculations used to estimate the daily volumetric flow rate of treated wastewater pumped to evaporation basins and results of those calculations.	None specified
Condition 15 Table 8	Monitoring of ambient groundwater quality	Tabular form
Condition 16	Complaints summary	None specified
Condition 17	Compliance	Annual Audit Compliance Report (AACR)

Note 1: Forms are in Schedule 2

21. The Licence Holder shall ensure that the Annual Environmental Report also contains an assessment of the information contained within the report against previous monitoring results and Licence limits.

22. The licence holder shall submit the information in Table 10 to the CEO according to the specifications in that table.

Table 10: Non-annual reporting requirements

Condition or table (if relevant)	Parameter	Reporting period	Reporting date (after end of the reporting period)	Format or form[1]
-	Copies of original monitoring reports submitted to the licence holder by third parties	Not Applicable	Within 14 days of the CEOs request	As received by the licence holder from third parties

Note 1: Forms are in Schedule 4

23. The licence holder shall ensure that the parameters listed in Table 11 are notified to the CEO in accordance with the notification requirements of the table.

Table 11: Notification requirements

Condition or table (if relevant)	Parameter	Notification requirement[1]	Format or form[2]
-	Taking process equipment offline for maintenance works that may result in increased odour emissions	No less than 72 hours in advance of works	None specified
-	Removal of sewage sludge from a treatment pond, wastewater treatment vessel, sewage sludge storage pond or Geobag.	No less than 14 days in advance of works. Notification is to include information on: (i) when desludging is proposed to occur, (ii) which pond desludging is to occur in, (iii) which sludge drying bed or temporary sludge drying bed is being utilised for desludging (iv) the desludging method including the type of liner utilised and type of drainage system utilised, and (v) action to mitigate potential odour impacts	
-	Direct discharge to the environment, excluding infiltration, within 48 hours of becoming aware that such a discharge will occur, or has	No less than 48 hours	

Condition or table (if relevant)	Parameter	Notification requirement[1]	Format or form[2]
	occurred		
-	Breach of any limit specified in the Licence	Part A: As soon as practicable but no later than 5pm of the next working day Part B: As soon as practicable	N1

Note 1: Notification requirement in the Licence shall not negate the requirement to comply with s72 of the Act.

Note 2: Forms are in Schedule 4

Definitions

In this licence, the terms in Table 12 have the meanings defined.

Table 12: Definitions

Term	Definition
ACN	Australian Company Number
AHD	Means the Australian height datum
Annual Audit Compliance Report (AACR)	means a report submitted in a format approved by the CEO (relevant guidelines and templates may be available on the Department's website).
annual period	a 12 month period commencing from 1 July until 30 June of the immediately following year.
approved form	means the Annual Audit Compliance Report (AACR) form template approved by the CEO for use and available via DWER's external website.
AS 3735	Means the Australian Standard AS3735 *Concrete Structures for Retaining Liquid*
AS/NZS 5667.1	means the Australian Standard AS/NZS 5667.1 *Water Quality – Sampling – Guidance of the Design of sampling programs, sampling techniques and the preservation and handling of samples*
AS/NZS 5667.10	means the Australian Standard AS/NZS 5667.10 *Water Quality – Sampling – Guidance on sampling of waste waters*
AS/NZS 5667.11	means the Australian Standard AS/NZS 5667.11 *Water Quality – Sampling – Guidance on sampling of groundwaters*
averaging period	means the time over which a limit or target is measured or a monitoring result is obtained
books	has the same meaning given to that term under the EP Act.
CEO	means Chief Executive Officer of the Department. "submit to / notify the CEO" (or similar), means either: Director General Department administering the *Environmental Protection Act 1986* Locked Bag 10 Joondalup DC WA 6919 or: info@dwer.wa.gov.au
condition	a condition to which the licence is subject under section 62 of the *Environmental Protection Act 1986*

Term	Definition
controlled waste	has the definition in *Environmental Protection (Controlled Waste) Regulations 2004*
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.
EP Act	*Environmental Protection Act 1986* (WA)
EP Regulations	*Environmental Protection Regulations 1987* (WA)
geobag	means a geotextile dewatering bag that allows solids to dewater over time while containing the solid component
hardstand	means a surface with a permeability of 10-9 metres/second or less
leachate	means liquid released by or water that has percolated through waste and which contains some of its constituents
licence	refers to this document, which evidences the grant of a licence by the CEO under section 57 of the EP Act, subject to the specified conditions contained within.
licence holder	refers to the occupier of the premises, being the person specified on the front of the licence as the person to whom this licence has been granted.
NATA	means the National Association of Testing Authorities, Australia
NATA accredited	means in relation to the analysis of a sample that the laboratory is NATA accredited for the specified analysis at the time of the analysis
normal operating conditions	means any operation of a particular process (including abatement equipment) excluding start-up, shut-down and upset conditions, in relation to stack sampling or monitoring
premises	refers to 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 and specified by the co-ordinates in Schedule 2 to this licence.
prescribed premises	has the same meaning given to that term under the EP Act.
process equipment	means any wastewater or sludge containment infrastructure or wastewater treatment vessel
quarterly	means the 4 inclusive periods from 1 July to 30 September, 1 October to 31 December in the following year ,1 January to 31 March and 1 April to 30 June
Schedule 1	means Schedule 1 of this Licence unless otherwise stated

Term	Definition
Schedule 2	means Schedule 2 of this Licence unless otherwise stated
shut-down	means the period when plant or equipment is brought from normal operating conditions to inactivity
spot sample	means a discrete sample representative at the time and place at which the sample is taken
start-up	means the period when plant or equipment is brought from inactivity to normal operating conditions
suitably qualified civil engineer	means a person who: (a) holds a Bachelor of Engineering degree recognised by Engineers Australia; and (b) has a minimum of five years of experience working in a supervisory role in civil or structural engineering; and (c) s 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.
usual working day	means 0800 – 1700 hours, Monday to Friday excluding public holidays in Western Australia
Waste Code	means the Waste Code assigned to a type of controlled waste for purposes of waste tracking and reporting as specified in the Department of Environment Regulation "Controlled Waste Category List" (July 2014), as amended from time to time
wastewater treatment vessels	means any vessel or tank containment infrastructure associated with the treatment of wastewater
waste	has the same meaning given to that term under the EP Act.
µS/cm	means micro Siemens per centimetre

END OF CONDITIONS

Schedule 1: Maps

Premises map

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

Figure 1: Map of the boundary of the prescribed premises

Monitoring points maps

The location of the monitoring points defined in Table 6 and Table 7 are shown below.

Figure 2: Map of monitoring points

The location of the monitoring points defined in Table 8 are shown below.

Figure 3: Map of monitoring locations

The location of the offsite monitoring points defined in Table 5 and Table 8 are shown below.

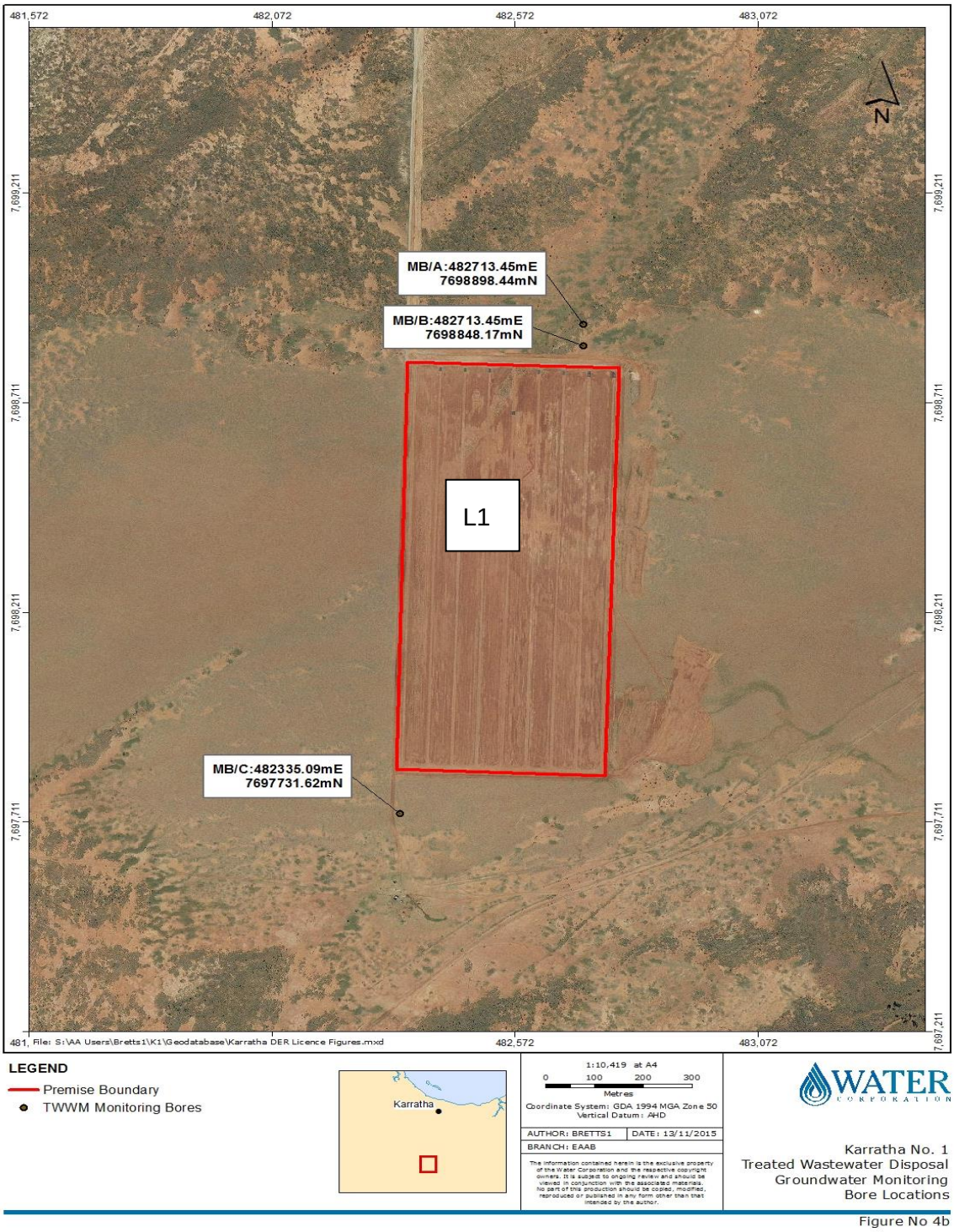

Figure 4: Map of offsite monitoring locations

The premises infrastructure is shown below.

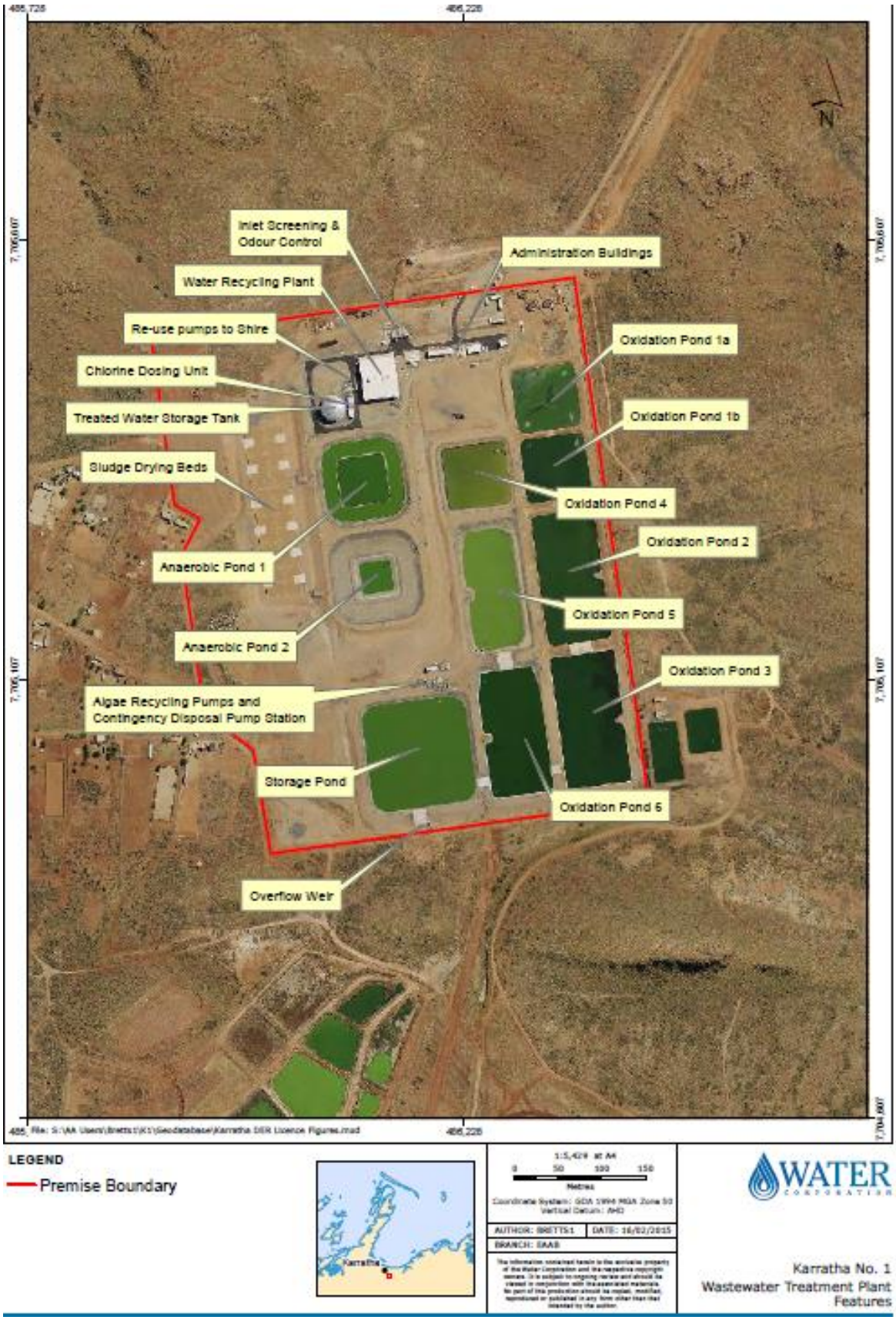

Figure 5: Map of premises infrastructure

The 10 sludge drying beds to be reconstructed in accordance with Table 1 and operated in accordance with Table 4 are shown below.

Figure 6: Sludge drying beds approved for reconstruction and operation

The three temporary sludge drying beds to be reconstructed in accordance with Table 1 and operated in accordance with Table 4 are shown below.

Proposed Temporary sludge drying Areas
Area 1 - leachate to drain into pit after inlet screens
Area 2 - Leachate to be pumped back into Anaerobic Pond 1 or Pond 4
Area 3 – Leachate to drain into Pond 1b

Figure 7: Temporary sludge drying beds

Schedule 2: Premises boundary

The premises boundary is defined by the coordinates in Table 13.

Table 13: Premises boundary coordinates (GDA2020)

Easting	Northing	Zone
485869.93430	7705496.64701	50
486354.75802	7705565.05286	50
486437.79810	7704979.88433	50
486364.56667	7704969.07110	50
486365.44652	7704960.05059	50
486007.09014	7704909.48548	50
485986.77353	7705028.97384	50
485931.05079	7705069.37638	50
485905.34428	7705249.26792	50
485926.77487	7705290.15967	50
485897.40830	7705306.68590	50

Schedule 3: Minimum specification for concrete liner installation of sludge drying beds

The construction works and requirements described in the following table are required to be completed on the occasion that concrete liner material is used for the sludge drying bed construction in accordance with Condition 1.

Table 14: Concrete liner installation requirements

Item	Activity / Infrastructure	Element	Minimum Requirements (Design & Construction Phases)
1	Site preparation	Foundations	Detailed excavation of bed bases to suit design levels & compaction of foundations to 95% MMDD. Tested in accordance with Water Corporation Modular Specification 'ET'
2	New Concrete Works	Reinforcement	Dual Layer N12 bars at 150mm centres each way in accordance with design drawings
		Thickness (mm)	200 typical tapering to 150 at edges in accordance with design drawings
		Grade (MPa)	40
		Max W/C ratio by mass	0.45
		Max coarse aggregate size (mm)	20
		Cement Type	GP
		Max Cement Content (kg/m^3)	360
		Nominal Slump (mm)	80 +/- 15
		Design	New slab compliant to AS3735, AS3600
			Expansion/contraction joints suitable for lifetime concrete shrinkage & thermal effects
			Placement of new concrete slabs including reinforcement, curing, water-stop and joint preparation as per design drawings
			Jointless slab with dual layers of reinforcement to minimise risk of leakage. Crack control in accordance with AS3600 and AS3735.
			The slab levels and falls to match the existing design intent
			The interface detail to existing concrete comprises of a continuous retrofit waterstop and sealant layer designed to accommodate the maximum expected slab shrinkage, thermal shrinkage, environmental effects and differential settlement under loading

		Placement	Governed by Water Corporation Modular Specification 'CON'
			Testing in accordance with AS3600 & AS1379
			QA with supplier and delivery
			The proprietary products proposed on the design drawings are considered as minimum requirements and called up by name. Proprietary products to be handled and installed in accordance with manufacturer recommendations
			Reinforcement to comply with AS4671
			Waterproof membrane
			Curing (minimum 7days) undertaken to satisfy short term requirements to prevent plastic cracking and long term requirements of ensuring continued cement hydration
		Site crack inspections	1) Immediately after completion of construction activities
			2) Detailed inspection between 7-21 days after placement
			Identified cracks >0.1mm width to be repaired
3	Existing Concrete	Repair works	Repair existing concrete as per details provided on design drawings
			Repair details designed to accommodate lifetime concrete shrinkage and thermal effects
			The proprietary products proposed on the design drawings are considered as minimum requirements and called up by name. Proprietary products to be handled and installed in accordance with manufacturer recommendations
4	Drains and Media Materials	Drains	New 100DN drain-coil, including tie-in to existing piping located at the base of the drying bed perimeter walls as per design drawings. Drain design unchanged from existing
		Media Materials - Crushed Rock	Min 200mm thick crushed rock (nom 14mm diameter) layer as per design drawings
		Media Materials - Geotextile	Bidim A44. Min 300mm overlap between sheets
		Media Materials - Sand	Min 300mm thick coarse natural sand free from clay and impurities
5	AS3735 Leak Testing	Leak testing of the drying beds in accordance with Section 7 of AS3735. It is expected	1) Close all drying bed drain valves
			2) Fill drying beds with water
			3) Maintain the liquid level by the addition of further liquid for a stabilizing period of 7 days while absorption and autogenic healing takes place

		that the testing shall include the following steps as a minimum requirement:	4) After the stabilizing period, the level of the liquid surface shall be recorded at 24 h intervals, for a test period of 7 days. During this 7-day test period, the total permissible drop in level, after allowing for evaporation and rainfall, shall not exceed 1/500th of the average water depth of the full bed
			5) Conduct a visual inspection and any evidence of seepage of the liquid to the outside faces of the liquid-retaining walls shall be reported to the Principal's Representative
			6) Any necessary remedial treatment of the concrete to the cracks or joints shall be carried out from the liquid face
			7) Where the structure fails to satisfy the 7-day test then, after completion of the remedial work, it shall be refilled and a further 7-day test undertaken in accordance with this AS3735
6	QA	The following will be produced in accordance with the Water Corporation Modular Specifications:	Conformance reports
			Non-Conformance reports
			Quality records
			Construction Program and Methodology
			Contractor's Risk Register
			OSH Management Plan in accordance with Health, Safety and Environment Requirements for Contractors
			Construction Environmental Management Plan in accordance with Health, Safety and Environment Requirements for Contractors
			Test Plan for leak testing of drying beds in accordance with AS3735.
			Quality Management Plan, Project Quality Register (PQR) and Inspection and Test Plans (ITP)
			Concrete Mix designs
			Auditing of records and construction activities
7	Codes/Standards	Compliance with the following:	AS 1379 – 2007: Specification and supply of concrete
			AS 3600 – 2009: Concrete structures
			AS 3610 – 1995: Formwork for concrete
			AS 3735 – 2001: Concrete structures for retaining liquids (new concrete works)
			AS/NZS 4671 Steel reinforcing materials
			AS/NZS 1170.0 – 2002: Structural design actions – General principles
			AS/NZS 1170.1 – 2002: Structural design actions – Permanent, imposed and other actions
			Water Corporation standards

Schedule 4: Forms

Licence: Licensee:

Form: N1 Date of breach:

Notification of detection of the breach of a limit.

These pages outline the information that the operator must provide.

Units of measurement used in information supplied under Part A and B requirements shall be appropriate to the circumstances of the emission. Where appropriate, a comparison should be made of actual emissions and authorised emission limits.

Part A

Licence Number	
Name of operator	
Location of premises	
Time and date of the detection	

Notification requirements for the breach of a limit	
Emission point reference/ source	
Parameter(s)	
Limit	
Measured value	
Date and time of monitoring	
Measures taken, or intended to be taken, to stop the emission	

Part B

Any more accurate information on the matters for notification under Part A.	
Measures taken, or intended to be taken, to prevent a recurrence of the incident.	
Measures taken, or intended to be taken, to rectify, limit or prevent any pollution of the environment which has been or may be caused by the emission.	
The dates of any previous N1 notifications for the Premises in the preceding 24 months.	

Name	
Post	
Signature of behalf of	
Date	