Government of Western Australia
Department of Environment Regulation

Works Approval

Environmental Protection Act 1986, Part V

Works Approval Holder: Water Corporation

Works Approval Number: W5605/2014/1

Registered office: 629 Newcastle Street
LEEDERVILLE WA 6007

ACN: 28 003 434 917

Premises address: Toodyay Wastewater Treatment Plant
211 Goomalling-Toodyay Road
NUNILE WA 6566
Being Lot 501 on Plan 33954 as depicted in Schedule 1.

Grant date: Thursday, 17 July 2014

Commencement date: Monday, 21 July 2014

Expiry date: Friday, 20 July 2018

The following category/s from the *Environmental Protection Regulations 1987* cause this Premises to be a prescribed premises for the purposes of the *Environmental Protection Act 1986*:

Category number	Category description	Category production or design capacity	Approved premises production or design capacity
85	Sewage facility: premises – (a) on which sewage is treated (excluding septic tanks); or (b) from which treated sewage is discharged onto land or into water	More than 20 but less than 100 cubic metres per day	92m^3/day

Conditions
This Works Approval is subject to the conditions set out in the attached pages.

Date signed: 19 April 2016

.....
Alan Kietzmann
Officer delegated under section 20
of the *Environmental Protection Act 1986*

Works Approval Conditions

1 General

1.1 Interpretation

1.1.1 In the Works Approval, definitions from the *Environmental Protection Act 1986* apply unless the contrary intention appears.

1.1.2 In the Works Approval, unless the contrary intention appears:

'Act' means the *Environmental Protection Act 1986;*

'reporting period' means the inclusive period from the date of issue for this works approval amendment, until the complete cessation of the discharges to irrigation areas 1, 2 and 3 as shown in Schedule 1;

'Assessment and management of contaminated sites guidelines' means the document titled "Assessment and management of contaminated sites, Contaminated sites guidelines, December 2014" published by the Chief Executive Officer of the Department of Environment Regulation, as amended from time to time;

'assessment levels' means the Tier 1 assessment levels as defined in the 'Assessment and management of contaminated sites guidelines'

'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 is measured or a monitoring result is obtained;

'CEO' means Chief Executive Officer of the Department of Environment Regulation;

'CEO' for the purpose of correspondence means;

Chief Executive Officer
Department Administering the Environmental Protection Act 1986
Locked Bag 33
CLOISTERS SQUARE WA 6850
Email: info@der.wa.gov.au

'commissioning' means the process of operation and testing that verifies the works and all relevant systems, plant, machinery and equipment have been installed and are performing in accordance with the design specification set out in the works approval application;

'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;

'Premises' means the area defined in the Premises Map in Schedule 1 and listed as the Premises address on page 1 of the Works Approval;

'Schedule 1' means Schedule 1 of this Works Approval unless otherwise stated;

'spot sample' means a discrete sample representative at the time and place at which the sample is taken;

'Works Approval' means this Works Approval numbered W5605/2014/1 and issued under the *Act;* and

'Works Approval Holder' means the person or organisation named as the Works Approval Holder on page 1 of the Works Approval.

1.1.3 Any reference to an Australian or other standard in the Works Approval means the relevant parts of the standard in force from time to time during the term of this Works Approval.

1.1.4 Any reference to a guideline or code of practice in the Works Approval means the current version of the guideline or code of practice in force from time to time, and shall include any amendments or replacements to that guidelines or code of practice made during the term of this Works Approval.

1.2 General conditions

1.2.1 The Works Approval Holder shall construct the works in accordance with the documentation detailed in Table 1.2.1:

Table 1.2.1: Construction Requirements[1]

Document	Parts	Date of Document
Toodyay Wastewater Treatment Plant Irrigation, Application for Works Approval	All, including Drawings and Appendices	4 December 2013
Nutrient and Irrigation Management Plan (NIMP), Irrigation of a Woodlot (Acacia/Casuarina hosts for Sandalwood) using Treated Wastewater (TWW) near Toodyay Western Australia	All, including Drawings and Appendices	April 2014
Application Form: works approval/ licence – amendment application (Record #: A1054962)	All, including Drawings and Appendices	12 February 2016
Water Corporation: Discharge Management Plan: Toodyay Wastewater Storage Pond – Dam Remediation Project (Record #: A1054962)	All, including Drawings and Appendices	12 January 2016
Email from C. Chaundhry re response to request for additional information (Record #: A1071505)	All, including Drawings and Attachments	22 March 2016
Email from C. Chaudhry re response to request for additional information (Record #: A1075594).	All, including Drawings and Attachments	4 April 2016

Note 1: Where the details and commitments of the documents listed in condition 1.2.1 are inconsistent with any other condition of this works approval, the conditions of this works approval shall prevail.

1.2.2 The Works Approval Holder must ensure that the Works specified in Column 1 of Table 1.2.2 meet or exceed the specifications in Column 2 of Table 1.2.2 for the infrastructure in each row of Table 1.2.2.

1.2.3 The Works Approval Holder must not depart from the specifications in Column 1 and 2 for the infrastructure in each row of Table 1.2.2 except:

a) where such departure is minor in nature and does not materially change or affect the infrastructure; or

b) where such departure improves the functionality of the infrastructure and does not increase risks to public health, public amenity or the environment;

and in accordance with all other conditions in this Works Approval.

Table 1.2.2: Works specifications

Column 1	Column 2
Infrastructure	**Specifications (design and construction)**
1) Final effluent storage pond	The final effluent storage pond must be lined using a clay liner and must be constructed in accordance with the following specifications: a) The clay liner must: a. have a permeability of less than $1x10^{-9}$ m/s; and b. be capable of maintaining that permeability for the working life of the pond. b) Constructed to a capacity of 37,000m^3.
2) Sludge Drying Bed	The Sludge Drying Bed must be lined using a clay liner and must be constructed in accordance with the following specifications: a) The clay liner must have: a. a permeability of less than $1x10^{-9}$ m/s; and b. be capable of maintaining that permeability for the working life of the drying bed. c. be bunded with 300mm high clay bunds around the perimeter.

1.2.4 The Works Approval Holder must conduct the following construction quality assurance testing to ensure that the Works specified in Column 1 of Table 1.2.3 meet or exceed the specifications in Column 2 of Table 1.2.3 for the infrastructure in each row of Table 1.2.3.

Table 1.2.3: Construction Quality Assurance testing

Column 1	Column 2
Infrastructure	**Specifications (testing criteria)**
Final effluent storage pond Sludge Drying Bed	The new clay liners for the final effluent storage pond and sludge drying bed are to be certified by an independent engineer to validate design, specification, construction, and permeability after completion in accordance with Table 1.2.2

1.3 Premises operation

1.3.1 The Works Approval Holder shall manage the irrigation of treated wastewater such that:
(a) bunding/cut-off drains are maintained around irrigation areas such that run-off is restricted;
(b) no irrigation generated run-off, spray drift or discharge occurs beyond the boundary of the defined irrigation area(s);
(c) treated wastewater is evenly distributed over the irrigation area;
(d) no soil erosion occurs; and
(e) vegetation cover is maintained over the irrigation area.

2 Emissions

2.1.1 The Works Approval Holder shall record and investigate the exceedance of any descriptive or numerical limit specified in any part of section 2 of this Works Approval.

2.2 Emissions to land

2.2.1 The Works Approval Holder shall ensure that where wastewater is discharged to land to the emission points in Table 2.2.1 [and identified on the map of emission points in Schedule 1] it is done so in accordance with the conditions of this Works Approval.

Table 2.2.1: Emission points to land

Emission point reference (and located on Map of emission points)	Description	Source including abatement
Treated wastewater discharge to irrigation areas 1-3 as depicted in Schedule 1 (required for the Dam Remediation Project)	Discharge to on-site woodlot irrigation areas	Treated wastewater

2.2.2 The Works Approval Holder shall not emit or irrigate treated wastewater to land during periods of rainfall, or following rainfall events whilst the ground is waterlogged or saturated.

2.2.3 The Works Approval Holder shall immediately cease all discharges to land in the event that overland flow of discharged treated wastewater is observed to be crossing the boundary of the designated irrigation areas as shown in Schedule 1 or the premises boundary shown in Schedule 1.

2.2.4 The Works Approval Holder shall not cause or allow emissions to land greater than the limits listed in Table 2.2.2.

Table 2.2.2: Emission limits to land			
Emission point reference	**Parameter**	**Limit (including units)**	**Averaging period**
Irrigated Water Sample Point (TWW sample point, depicted in the Discharge to Land map) Schedule 1.	Total Nitrogen	41 kg/ha/yr	Annual
	Total Phosphorus	18 kg/ha/yr	

3 Monitoring

3.1 General monitoring

3.1.1 The Works Approval Holder shall ensure that:
(a) all water samples are collected and preserved in accordance with AS/NZS 5667.1;
(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;
(d) all microbiological samples are collected and preserved in accordance with AS/NZS 2031; and
(e) all laboratory samples are submitted to and tested by a laboratory with current NATA accreditation for the parameters being measured.

3.1.2 The Works Approval Holder shall ensure that:
(a) monthly monitoring is undertaken at least 30 days apart; and
(b) quarterly monitoring is undertaken at least 3 months apart.

3.1.3 The Works Approval Holder shall 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.

3.1.4 The Works Approval Holder shall, where the requirements for calibration cannot be practicably met, or a discrepancy exists in the interpretation of the requirements, bring these issues to the attention of the CEO accompanied with a report comprising details of any modifications to the methods.

3.2 Monitoring of emissions to land

3.2.1 The Works Approval Holder shall undertake the monitoring in Table 3.2.1 according to the specifications in that table.

Table 3.2.1: Monitoring of emissions to land			
Emission point reference	**Parameter**	**Units**	**Frequency**
Final effluent storage pond (TWW Sampling Point)	pH	N/A	Monthly during the discharge/irrigation events
	Standing water level	Metres AHD and mBGL	
	E.coli	Cfu/100ml	
	Total Suspended Solids	mg/L	
	Total Dissolved Solids		
	Biological Oxygen Demand		
	Ammonium-Nitrogen		
	Nitrate + Nitrite-Nitrogen		
	Total Phosphorus		

3.3 Process monitoring

3.3.1 The Works Approval Holder shall undertake the monitoring in Table 3.3.1 according to the specifications in that table.

Table 3.3.1: Process monitoring

Process description	Parameter	Frequency	Method
Irrigation system	The Licensee shall ensure that the irrigation system is maintained and the following checked: Pumping system pressure; Routine leak inspection; and Crop health.	Weekly	None specified

3.4 Ambient environmental quality monitoring

3.4.1 The Works Approval Holder shall undertake the monitoring in Tables 3.4.1 according to the specifications in those tables.

Table 3.4.1: Monitoring of ambient groundwater quality

Monitoring point reference and location	Parameter	Units	Averaging period	Frequency
As depicted in Schedule 1: Bore 1/00 E: 453323.28 N: 6510961.07 Bore 2/00 E:453417.59 N:6511077.15 Bore 3/00 E: 452673.83 N: 6511259.92 Bore 4/00 E: 452867.55 N: 6510917.80 Bore 1/14 E: 453270 N: 6511381 Bore 2/14 E: 453559 N: 6511377	pH	N/A	Spot sample	Monthly during the discharge/irrigation events. Quarterly outside of the discharge periods
	Standing water levels	Metres AHD and mBGL		
	Total Dissolved Solids	mg/L		
	Ammonium-Nitrogen			
	Nitrate + Nitrite - Nitrogen			
	Total Phosphorus			

4 Improvements

4.1.1 The Works Approval Holder shall complete the improvements in Table 4.1.1 by the date of completion in Table 4.1.1.

Table 4.1.1: Improvement program

Improvement reference	Improvement	Date of completion
IR1	The Works Approval Holder shall, prior to 30 April 2017, install one groundwater monitoring bore along the drainage channel near the north eastern boundary (adjacent to Woodindale Rd)(in the approximate location as depicted by the yellow dot in Schedule 1). The monitoring bore shall be installed in accordance with ASTM D5092-04(2010)e1 Standard practice for design and installation of groundwater monitoring wells	Prior to 30 April 2017
IR2	Install earthen containment bunding to the down gradient boundary of the discharge/irrigation areas shown in Schedule 1 to prevent overland flow from these irrigation areas.	Prior to the commencement of irrigation to areas 1, 2 and 3

5 Information

5.1 Reporting

5.1.1 All information and records required by the Works Approval shall:
- (a) be legible;
- (b) if amended, be amended in such a way that the original and subsequent amendments remain legible or are capable of retrieval;
- (c) except for records listed in 5.1.1(d) be retained for at least 6 years from the date the records were made or until the expiry of the Works Approval or any subsequent licence for this premises; and
- (d) for those following records, be retained until the expiry of the Works Approval and any subsequent licence:
  - (i) off-site environmental effects; or
  - (ii) matters which affect the condition of the land or waters.

5.1.2 The Works Approval Holder shall ensure that:
- (a) any person left in charge of the Premises is aware of the conditions of the Works Approval and has access at all times to the Works Approval or copies thereof; and
- (b) any person who performs tasks on the Premises is informed of all of the conditions of the Works Approval that relate to the tasks which that person is performing.

5.2 Ambient and Discharge Monitoring Reporting

5.2.1 The Works Approval Holder shall submit to the CEO an Ambient and Discharge Monitoring Report within 12 months after the final discharge of treated wastewater to discharge irrigations areas 1, 2 and 3 shown on Schedule 1. The report shall contain the information listed in Table 5.2.1 in the format or form specified in that table.

Table 5.2.1: Annual Environmental Report

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
Table 3.2.1	Standing water level, pH, E.coli, Total Suspended Solids, Total Dissolved Solids, Biological Oxygen Demand, Ammonium-Nitrogen, Nitrate + Nitrite-Nitrogen, Total Phosphorus	A summary of the results should be presented in tabulated form within the body of the report as well as onto site drawings, where appropriate.
Table 3.4.1	Monitoring results of ambient groundwater quality: • An interpretive summary and assessment of ambient groundwater quality monitoring results against relevant assessment levels for water as published in the Assessment and management of contaminated sites guidelines. • An interpretive summary and assessment of ambient groundwater quality monitoring results against previous monitoring results. Trend graphs shall be provided in support of this assessment.	A summary of the results should be presented in tabulated form within the body of the report as well as onto site drawings, where appropriate.

5.2.2 The Licensee shall submit the information in Table 5.2.2 to the CEO according to the specifications in that table.

Table 5.2.2: 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 Works Approval Holder by third parties	Not Applicable	Within 14 days of the CEOs request	As received by the Works Approval Holder from third parties

5.3 Notification

5.3.1 The Works Approval Holder shall ensure that the parameters listed in Table 5.3.1 are notified to the CEO in accordance with the notification requirements of the table.

Table 5.3.1: Notification requirements

Condition or table (if relevant)	Parameter	Notification requirement[1]	Format or form[2]
2.1.2	Breach of any limit specified in the Works Approval	As soon as practicable but no later than 5pm of the next usual working day.	None specified
3.1.4	Calibration report	As soon as practicable.	None specified

Note 1: Notification requirements in the Works Approval shall not negate the requirement to comply with s72 of the Act

5.4 Compliance Document

5.4.1 The Works Approval Holder shall submit a compliance document to the CEO, following the construction of the works and prior to commissioning of the same.

5.4.2 The compliance document shall:

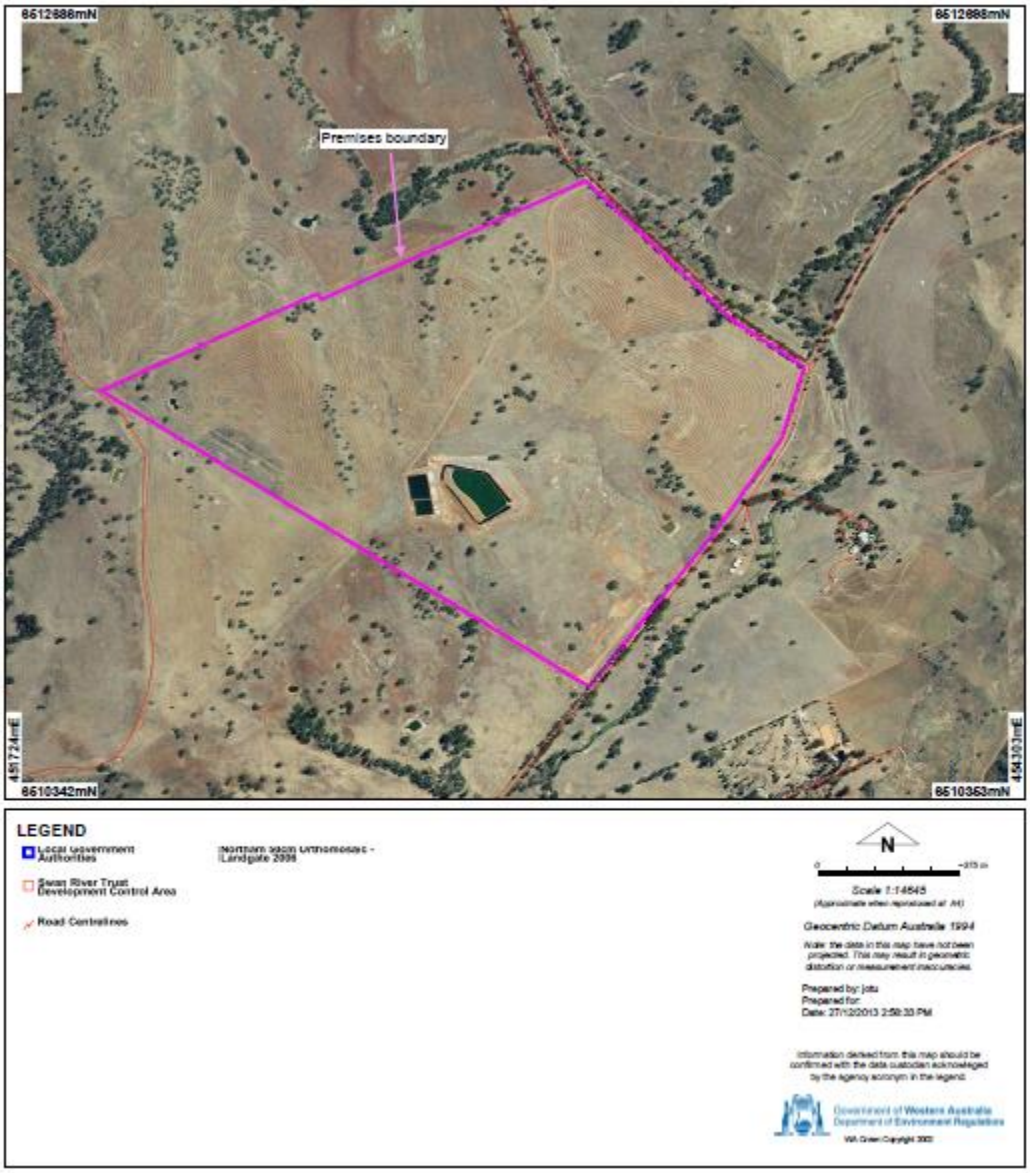
(a) certify that the works were constructed in accordance with the conditions of the works approval;

(b) be signed by a person authorised to represent the Works Approval Holder and contain the printed name and position of that person within the company.

Schedule 1: Maps

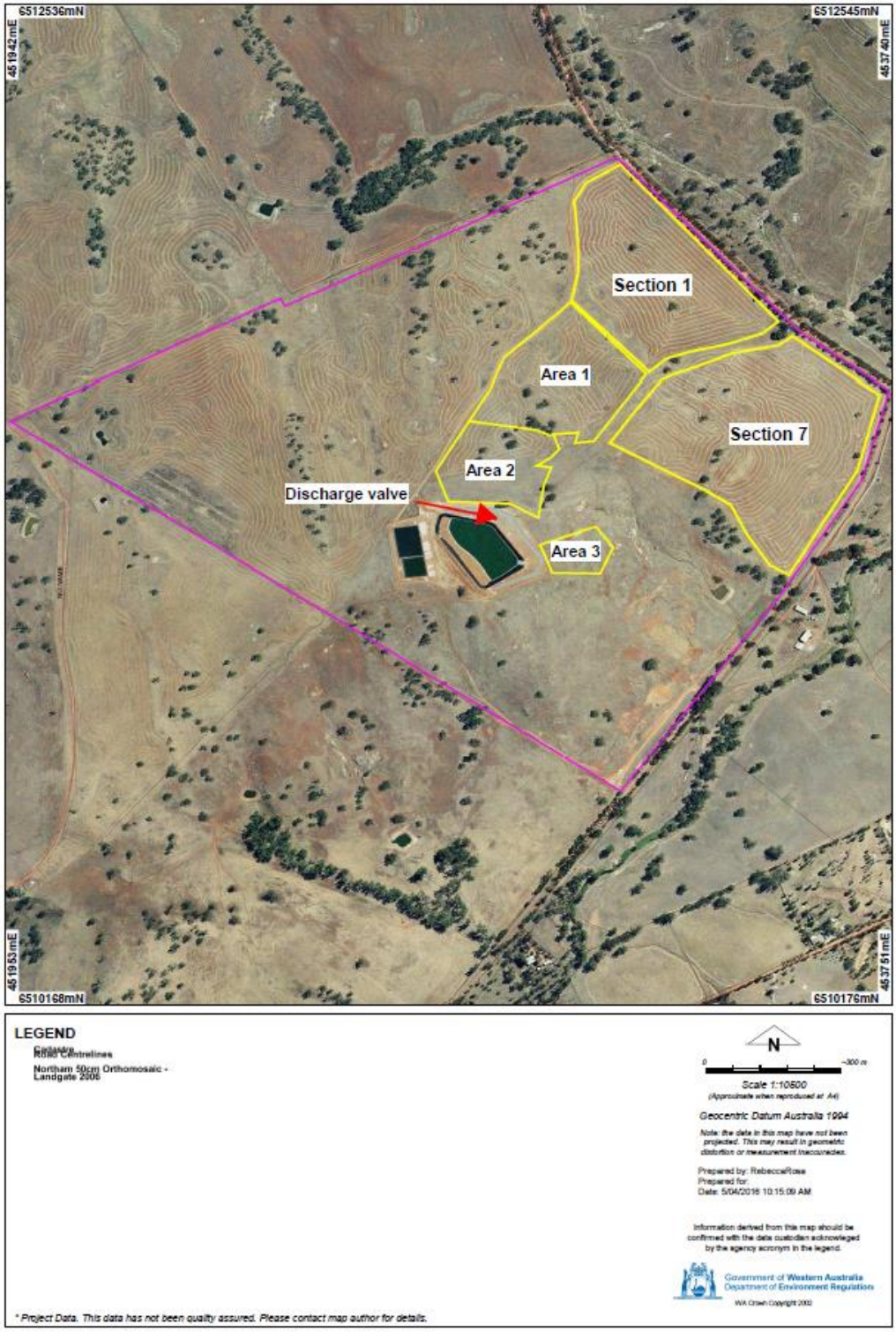
Premises map

The Premises is shown in the map below. The pink line depicts the Premises boundary.



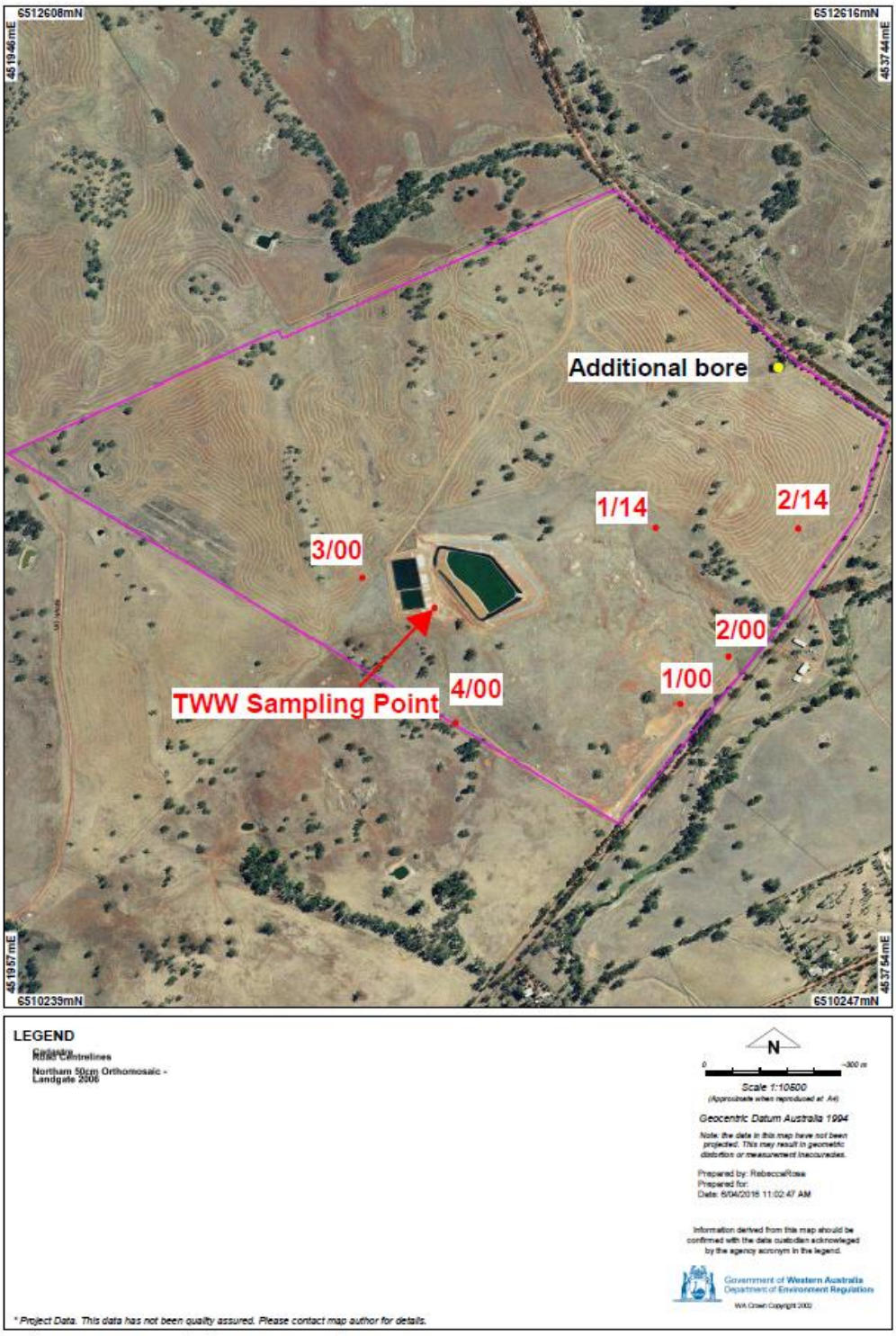
Discharges to Land map

The following map shows the areas subject to discharges (emissions) to land. These areas are bordered in yellow and labelled. The discharge point from the final effluent storage pond to the irrigation laterals that feed to the discharge areas, is also identified and labelled in red.



Monitoring Location map

The following map shows the monitoring locations for final effluent discharge quality and ambient groundwater quality monitoring.



Government of Western Australia
Department of Environment Regulation

Decision Document

Environmental Protection Act 1986, Part V

Proponent: Water Corporation

Works Approval: W5605/2014/1

Registered office: 629 Newcastle Street
LEEDERVILLE WA 6007

ACN: 28 003 434 917

Premises address: Toodyay Wastewater Treatment Plant
211 Goomalling-Toodyay Road
NUNILE WA 6566
Being Lot 501 on Plan 33954

Grant date: Thursday, 17 July 2014

Commencement date: Monday, 21 July 2014

Expiry date: Friday, 20 July 2018

Decision

Based on the assessment detailed in this document the Department of Environment Regulation (DER) CEO's delegated officer, has decided to issue an amended works approval. The delegated officer considers that in reaching this decision, he has taken into account all relevant considerations and its conditions will ensure that an appropriate level of environmental protection is provided.

Decision Document prepared by: Rebecca Rosa
Licensing Officer

Decision Document authorised by: Alan Kietzmann
Delegated Officer

Contents

1 Purpose of this Document

This decision document explains how the DER delegated officer has assessed and determined the application and provides a record of the decision-making process and how relevant factors have been taken into account. Stakeholders should note that this document is limited to DER's assessment and decision making under Part V of the *Environmental Protection Act 1986.* Other approvals may be required for the proposal, and it is the proponent's responsibility to ensure they have all relevant approvals for their Premises.

2 Administrative summary

Administrative details		
Application type	Works Approval ☐ New Licence ☐ Licence amendment ☐ Works Approval amendment ☒	
Activities that cause the premises to become prescribed premises	**Category number(s)**	**Assessed design capacity**
	85: Sewage facility	92m^3/day
Application verified Application fee paid	Date: 18 February 2016 Date: N/A	
Works Approval has been complied with Compliance Certificate received	Yes☐ No☐ N/A☒ Yes☐ No☐ N/A☒	
Commercial-in-confidence claim	Yes☐ No☒	
Commercial-in-confidence claim outcome		
Is the proposal a Major Resource Project?	Yes☐ No☒	
Was the proposal referred to the Environmental Protection Authority (EPA) under Part IV of the *Environmental Protection Act 1986*?	Yes☐ No☒	Referral decision No: Managed under Part V ☐ Assessed under Part IV ☐
Is the proposal subject to Ministerial Conditions?	Yes☐ No☒	Ministerial statement No: EPA Report No:
Does the proposal involve a discharge of waste into a designated area (as defined in section 57 of the *Environmental Protection Act 1986*)?	Yes☐ No☒ Department of Water consulted Yes ☒ No ☐	
Is the Premises within an Environmental Protection Policy (EPP) Area Yes☐ No☒ If Yes include details of which EPP(s) here.		
Is the Premises subject to any EPP requirements? Yes☐ No☒ If Yes, include details here, eg Site is subject to SO_2 requirements of Kwinana EPP.		

3 Executive summary of proposal and assessment

The Toodyay Wastewater Treatment Plant (WWTP) is located on Lot 501 Goomalling-Toodyay Road (Lot 501), Nunile near the townsite of Toodyay, approximately 85km north east of Perth. The premises is located on 135ha of rural land, and is surrounded by rural properties. In 2008 approximately 55ha over 8 sections was planted out by the Forest Products Commission with Acacia spp (*A. acumanata* and *A.saligna*), as hosts for sandalwood production (known on the premises as the woodlot).

The nearest sensitive residential receptor is located approximately 700m south-east of the WWTP. There are not any occurrences of conservation significant flora, fauna or ecological communities within the site. The proposed upgrade does not require any clearing of native vegetation.

The nearest surface water body is the ephemeral Boyagerring Brook which runs along the premises boundary to the north east and south east. At its closest point it is approximately 60m from the northeastern premises boundary. The Brook eventually enters the Avon River that is located approximately 3.1km south-east of the premises. Depth to groundwater is 6-10m across the premises, and appears to flow in an easterly/south easterly direction.

Geology of the site has been surveyed to be a loamy sand, with a low level of salinity. The premises is located within the 'York Land Unit' and is described as having 'York Gum Soils', being rocky red-brown loamy sand/sandy loam, with a typical soil depth of 50-100cm and moderate to highly permeable/rapidly draining red earth soils. The WWTP is located high in the landscape, with the Lot having a maximum elevation of 250m ASL. The land slopes gently (8-12˚) to the east and north east towards the boundary roads.The land to the south of the WWTP is steep, with shallow rocky soils.

The Toodyay WWTP has a current Registration (R1264/1998/1) with the Department of Environment Regulation (DER) for a sewage facility (category 85) in accordance with the *Environmental Protection Regulations 1987*. The site is operated by Water Corporation and currently has a maximum treatment capacity of 92m^3/day, treating on average 70m^3/day.

Waste Treatment Process
The Toodyay WWWTP receives up to 92m^3 of sewage a day, with a typical incoming volume of 63m^3/day. Wastewater treatment at the facility consists of a two stage treatment process whereby the first stage of treatment occurs by facultative pond followed by second stage of treatment by a maturation pond. Once treated, the wastewater flows under gravity to the 60 ML (60,000m^3) final effluent storage pond, where evaporation has primarily been used in the past to maintain water levels.

Initial 2014 Works Approval
On 10 January 2014 Water Corporation advised DER that the final effluent storage pond had experienced significant leakages from the top of the north-east embankment via damage to the HDPE liner. A Dam Safety assessment was undertaken by Water Corporation Dams and Dam Safety Section and the report indicated that the critical embankment section of the pond is in an unsatisfactory condition, and any seismically induced load or other destabilising change could cause slope deformation and catastrophic failure of the dam. The report recommended that the maximum depth of water in the storage pond be kept at 5.5m at the deepest point in the storage pond to prevent further leakage. The reduced depth reduced the available storage in the pond to 35 ML (35,000m^3). In order to reduce the storage capacity of the pond, Water Corporation proposed to maintain the reduced volume of wastewater in the storage dam by irrigating Treated Wastewater (TWW) on two sections of the woodlot on Lot 501, comprising of a 10ha (section 1) and a 16ha (section 7) plot (depicted in Appendix A attached). Water Corporation initially planned to irrigate a 3.5ha section of woodlot with a total TWW of 23.0 ML/year. The wastewater would be passed through the facultative

pond system into the on-site storage pond, the treated wastewater would then filtered to increase the efficiency of chlorination before being pumped to the irrigation area.

In order to install the irrigation system for this some minor upgrade works were required at the WWTP and storage dam. These works were part of the initial works approval application and consisted of:

- A filtration facility
- Surface mounted pumps for treated wastewater transfer to the filtration facility and to irrigation system
- Chlorination facility and connection to use treated wastewater for process water in chlorination module
- New pressure main from the tertiary treatment facilities to transfer chlorinated treated wastewater to the irrigation system
- Flush water return to main to the primary inlet at the head of WWTP
- Flush water return pump station
- Ground level poly tank for storage and supply of water for safety shower and cleaning purposes. Three cylinders of Chlorine will be stored on site providing 20 weeks of storage. The chlorine module is to be fitted with chlorine leak detection and an emergency shut-off device in accordance with Australian Standards.
- Extension of power supply from the existing overhead line near the existing type 90 pump station located within the WWTP
- SCADA system for automatic control of the facilities.

Water Corporation also submitted a Nutrient Irrigation Management Plan (NIMP) 'Draft NIMP for Reuse of Treated Wastewater at Toodyay' dated April 2014 prepared by Soil Management Consultants Pty Ltd to manage the existing *Acacia sp./Casuarina sp./ Sandalwood* woodlot. The NIMP included management actions to encourage the uptake of nutrients by not limiting the growth of the *Acacia* and *Casuarina* species. Rhodes grass sward was also to be encouraged to minimise the risk of soil erosion and provide additional nutrient removal.

The above works were assessed and approved in the intial works approval W5605/2014/1 issued in 2014. In the 2013/14 financial year Water Corporation undertook measures to decrease the level in the pond due to the discovery of the seapage from the downstream face of the pond.

Whilst the above works have been assessed and approved, the works to install the irrigation system as per the initial works approval have not yet been completed. To date the irrigation laterals for this proposal have been installed for the irrigation areas, however the irrigation treatment system (chlorinator and controllers) are yet to be installed. No discharge of treated wastewater has occurred since the 2014 discharge to reduce the water levels in the pond as a matter of urgency. Treated wastewater has continued to be held in the final effluent storage pond since that time. Due to the urgency to replace the liner on the final effluent pond Water Corporation have now provided an additional amendment application to fast track discharges from the pond. It is intended that once the pond has been repaired as part of this Dam Remediation Project and the proposed discharges for that project have ceased, then the works subject to the initial works approval in 2014 to irrigate Sections 1 and 7 will be completed and utilised.

2016 Works Approval Amendment

As previously mentioned, the Department of Environment Regulation (DER) received an application to amend the current works approval W5605/2014/1 to further allow for a Dam Remediation Project to occur. This was received by the Department on 18 February 2016, and resulted from a further review in 2015 of the final effluent storage pond that discovered that even when held at the lower 4m freeboard there was still a high risk of dam failure for the premises. Through this works approval amendment application Water Corporation propose to empty the final effluent storage pond by discharging the stored Treated Wastewater (TWW) across three areas of the premises (irrigation areas 1, 2 and 3). This will allow access for the replacement of the pond's liner and repair of the dam

walls and valves. The final effluent storage pond liner will be replaced with a clay liner meeting 1x 10^{-9}m/s hydraulic conductivity. As part of these works the final effluent storage pond capacity will also reduce from 60,000m^3 to 37,000m^3, following a risk review of the storage dam in relation to nearby farming properties.

Water Corporation are proposing to release treated wastewater from the final effluent storage pond onto the ground into the three discharge areas (totalling 10.375ha) on the premises located north and north-east of the pond (See Areas 1, 2 and 3 on Appendix A). The current discharge volume from the final effluent storage pond is anticipated to be approximately 33,000m^3. As the premises is still receiving and treating wastewater during the works period and the final effluent storage pond will be unavailable, the daily throughput of wastewater treated on the premises will also require discharge via irrigation during the works to repair the pond liner. This discharge will occur with the discharges from the final effluent storage pond. This discharge is proposed to occur over a period of 8 months (excluding wet winter days/periods), to allow for infiltration and evaporation to occur. Discharge will not be continuous and will only occur when an operator is at attendance on the site. Therefore, a period of 8-10 hours drying time a day is expected. Discharges are also not likely to occur over the weekend periods. The initial test discharge is proposed to be 500kL/day within the discharge areas, to determine safe flow discharge rates and the requirement for bunding.

TWW will be dispersed over the new irrigation areas via the sprinkler system constructed through W5605/2014/1. The discharge is not anticipated to result in overland flow outside of the premises boundary given that irrigation will only be undertaken when an operator is on site and the irrigation areas will be closesly monitored. However conditions have been placed on the amended Works Approval to ensure that overland flow off site does not occur due to the close proximity of the Boyagerring Brook. Water Corporation have also committed to ceasing discharges to an area in the event that overland flow is observed leaving an irrigation area, until such time as the ground is no longer saturated. Site operators will be required to monitor infiltration rates and capacity and amend discharge volumes and times accordingly to prevent waterlogging and overland flow. The discharge areas are moderately vegetated with sandalwood and *Acacia spp*. with a grassy understorey.

In order to undertake the Dam Remediation Project the following works are required:

- Flow metres installed to pumps;
- Fencing and signage (re public health hazards);
- Installation of a pump to draw water from from the final effluent storage pond to the new discharge areas;
- Installation of gravity fed piping to disperse the TWW over the discharge areas;
- Installation of a new sprinkler system to disperse the TWW over the new discharge areas;
- Bunding to prevent overland flow and nutrient migration from the premises; and
- Installation of a bunded sludge drying bed to store the sludge removed from the pond. Sludge will be stored within geotubes on the drying bed.

The expected discharge qualities for the discharge from the final effluent storage pond are:

Parameter	**Sample Reading**
Total alkalinity	600
cBOD	10mg/L
pH	9.44
Conductivity	498mS/m
Suspended solids	75mg/L
Nitrogen-Ammonia	0.050mg/L
Nitrogen – NO_2+NO_3	0.14mg/L
Nitrogen - Kjedahl	10mg/L
Total Phosphorus	4.4mg/L
Total Nitrogen	11mg/L
E.coli	63cfu/100ml

Table 1: Results from SGS Water Quality Report 26/11/2013 from Final effluent storage pond sampling point

The nutrient loads (total nitrogen and total phosphorus) to be discharged into the two discharge areas are expected to be approximately 40.98kg/ha/year for Total Nitrogen and 17.99kg/ha/year for Total Phosphorus.

Following the completion of the Dam Remediation Project, irrigation to Areas 1, 2 and 3 will cease. At that time the works approved under the intial works approval issued in June 2014 will have been completed to allow for any ongoing irrigation to occur via the irrigation and chlorination system to the irrigation areas referred to as Section 1 and Section 7. As mentioned above, as part of these works the final effluent storage pond capacity will also reduce from 60,000m^3 to 37,000m^3, following a risk review of the storage dam in relation to nearby farming properties.

Ongoing Regulation

The premises has an existing Registration R1264/1998/1 to operate under the *Environmental Protection Regulations 1987*, as the premises has previously operated at a maximum of 92m^3/day. However following the works subject to this works approval, the capacity for the premises will increase to 122m^3/day. Therefore, a licence issued under the *Environmental Protection Act 1986* will be required to regulate the ongoing operation of the premises.

The current Registration and Works Approval is for a category 85 premises, being a sewage facility on which the production or design capacity does not exceed 100m^3/day. The future licence amendment for the premises will need to be updated to a Category 54 premises, being a sewage facility on which the production or design capacity exceeds 100m^3/day.

This partial decision document assessment focuses on the amendment of the Works Approval associated with the emptying and reparation of the final effluent storage pond, and associated discharges.

The Shire of Toodyay has been consulted in regards to the proposed works, and has advised that planning approval is not required for the Dam Remediation Project and associated works.

4 Decision table

All applications are assessed in line with the *Environmental Protection Act 1986*, the *Environmental Protection Regulations 1987* and DER's Operational Procedure on Assessing Emissions and Discharges from Prescribed Premises. Where other references have been used in making the decision they are detailed in the decision document.

DECISION TABLE			
Works Approval / Licence section	**Condition number W = Works Approval L= Licence**	**Justification (including risk description & decision methodology where relevant)**	**Reference documents**
General conditions	W1.2.1 W1.2.2 W1.2.3 W1.2.4	Standard conditions relating to the works being undertaken as submitted have been applied to the works approval.	Application supporting documentation
Premises operation	W1.3.1	Condition 1.3.1 specifies that irrigation of treated wastewater for the purpose of this works approval shall be undertaken to reduce and prevent the potential for offsite impacts during the period that the storage dam is emptied as part of the Dam Remediation Project.	Application supporting documentation
Emissions general		No significant general emissions are expected during the construction and installation of irrigation and Dam Remediation Project infrastructure. A Nutrient Irrigation Management Plan (NIMP) was submitted with the initial works approval application and will be implemented during operation to monitor treated wastewater discharges. No specified conditions relating to general emissions are required to be added to the works approval.	Application supporting documentation
Point source emissions to air including monitoring		No significant point source air emissions are expected from the construction or operation of the irrigation infrastructure. No specified conditions relating to point source emissions to air or the monitoring of these emissions are required to be added to the works approval.	Environmental Protection (Unauthorised Discharges Regulations, 2004).

DECISION TABLE			
Works Approval / Licence section	**Condition number W = Works Approval L= Licence**	**Justification (including risk description & decision methodology where relevant)**	**Reference documents**
Point source emissions to surface water including monitoring		There are no direct emissions to surface water proposed within the original works approval application or the amendments to the works approval application.	Application supporting documentation
Point source emissions to groundwater including monitoring		There are no direct emissions to groundwater proposed within the original works approval application or the amendments to the works approval application.	Application supporting documentation
Emissions to land including monitoring	W2.1.1 W2.2.1 W2.2.2 W2.2.3 W2.2.4	<u>Emission Description</u> *Emission:* Land and groundwater contaminated by excessive nutrient loading through the irrigation of treated wastewater. *Impact:* Contamination of groundwater, potential impacts on ecology of groundwater and nearby Boyagerring Brook from sustained additional nutrients. *Controls:* Depth to groundwater is approximately 6 to 10 metres across the site. The proponent has proposed measures to assist in reducing potential offsite impacts, such as: - operation of the irrigation system only when an operator is at attendance at the premises to monitor the irrigation (approx. 8-10hrs a day); - ceasing discharges during periods of rainfall and waterlogging/ground saturation; - immediately ceasing discharges in the event that overland flow of irrigated wastewater is seen to be occurring from an irrigation area; and - initial test discharge of 500kL/day across Areas 1, 2 and 3 to determine suitable discharge volumes. <u>Risk Assessment</u> *Consequence*: Moderate	Environmental Protection (Unauthorised Discharges) Regulations, 2004 Application supporting documentation

DECISION TABLE			
Works Approval / Licence section	**Condition number W = Works Approval L= Licence**	**Justification (including risk description & decision methodology where relevant)**	**Reference documents**
		Likelihood: Possible *Risk Rating:* Moderate <u>Regulatory Controls</u> Condition 2.2.1 and Table 2.2.1 specify the areas where treated wastewater is permitted to be discharged/irrigated on the premises. Condition 2.2.2 and Condition 2.2.3 specify that irrigation and discharges are to cease in the event of rainfall events, waterlogging/soil saturation, and in the event that overland flow of wastewater is observed to occur outside of the designated irrigation areas or across the boundary of the premises. Condition 2.2.4 specifies the maximum yearly nutrient loading acceptable for the proposed discharges. Improvement condition IR1 in Table 4.1.1 has been included to detect any degradation due to long term irrigation within the premises while IR2 is included to reduce the likelihood of irrigated runoff from the premises.	
Fugitive emissions		No additional impacts from dust emissions are not expected from the proposed additional activities. Any fugitive dust emissions would be adequately managed under the general provisions of the *Environmental Protection Act 1986.*	*Environmental Protection Act 1986*

DECISION TABLE			
Works Approval / Licence section	**Condition number W = Works Approval L= Licence**	**Justification (including risk description & decision methodology where relevant)**	**Reference documents**
Odour		**Construction and Operation** Emission Description *Emission:* Odour emanating from the premises as a result of the desludging of the final pond, irrigation of treated wastewaster and general odour emissions from the treatment ponds. *Impact:* Surrounding residents could potentially receive odours from the Dam Remediation Project as the final effluent pond is emptied of treated wastewater and sludge, given the right weather conditions (wind direction). *Controls:* The WWTP is located approximately 700m from the nearest sensitive receptor. The project is only for a finite period and is required to address leakage issues from the final effluent storage pond. Sludge will be stored on the premises in geotubes for drying out prior to offsite disposal/reuse. Risk Assessment *Consequence*: Minor *Likelihood:* Unlikely *Risk Rating:* Low Regulatory Controls Given the distance to nearby residents and the nature of the project, odour conditions are not considered necessary to address potential odour emissions from the works. Any fugitive odour emissions can be adequately managed under the general provisions of the *Environmental Protection Act 1986.*	*Environmental Protection Act 1986* Application supporting documentation
Noise		**Construction and Operation** No additional noise emissions are expected as part of this proposed amendment. Ongoing operations of the plant have not been reassessed as they are not expected to increase. The WWTP is located approximately 700m from the nearest sensitive receptor.	Environmental Protection (Noise) Regulations 1997

DECISION TABLE			
Works Approval / Licence section	**Condition number W = Works Approval L= Licence**	**Justification (including risk description & decision methodology where relevant)**	**Reference documents**
		The site is currently a Registered premises therefore regulatory controls will be managed through the *Environmental Protection Act 1986* and subsidiary legislation.	
Monitoring general	W3.1.1 W3.1.2 W3.1.3 W3.1.4	**Construction and Operation** Given the emissions to land and in order to monitor the quality of the discharge and the potential impacts to groundwater from the discharges, discharge point and groundwater monitoring is required. Conditions W3.1.1 to 3.1.4 provide for the correct collection and analysis methods to be undertaken on the samples collected.	*Environmental Protection Act 1986* Application supporting documentation
Monitoring of emissions to land	W3.2.1	**Construction and Operation** In order to monitor the quality of the discharge, sampling and anaylsis of the treated wastewater being discharged is required. Condition W3.2.1 provides for the location, parameters to be tested and frequency of sampling to be undertaken to monitor TWW discharge water quality.	Application supporting documentation
Process monitoring	W3.3.1	**Construction and Operation** In order to ensure that the irrigation areas are operating effectively to assist in reducing overland flow, potential offsite impacts and aid in the reduction of nutrients, Condition 3.3.1 has been included on the works approval. This condition provides for the maintenance of the irrigation system to ensure that it operates efficiently and effectively.	Application supporting documentation
Ambient quality monitoring	W3.4.1	**Construction and Operation** In order to monitor the potential impacts of the proposed treated wastewater irrigation discharges to the groundwater on the premises, ambient groundwater monitoring is required. Condition 3.4.1 specifies the location of monitoring points, parameters to be monitored,	Application supporting documentation

DECISION TABLE			
Works Approval / Licence section	**Condition number W = Works Approval L= Licence**	**Justification (including risk description & decision methodology where relevant)**	**Reference documents**
		frequency and averaging period.	
Improvements	W4.1.1	**Construction and Operation** There are currently six groundwater monitoring locations on the premises to monitor ambient groundwater quality. Two of these (1/14 and 2/14) were installed as a requirement of Condition 4.1.1 of the original works approval issued in 2014. Following a review of the proposal and site drainage, DER's Contaminated Sites Branch has requested an additional groundwater monitoring bore be installed along the drainage channel at the north eastern boundary adjacent to Woodindale Road, to better monitor potential groundwater quality impacts from the ongoing discharges on the premises (Discharge areas Section 1 and Section 7) given drainage to this location. Condition 4.1.1 requires the installation of an additional groundwater monitoring bore prior to 30 April 2017 to allow for ongoing discharges on site to be more adequately monitored. Overland flow from the irrigation areas has also been considered. Whilst it is noted that an operator will be on site to manage the discharges to reduce the potential for overland flow of treated wastewater, and that conditions have been placed on the Works Approval to cease discharges where overland flow is observed, given that the proposed discharges and overland flow may impact on the Boyaggering Brook offsite, bunding to the irrigation areas has been requested. DER notes that the Water Corporation had considered bunding, however stated they would only place the bunding in if it was shown to be necessary. In order to prevent offsite impacts DER considers that the bunding to these areas to prevent overland flow from the irrigation sites need to be installed prior to irrigation to those areas. In addition, DERs Contaminated Sites Branch had advised that interception trenches should be considered, to allow for overland flow to be collected and then pumped back to the discharge areas and re-circulated. DER Licensing	Application supporting documentation Contaminates Sites Branch advice – 21/03/2016 Contaminated Sites Branch correspondence to Water Corporation 13/04/2016

DECISION TABLE			
Works Approval / Licence section	**Condition number W = Works Approval L= Licence**	**Justification (including risk description & decision methodology where relevant)**	**Reference documents**
		understands that re-circulation of overland flow is not practical at this site, and has therefore considered that bunding to the irrigation areas should suffice for the prevention and reduction of overland flow. Therefore IR2 of Table 4.1.1 requires the installation of these bunds on the premises.	
Information	W5.1.1 W5.1.2 W5.2.1 W5.2.2 W5.3.1 W5.4.1 W5.4.2	**Construction and Operation** Standard reporting and record keeping conditions have been placed on the Works Approval to ensure that records pertaining to the works have been correctly kept and provided. Conditions have been placed on the Works Approval to allow for the provision of an Ambient and Discharge Monitoring Report to be provided following the cessation of the discharges to discharge irrigation areas 1, 2 and 3, to allow for the potential impacts of the irrigation of treated wastewater to be reviewed. Conditions 5.4.1 and 5.4.2 allow for the provision of the final compliance document following the completion of works to verify that works were undertaken as per the application documentation submitted.	Application supporting documentation
Works Approval duration		The works approval duration has been amended as part of propsed additional activities. The proposed discharges are to occur over a period of 8 months (excluding wet winter days/periods). Given that discharges will not occur during wet winter periods and soil saturation, and that the amended works approval will be issued just prior to winter, additional time has been added to the works approval. The original works approval was to expire on 20 July 2017. The amendment provides for an extra year to allow for the discharges and the repair of the final effluent storage pond post discharge.	

5 Advertisement and consultation table

Date	Event	Comments received/Notes	How comments were taken into consideration
26/02/2016	Application referred to interested party – Department of Water	No comments received	N/A
12/04/2016	Application details referred to interested party - Shire of Toodyay	Shire of Toodyay advised of the amendment application, requesting advice in relation to potential council/planning approvals. Response received from the Shire that the works proposed as advised by DER are exempt from planning/council approval.	Comments considered in assessment.
12/04/2016	Proponent sent a copy of draft instrument	Response received to clarify that post Dam Remediation Project the final effluent storage pond will decrease to 37ML capacity. Notification that the installation of the extra groundwater monitoring bore will be unable to occur prior to winter, however will be suitable for installation during the summer months.	Dam specified amended and the installation requirement of an additional ambient groundwater monitoring bore has been extended to consider seasonal access.
19/04/2016	Instrument issued		

6 Risk Assessment

Note: This matrix is taken from the DER Corporate Policy Statement No. 07 - Operational Risk Management

Table 1: Emissions Risk Matrix

Likelihood	Consequence				
	Insignificant	Minor	Moderate	Major	Severe
Almost Certain	Moderate	High	High	Extreme	Extreme
Likely	Moderate	Moderate	High	High	Extreme
Possible	Low	Moderate	Moderate	High	Extreme
Unlikely	Low	Moderate	Moderate	Moderate	High
Rare	Low	Low	Moderate	Moderate	High

Appendix A

Figure 1: Premises boundary (pink line) and proposed discharge/irrigation areas (shown in yellow)