Government of Western Australia
Department of Water and Environmental Regulation

Works Approval

Works Approval Number	6097/2017/1
Works Approval Holder	MSP Engineering Pty Ltd
ACN	009 449 950
Registered business address	1100 Hay Street WEST PERTH WA 6005
File Number	DER2017/01555
Duration	19/12/2017 To 18/12/2020
Date of issue	19/12/2017
Prescribed Premises	Category 85
Premises	Chemical Grade Plant 2 Project Construction Camp 75 Old Mill Road, North Greenbushes, WA, 6005 Legal description - Part of Lot 3 on Deposited Plan 21157 Certificate of Title Volume 2076 Folio 826 As defined by the coordinates in Schedule 1

This Works Approval is granted to the Works Approval Holder, subject to the following conditions, on 19/12/2017, by:

Date signed: 19 December 2017
Steve Checker
MANAGER LICENSING (WASTE INDUSTRIES)

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

Explanatory notes

These explanatory notes do not form part of this Works Approval.

Defined terms

Definition of terms used in this Works Approval can be found at the start of this Works Approval. Terms which are defined have the first letter of each word capitalised throughout this Works Approval.

Department of Water and Environmental Regulation

The Department of Water and Environmental Regulation (DWER) is 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 *Environmental Protection Act 1986* (WA) (EP Act). The Department also monitors and audits compliance with licences and works approvals, takes enforcement action and develops and implements licensing and industry regulation policy.

Works Approval

Section 52 of the EP Act provides that an occupier of any premises commits an offence if any work is undertaken on, or in relation to, the premises which causes the premises to become, or to become capable of being, Prescribed Premises, except in accordance with a works approval.

Section 56 of the EP Act provides that an occupier of Prescribed Premises commits an offence if Emissions are caused or increased or permitted to be caused or increased, or Waste, noise, odour or electromagnetic radiation is altered or permitted to be altered from Prescribed Premises, except in accordance with a works approval or licence.

Categories of Prescribed Premises are defined in Schedule 1 of the *Environment Protection Regulations 1987* (WA) (EP Regulations).

This Works Approval does not authorise any activity which may be a breach of the requirements of another statutory authority including, but not limited to, the following:

- conditions imposed by the Minister for Environment under Part IV of the EP Act;
- conditions imposed by DWER for the clearing of native vegetation under Part V, Division 2 of the EP Act;
- any requirements under the *Waste Avoidance and Resource Recovery Act 2007;*
- any requirements under the *Environmental Protection (Controlled Waste) Regulations 2004*; and
- any other requirements specified through State legislation.

It is the responsibility of the Works Approval Holder to ensure that any action or activity referred to in this Works Approval is permitted by, and is carried out in compliance with, statutory requirements.

The Works Approval Holder must comply with the Works Approval. Contravening a Works Approval Condition is an offence under s.55 of the EP Act.

Responsibilities of Works Approval Holder

Separate to the requirements of this Works Approval, general obligations of Works Approval Holders are set out in the EP Act and the regulations made under the EP Act. For example, the Works Approval Holder must comply with the following provisions of the EP Act:

- the duties of an occupier under s.61; and

- restrictions on making certain changes to Prescribed Premises unless the changes are in accordance with a Works Approval, Licence, closure notice or environmental protection notice (s.53).

Strict penalties apply for offences under the EP Act.

Reporting of incidents

The Works Approval Holder has a duty to report to the Department all Discharges of Waste that have caused or are likely to cause Pollution, Material Environmental Harm or Serious Environmental Harm, in accordance with s.72 of the EP Act.

Offences and defences

The EP Act and its regulations set out a number of offences including:

- Offence of emitting an Unreasonable Emission from any Premises under s.49.
- Offence of causing Pollution under s.49.
- Offence of dumping Waste under s.49A.
- Offence of discharging Waste in circumstances likely to cause Pollution under s.50.
- Offence of causing Serious Environmental Harm (s.50A) or Material Environmental Harm (s.50B).
- Offence of causing Emissions which do not comply with prescribed standards (s.51).
- Offences relating to Emissions or Discharges under regulations prescribed under the EP Act, including materials discharged under the *Environmental Protection (Unauthorised Discharges) Regulations 2004 (WA).*
- Offences relating to noise under the *Environmental Protection (Noise) Regulations 1997 (WA).*

Section 53 of the EP Act provides that a Works Approval Holder commits an offence if Emissions are caused, or altered, from a Prescribed Premises unless done in accordance with a Works Approval, Licence or the requirements of a closure notice or an environmental protection notice.

Defences to certain offences may be available to a Works Approval Holder and these are set out in the EP Act. Section 74A(b)(iii) provides that it is a defence to an offence for causing Pollution, in respect of an Emission, or for causing Serious Environmental Harm or Material Environmental Harm, or for discharging or abandoning Waste in water to which the public has access, if the Works Approval Holder can prove that an Emission or Discharge occurred in accordance with a Works Approval.

This Works Approval specifies the Emissions and Discharges, and the limits and Conditions which must be satisfied in respect of specified Emissions and Discharges, in order for the defence to offence provision to be available.

Authorised Emissions and Discharges

The specified and general Emissions and Discharges from the Works authorised through this Works Approval are authorised to be conducted in accordance with the Conditions of this Works Approval.

Amendment of Works Approval

The Works Approval Holder can apply to amend the Conditions of this Works Approval under s.59 of the EP Act. An application form for this purpose is available from DWER.

The CEO may also amend the Conditions of this Works Approval at any time on the initiative

of the CEO without an application being made.

Duration of Works Approval

The Works Approval will remain in force for the duration set out on the first page of this Works Approval or until it is surrendered, suspended or revoked in accordance with s.59A of the EP Act.

Suspension or revocation

The CEO may suspend or revoke this Works Approval in accordance with s.59A of the EP Act.

Definitions and interpretation

Definitions

In this Works Approval, the terms in Table 1 have the meanings defined.

Table 1: Definitions

Term	Definition
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 33 Cloisters Square PERTH WA 6850 info-der@dwer.wa.gov.au
Condition	means a condition to which this Works Approval is subject under s.62 of the EP Act.
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.
Department Request	means a request for Books or other sources of information to be produced, made by an Inspector or the CEO to the Works Approval Holder in writing and sent to the Works Approval's address for notifications, as described at the front of this Works Approval, in relation to: (a) compliance with the EP Act or this Licence; (b) the Books or other sources of information maintained in accordance with this Licence; or (c) the Books or other sources of information relating to Emissions from the Premises.
Discharge	has the same meaning given to that term under the EP Act.
DWER	Department of Water and Environmental Regulation
Emission	has the same meaning given to that term under the EP Act.
Environmental Harm	has the same meaning given to that term under the EP Act.
EP Act	means the *Environmental Protection Act 1986* (WA).
EP Regulations	means the *Environmental Protection Regulations 1987* (WA).
Implementation Agreement or	has the same meaning given to that term under the EP Act.

Decision	
Inspector	means an inspector appointed by the CEO in accordance with s.88 of the EP Act.
Material Environmental Harm	has the same meaning given to that term under the EP Act.
Pollution	has the same meaning given to that term under the EP Act.
Premises	refers to the premises to which this Licence applies, as specified at the front of this Licence and as shown on the map in Schedule 1 to this Licence.
Prescribed Premises	has the same meaning given to that term under the EP Act.
Reportable Event	means an exceedance above the target limit specified in Column 4 of Table 6, in Schedule 3.
Serious Environmental Harm	has the same meaning given to that term under the EP Act.
Unreasonable Emission	has the same meaning given to that term under the EP Act.
Waste	has the same meaning given to that term under the EP Act.
Works	refers to the Works described in Schedule 2, at the locations shown in Schedule 1 of this Works Approval to be carried out at the Premises, subject to the Conditions.
Works Approval	refers to this document, which evidences the grant of the works approval by the CEO under s.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.

Interpretation

In this Licence:

(a) the words ‘including’, ‘includes’ and ‘include’ will be read as if followed by the words ‘without limitation’;

(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 means the version of the standard, guideline or code

of practice in force at the time of granting of this Works Approval and includes any amendments to the standard, guideline or code of practice which may occur from time to time during the course of the Works Approval; and

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

Conditions

Infrastructure and equipment

1. The Works Approval Holder must install and undertake the Works for the infrastructure and equipment:

(a) specified in Column 1; and

to the requirements specified in Column 2 of Table 2 below.

Table 2: Infrastructure and equipment requirements table

Column 1	Column 2
Infrastructure/ Equipment	**Requirements (design and construction)**
Intermittent Decant Extended Aeration Wastewater Treatment Plant	The wastewater treatment system (modular unit) must be designed, constructed and installed to meet the following specifications: (a) 1 x submersible pump station 2.2m in diameter to accepted sewage produced at the premises; (b) 1 x aeration/decant tank (c) 1 x chlorine contact tank; (d) 1x machine room to house ; • solids handling mixer aerator pump; • supplementary air blower if required; • final effluent disposal pump; and • 2 chemical condition pumps with motor control cabinet; (e) 2 x irrigation holding tanks; (f) All infrastructure to be placed upon a bunded, concrete hardstand, except for belowground pump station which is to be stored on a concrete slab; (g) All chemical storage area to be constructed to comply with AS3870 Minor Storage. (h) Maximum design capacity and throughput of 50 kL/day; and (i) Designed to ensure a minimum 'Class C' treatment level for any wastewater discharged from the system to the irrigation area, defined as follows: • BOD < 20 mg/L • TSS < 30 mg/L • TN < 36 mg/L • TP < 9 mg/L • pH 6-9 • *E. coli* < 1000 cfu/ 100 ml • Chlorine 0.2-2.0 mg/L
Irrigation Field	(a) Constructed to a minimum size of 1.4 ha; (b) 1.2m high stock proof fence around the entire area; (c) Boundary fence to include safety signage; (d) Low trajectory large droplet impact sprinklers to be installed to discharged treated wastewater;

Column 1	Column 2
Infrastructure/ Equipment	**Requirements (design and construction)**
	(e) Vegetated around entire area; (f) A sub surface system shall be installed to prevent surface water runoff from the irrigation field.

Material changes notification

2. The Works Approval Holder must not depart from the requirements specified in Column 2 of Table 2 except:

(a) where such departure does not increase risks to public health, public amenity or the environment; and

(b) all other Conditions in this Works Approval are still satisfied.

3. Where a departure from the requirements specified in Column 2 of Table 2 occurs and is of a type allowed by Condition 1, the Works Approval Holder must provide to the CEO a description of, and explanation for, the departure along with the certification required by Condition 2(b).

Compliance

4. Subject to Condition 6, within 21 days of the completion of the Works specified in Column 1 of Table 2, the Works Approval Holder must provide to the CEO an engineering certification from a suitably qualified professional confirming each item of infrastructure or component of infrastructure specified in Column 1 of Table 2 below has been constructed with no material defects and to the requirements specified in Column 2.

5. The Works Approval Holder must:

(a) undertake commissioning for a period not exceeding three months; and

(b) provide a commissioning report to the CEO within one month from the date of completion of commissioning which demonstrates compliance with Table 3 below.

Table 3: Water quality from WWTP commissioning period

Parameter	Water Quality [A]
Biological Oxygen Demand (BOD5)	<20 mg/L
Total Suspended Solids (TSS)	<30 mg/L
Total Thermotolerant Coliforms (TTCs)	< 10 org/100mL
Total Nitrogen (TN)	<38 mg/L
Total Phosphorus (TP)	<9 mg/L
pH	6.5 – 8.5**

Emissions

6. The Works Approval Holder must not cause any Emissions from the Works authorised through this Works Approval except for specified Emissions and general Emissions described in Column 1 of Table 3, subject to the exclusions, limitations or requirements specified in Column 2, of Table 3.

Table 4: Authorised Emissions table

Column 1	**Column 2**
Emission type	**Exclusions/Limitations/Requirements**
Specified Emissions	
Treated sewage discharge to irrigation during commissioning	Subject to compliance with Condition 1 (table 2) Condition 4 (table 3) and Condition 5
General Emissions (excluding Specified Emissions)	
Emissions which arise from undertaking the Works set out in Schedule 2.	Emissions excluded from General Emissions are: • Unreasonable Emissions; or • Emissions that result in, or are likely to result in, Pollution, Material Environmental Harm or Serious Environmental Harm; or • Discharges of Waste in circumstances likely to cause Pollution; or • Emissions that result, or are likely to result in, the Discharge or abandonment of Waste in water to which the public has access; or • Emissions or Discharges which do not comply with an Approved Policy; or • Emissions or Discharges which do not comply with prescribed standard; or • Emissions or Discharges which do not comply with the conditions in an Implementation Agreement or Decision; or • Emissions or Discharges the subject

Column 1	Column 2
Emission type	**Exclusions/Limitations/Requirements**
	of offences under regulations prescribed under the EP Act, including materials discharged under the Environmental P*rotection (Unauthorised Discharges) Regulations 2004*.

Record-keeping

7. The Works Approval Holder must maintain accurate Books including information, reports and data in relation to the Works and the Books must:

(a) be legible;

(b) if amended, be amended in such a ways that the original and subsequent amendments remain legible or are capable of retrieval;

(c) be retained for at least 3 years from the date the Books were made;

(d) be available to be produced to an Inspector or the CEO.

8. The Works Approval Holder must comply with a Department Request within 14 days from the date of the Department Request or such other period as agreed to by the Inspector or the CEO.

Schedule 1: Maps

Premises map

The Premises are shown in the map below. The red line depicts the Premises boundary.

Premises boundary

The Premises boundary is defined by the coordinates in Table 4.

Table 5: Premises boundary coordinates

Easting	Northing
413409.242	6256390.816
413664.170	6256161.534
413676.832	6256343.166
413698.172	6256339.376
6256470.274	413790.381
6256494.152	413736.321

Schedule 2: Works

At the time of assessment, Emissions and Discharges from the Works listed in Condition 1, Table 2 were considered in the determination of the risk and related Conditions for the Works Approval.

Decision Report

Application for Works Approval

Division 3, Part V *Environmental Protection Act 1986*

Works Approval Number	W6097/2017/1
Applicant	MSP Engineering Pty Ltd
ACN	009 449 950
File Number	DER2017/01555
Premises	Chemical Grade Plant 2 Project Construction Camp 75 Old Mill Road, North Greenbushes, WA, 6005 Legal description - Part of Lot 3 on Deposited Plan 21157 Certificate of Title Volume 2076 Folio 826 As defined by the coordinates in Schedule 1 of the Works Approval
Date of Report	19 December 2017
Status of Report	Final

Table of Contents

1. Definitions of terms and acronyms

In this Decision Report, the terms in Table 1 have the meanings defined.

Table 1: Definitions

Term	Definition
ACN	Australian Company Number
Applicant	MSP Engineering Pty Ltd
BOD	Biochemical Oxygen Demand
Category/ Categories/ Cat.	Categories of Prescribed Premises as set out in Schedule 1 of the EP Regulations
cfu/100mL	colony-forming units per 100 millilitres
CS Act	*Contaminated Sites Act 2003* (WA)
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 specifications set out in the works approval application.
Decision Report	refers to this document.
Delegated Officer	an officer under section 20 of the EP Act.
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.
DWER	Department of Water and Environmental Regulation As of 1 July 2017, the Department of Environment Regulation (DER), the Office of the Environmental Protection Authority (OEPA) and the Department of Water (DoW) amalgamated to form the Department of Water and Environmental Regulation (DWER). DWER was established under section 35 of the *Public Sector Management Act 1994* and is responsible for the administration of the *Environmental Protection Act 1986* along with other legislation.
EP Act	*Environmental Protection Act 1986* (WA)
EP Regulations	*Environmental Protection Regulations 1987* (WA)
E. coli	*Escherichia coli*
ha	hectare
Low permeability	Means a hydraulic permeability of 1 x 10^{-9} m/s or less

kL	means kilolitres
Kg/ha/yr	Kilograms per hectare per year
Issued Works Approval	The works approval issued under Part V, Division 3 of the EP Act following the finalisation of this assessment
m^3	cubic metres
Minister	the Minister responsible for the EP Act and associated regulations
mBGL	Meters below ground level
Noise Regulations	*Environmental Protection (Noise) Regulations 1997* (WA)
Occupier	has the same meaning given to that term under the EP Act.
PM	Particulate Matter
PM_{10}	used to describe particulate matter that is smaller than 10 microns (µm) in diameter
PS	Pump Station
Prescribed Premises	has the same meaning given to that term under the EP Act.
Premises	refers to the premises to which this Decision Report applies, as specified at the front of this Decision Report
Primary Activities	as defined in Schedule 2 of the Revised Licence
Risk Event	As described in *Guidance Statement: Risk Assessment*
SS	Suspended Solids
TDS	Total Dissolved Solids
TN	Total Nitrogen
TP	Total Phosphorus
TWW	Treated Wastewater
UDR	*Environmental Protection (Unauthorised Discharges) Regulations 2004* (WA)
WWTP	Wastewater Treatment Plant
WQPN 22	DWER, Water Quality Protection Note 22, July 2008 – Irrigation with nutrient-rich wastewater.

2. Purpose and scope of assessment

2.1 Application details

MSP Engineering Pty Ltd (the **Applicant**) has submitted a Works Approval application (**Application**)for the installation and operation of a mechanical Wastewater Treatment Plant (WWTP) at 75 Old Mill Road, North Greenbushes (**Premises**) (Part of Lot 3 on Deposited Plan 21157).

This ***Decision Report*** presents an assessment of potential environmental and public health risks from emissions and discharges from the construction and operation of the Premises. As a result of this review, a Works Approval has been issued (Issued Works Approval) (Attachment 1). Table 2 lists the documents submitted during the assessment process.

Table 2: Documents and information submitted during the assessment process

Document/information description	Date received
MSP Engineering Pty Ltd - Lot 3 on Plan 21157 75 Old Mill Road - North Greenbushes - Shire of Bridgetown-Greenbushes- Attachment 1A - Draft Lease Agreement - Redacted	1 September 2017
MSP Engineering Pty Ltd - Lot 3 on Plan 21157 75 Old Mill Road - North Greenbushes - Shire of Bridgetown-Greenbushes- Attachment 1B - ASIC Current Company Extract	1 September 2017
MSP Engineering Pty Ltd - Lot 3 on Plan 21157 75 Old Mill Road - North Greenbushes - Shire of Bridgetown-Greenbushes- Attachment 8 - Vendor Quotation	1 September 2017
MSP Engineering Pty Ltd - Lot 3 on Plan 21157 75 Old Mill Road - North Greenbushes - Shire of Bridgetown-Greenbushes- DWER Works Approval Application 30.08.17	1 September 2017
MSP Engineering Pty Ltd - Lot 3 on Plan 21157 75 Old Mill Road - North Greenbushes - Shire of Bridgetown-Greenbushes - Att 2 - 1284-2170-G-GA-003_C	1 September 2017
MSP Engineering Pty Ltd - Lot 3 on Plan 21157 75 Old Mill Road - North Greenbushes - Shire of Bridgetown-Greenbushes - Att 2 - 1284-2170-G-GA-003_C-wet signed	1 September 2017
MSP Engineering Pty Ltd - Lot 3 on Plan 21157 75 Old Mill Road - North Greenbushes - Shire of Bridgetown-Greenbushes - Att 2 - Certificate of Title for H 75 OLD MILL RD NORTH GREENBUSHES 6254 Lot 3 On Plan 21157 - Title	1 September 2017
MSP Engineering Pty Ltd - Lot 3 on Plan 21157 75 Old Mill Road - North Greenbushes - Shire of Bridgetown-Greenbushes - Att 2 - Survey for H 75 OLD MILL RD NORTH GREENBUSHES 6254 Lot 3 On Plan 21157	1 September 2017
MSP Engineering Pty Ltd - Lot 3 on Plan 21157 75 Old Mill Road - North Greenbushes - Shire of Bridgetown-Greenbushes - Attachment 3A - Process Flow Diagram	1 September 2017
Email correspondence: RE: Works Approval Application: Further information received 19 September 2017	19 September 2017
Email correspondence: FW: Works Approval Application: Further information received 26 September 2017	26 September 2017
Email correspondence: RE: Works Approval Application: Further information	26 September 2017

received on WWTP specifications 26 September 2016	
Email correspondence: RE: Works Approval Application: Further information received for TN & TP 27 September 2017	27 September 2017
Email correspondence: RE: Works Approval Application information received on lifespan of WWTP 29 September 2017	29 September 2017
Email correspondence: RE: Works Approval Application information of irrigation fencing 29 September 2017	29 September 2017
Email correspondence: RE: FW: Works Approval Application Updated information on WWTP specifications 2 October 2017	2 October 2017

3. Background

The Applicant intends to construct and operate a temporary construction camp village to service project requirements at the nearby Talison Lithium mine. An Intermittent Decant Extended Aeration Wastewater Treatment (WWTP) will be used to treat sewage from the camp and discharge treated wastewater to the onsite irrigation field.

Table 3 lists the prescribed premises categories that have been applied for.

Table 3: Prescribed Premises Categories in the Existing Licence

Classification of Premises	**Description**	***Approved Premises production or design capacity or throughput***
Category 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 waters.	50 m^3 per day

4. Overview of Premises

4.1 Operational aspects

The WWTP will receive raw sewage generated at the camp via a Pump Station (PS) where it will undergo aerobic treatment and then chlorinated and discharged to an irrigation field. The WWTP process is detailed below:

- Sewage is gravitated to the belowground PS wet sell where it will be macerated and pumped intermittently to the above ground aerobic tank. During this process aluminium sulphate will be added to the aerobic tank via a dosing pump;
- When the sewage reaches a predetermined depth in the aerobic tank the mixing and aerating process will cease. After 50 minutes the sludge in the tank will have enmeshed small particles into more readily settling flocs, reducing the sludge to 35% of the tank depth.
- Three semisubmersible pumps arrayed along the surface decanter will then start and draw off the supernatant liquid into an adjacent chlorine contact chamber until the aerobic tank depth is reduced by around 20%. The PS pumps will then be uninhibited and the mixing/aeration process will recommence in the aerobic tank;
- The wastewater discharged into the chlorine contact chamber will also be automatically dosed with sodium hypochlorite. After 30 minutes contact time the final disposal pump will

start to discharge the treated wastewater to one of two holding tanks for disposal via irrigation;
- Treated wastewater will be discharged to the irrigation field 5 times per day (maximum 10kL in one discharge event).

A low level valve on the aerobic tank of the WWTP will allow settled sludge to the abstracted every 3 months by a Controlled Waste Licensed carrier.

The PS and the WWTP will be constructed offsite by the manufacturer and dry commissioned before arriving at the premises. The WWTP will be delivered to the premises and craned onto concrete foundation blocks and the PS will be lowered into an excavation pit.

4.2 Infrastructure

The Premises infrastructure, as it relates to Category 85 activities, is detailed in Table 4.

Table 4: Chemical Grade Plant 2 Project Construction Camp WWTP Infrastructure

	Infrastructure
	Prescribed Activity Category 85
1	1 x submersible pump station2.2m in diameter to accepted sewage produced at the premises
2	1 x aeration/decant tank
3	1 x chlorine contact tank
4	(a) 1x machine room to house ; • solids handling mixer aerator pump; • supplementary air blower; • final effluent disposal pump; and • 2 chemical condition pumps with motor control cabinet
5	2 x irrigation holding tanks
6	1.8m high chain wire mesh fence
7	Low trajectory large droplet impact sprinklers

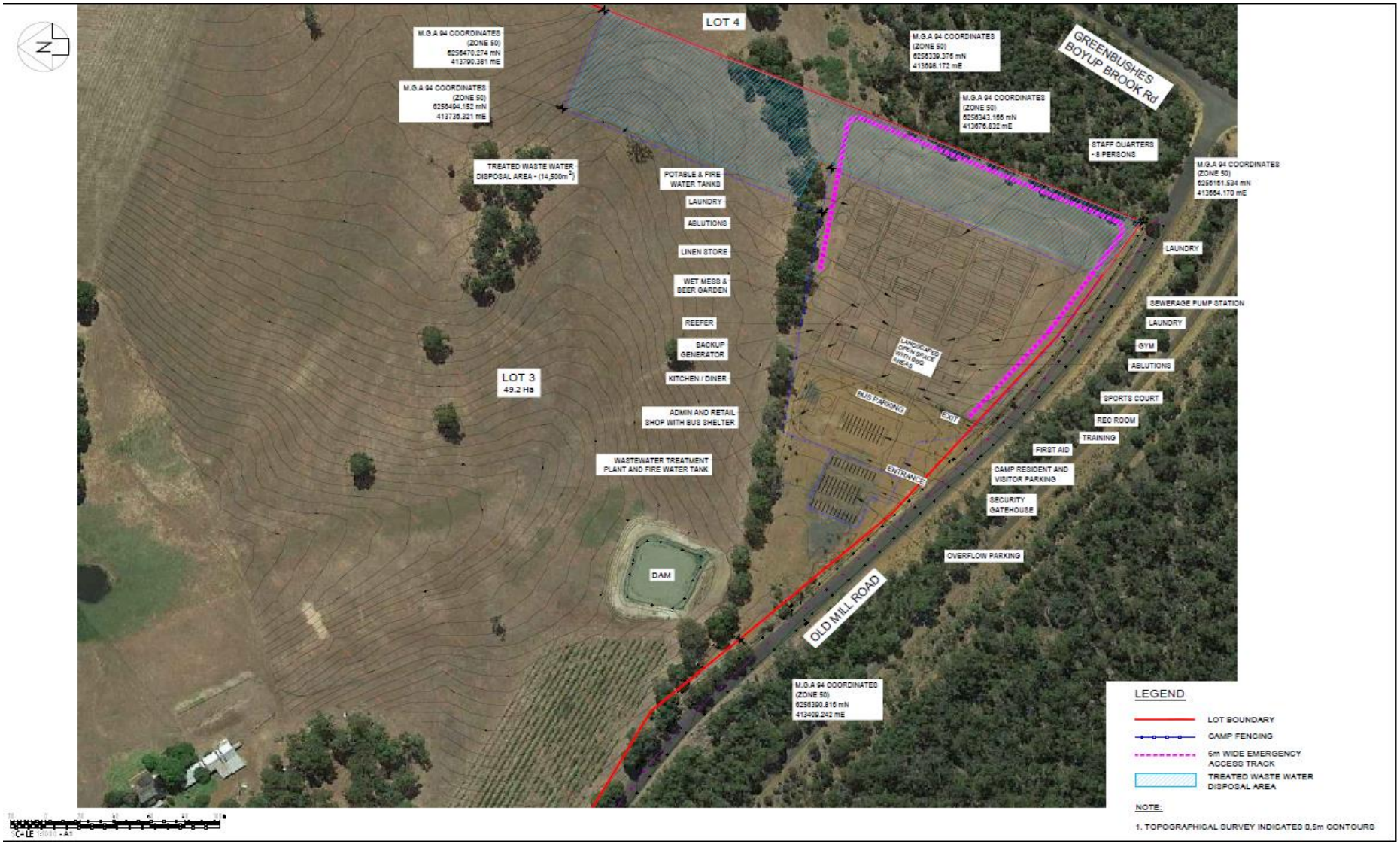

Figure1: Site Layout

5. Legislative context

Table 5 summarises approvals relevant to the assessment.

Table 5: Relevant approvals and tenure

Legislation	Number	Subsidiary	Approval
Planning and Development Regulations 2011	Development Approval P97/2017	Shire of Shire of Bridgetown-Greenbushes	Approval for the construction and operation of the WWTP
Guidelines for the Non-potable Uses of Recycled Water in Western Australia	N/A	Department of Health Western Australia	The Department of Health will assess the WWTP after construction and during the commissioning phase.

5.1 Other relevant approvals

5.1.1 Planning approvals

The Applicant applied for Development Approval to the Shire of Bridgetown Grenbushes for the construction and operation of the WWTP. Development Approval was granted to the Applicant on 18 October 2017.

5.2 Part V of the EP Act

5.2.1 Applicable regulations, standards and guidelines

The overarching legislative framework of this assessment is the EP Act and EP Regulations.

The guidance statements which inform this assessment are:

- *Guidance Statement: Regulatory Principles (July 2015)*
- *Guidance Statement: Setting Conditions (October 2015)*
- *Guidance Statement: Land Use Planning (February 2017)*
- *Guidance Statement: Licence Duration (August 2016)*
- *Guidance Statement: Publication of Annual Audit Compliance Reports (May 2016)*
- *Guidance Statement: Decision Making (November 2016)*
- *Guidance Statement: Risk Assessments (November 2016)*
- *Guidance Statement: Environmental Siting (November 2016)*

6. Consultation

The Works Approval was advertised in the West Australian Newspaper on 30 October 2017. The Works Approval was referred to the Shire of Bridgetown-Greenbushes as a public authority with direct interest on 30 October 2017.

7. Location and siting

7.1 Siting context

The Premises is located in the town of North Greenbushes, located 260km south east of Perth. The surrounding area is mainly farming land and surrounded by state forests. A Lithium mine is located 2km south. The premises is located within the Shire of Bridgetown-Greenbushes' Town Planning Scheme No.4 0 Rural 2 – General Agriculture.

7.2 Residential and sensitive Premises

The distances to residential and sensitive receptors are detailed in Table 6.

Table 6: Receptors and distance from activity boundary

Sensitive Land Uses	Distance from Prescribed Activity
Residential Premises	482m south east of the Premises
Township of North Greenbushes	1.1km west of the Premises

7.3 Groundwater and water sources

The Premise is located at the head of the Balingup Brook catchment which intercepts the head of a tributary to the Balingup Brook. The distances to groundwater and water sources are shown in Table 7.

Table 7: Groundwater and water sources

Groundwater and water sources	Distance from Premises	Environmental value
Dumpling Gully Surface Water Area	400m west	The Dumping Gully Surface Water Area is an unproclaimed surface water system under the *Rights in Water and irrigation Act 1914.* This dam is not licensed under this Act.
Groundwater	1.5m – 23.77m below ground level	Groundwater at the premises occurs in a fractured rock aquifer which flows in a northeast direction. The closest bores with long term level data is a cluster of 16 bores within 1.3km of each other and approx. 4km northwest of the Premises. The data from these bores (last monitored in 1998) indicates the water level and TDS are highly variable.

7.4 Soil type

Soils are predominantly gravels with occasional block laterite outcrops and some elevated areas of sands and sandy loams. In the deeper valleys the soils are heavier alluvials.

8. Risk assessment

8.1 Determination of emission, pathway and receptor

In undertaking its risk assessment, DWER will identify all potential emissions pathways and potential receptors to establish whether there is a Risk Event which requires detailed risk assessment.

To establish a Risk Event there must be an emission, a receptor which may be exposed to that emission through an identified actual or likely pathway, and a potential adverse effect to the receptor from exposure to that emission. Where there is no actual or likely pathway and/or no receptor, the emission will be screened out and will not be considered as a Risk Event. In addition, where an emission has an actual or likely pathway and a receptor which may be adversely impacted, but that emission is regulated through other mechanisms such as Part IV of the EP Act, that emission will not be risk assessed further and will be screened out through Table 9.

The identification of the sources, pathways and receptors to determine Risk Events are set out in Tables 8 and 9 below.

Table 8. Identification of emissions, pathway and receptors during construction

Risk Events						Continue to detailed risk assessment	Reasoning
Sources/Activities		Potential emissions	Potential receptors	Potential pathway	Potential adverse impacts		
Construction, mobilisation and positioning of infrastructure	Vehicle movements on unsealed access roads	Noise	The nearest sensitive receptor is a local residence 482m away	Air / wind dispersion	Amenity impacts	No	The Delegated Officer notes that there will be minimal site works and associated vehicle movements as the WWTP and associate infrastructure will be delivered to the premises with minimal construction work required. The Delegated officer believes that any noise emissions can be regulated through the Noise Regulations.

Risk Events						Continue to detailed risk assessment	Reasoning
Sources/Activities		Potential emissions	Potential receptors	Potential pathway	Potential adverse impacts		
		Dust			Amenity impacts	No	The Delegated Officer notes that there will be minimal site works and associated vehicle movements as the WWTP and associate infrastructure will be delivered to the premises with minimal construction work required. The Delegated officer believes that any dust emissions can be regulated S49 of the EP Act.
	Installation of WWTP	Noise	The nearest sensitive receptor is a local residence 482m away.	Air / wind dispersion	Amenity impacts	No	The Delegated Officer notes that there will be minimal site works and associated with the installation of the WWTP and associate infrastructure as the WWTP will be constructed offsite and craned into the Premises. The Delegated Officer believes noise emissions can be regulated through the Noise Regulations.
		Dust			Amenity impacts	No	The Delegated Officer notes that there will be minimal site works and associated with the installation of the WWTP and associate infrastructure as the WWTP will be constructed offsite and craned into the Premises. The Delegated officer believes that any dust emissions can be regulated S49 of the EP Act.

Risk Events						Continue to detailed risk assessment	Reasoning
Sources/Activities		Potential emissions	Potential receptors	Potential pathway	Potential adverse impacts		
	Commissioning of WWTP	*Treated sewage (nutrient rich effluent) to land*	*Soil and groundwater*	*Discharge to land via soil to groundwater*	*Waterlogged soils, reduction in soil quality resulting in* contamination of groundwater	Yes	Section 8.4

Table 9: Identification of emissions, pathway and receptors during operation

Risk Events						Continue to detailed risk assessment	Reasoning
Sources/Activities		Potential emissions	Potential receptors	Potential pathway	Potential adverse impacts		
Category 85: Sewage facility	*Discharge to land: Treated sewage discharge to irrigation fields via sprinklers*	*Treated sewage (nutrient rich effluent) to land*	*Soil and groundwater*	*Discharge to land via soil to groundwater*	*Waterlogged soils, reduction in soil quality resulting in* contamination of groundwater	Yes	Section 8.4
		Odour	Nearest sensitive receptor is a local residence 482m south east	*Air / wind dispersion*	*Amenity impacts; mental health impacts*	No	The WWTP will produce TWW to a secondary standard s per ANZECC 1997 guidelines. The Delegated Officer notes that the nearest sensitive receptor is 482m away. As such, any odour emissions can be regulated through S.49 of the EP Act.

Risk Events						Continue to detailed risk assessment	Reasoning
Sources/Activities		Potential emissions	Potential receptors	Potential pathway	Potential adverse impacts		
	Storage infrastructure for WWTP (liquid waste) tanks and; Chemical storage of chlorine, Phosphorus precipitant agent and polymers	Overtopping of tanks resulting in sewage (nutrient rich) discharge to land Failure/leaks or seepage from chemical storage and WWTP tanks	Soil and groundwater	Discharge to land via soil to groundwater	Waterlogged soils, reduction in soil quality resulting in contamination of groundwater	No	*The Delegated Officer has considered the risk of emission from tank overflow and leaks and seepage from storage containments and determined that the chemicals stored onsite are in low volume and are stored in the fully enclosed enclosure with restricted access.* *Only small amounts of sodium hypochlorite and chlorine will be stored in the machine room to chemically treat the wastewater. The Delegated Officer considers the UDR sufficient to regulate any unregulated discharge or spill from the Premises.*

8.2 Consequence and likelihood of risk events

A risk rating will be determined for risk events in accordance with the risk rating matrix set out in Table 10 below.

Table 10: Risk rating matrix

Likelihood	Consequence				
	Slight	Minor	Moderate	Major	Severe
Almost certain	Medium	High	High	Extreme	Extreme
Likely	Medium	Medium	High	High	Extreme
Possible	Low	Medium	Medium	High	Extreme
Unlikely	Low	Medium	Medium	Medium	High
Rare	Low	Low	Medium	Medium	High

DWER will undertake an assessment of the consequence and likelihood of the Risk Event in accordance with Table 11 below.

Table 11: Risk criteria table

Likelihood		**Consequence**		
The following criteria has been used to determine the likelihood of the Risk Event occurring.		**The following criteria has been used to determine the consequences of a Risk Event occurring:**		
			Environment	**Public health* and amenity (such as air and water quality, noise, and odour)**
Almost Certain	The risk event is expected to occur in most circumstances	Severe	• **onsite impacts**: catastrophic • **offsite impacts local scale**: high level or above • **offsite impacts wider scale:** mid-level or above • Mid to long-term or permanent impact to an area of high conservation value or special significance^ • Specific Consequence Criteria (for environment) are significantly exceeded	• Loss of life • **Adverse health effects:** high level or ongoing medical treatment • Specific Consequence Criteria (for public health) are significantly exceeded • **Local scale impacts:** permanent loss of amenity
Likely	The risk event will probably occur in most circumstances	Major	• **onsite impacts**: high level • **offsite impacts local scale**: mid-level • **offsite impacts wider scale**: low level • Short-term impact to an area of high conservation value or special significance^ • Specific Consequence Criteria (for environment) are exceeded	• **Adverse health effects:** mid-level or frequent medical treatment • Specific Consequence Criteria (for public health) are exceeded • **Local scale impacts**: high level impact to amenity
Possible	The risk event could occur at some time	Moderate	• **onsite impacts**: mid-level • **offsite impacts local scale**: low level • **offsite impacts wider scale**: minimal • Specific Consequence Criteria (for environment) are at risk of not being met	• **Adverse health effects:** low level or occasional medical treatment • Specific Consequence Criteria (for public health) are at risk of not being met • **Local scale impacts:** mid-level impact to amenity
Unlikely	The risk event will probably not occur in most circumstances	Minor	• **onsite impacts**: low level • **offsite impacts local scale**: minimal • **offsite impacts wider scale**: not detectable • Specific Consequence Criteria (for environment) likely to be met	• Specific Consequence Criteria (for public health) are likely to be met • **Local scale impacts:** low level impact to amenity
Rare	The risk event may only occur in exceptional circumstances	Slight	• **onsite impact**: minimal • Specific Consequence Criteria (for environment) met	• **Local scale**: minimal to amenity • Specific Consequence Criteria (for public health) met

^ Determination of areas of high conservation value or special significance should be informed by the *Guidance Statement: Environmental Siting.*

* In applying public health criteria, DWER may have regard to the Department of Health's *Health Risk Assessment (Scoping) Guidelines.*

"onsite" means within the Prescribed Premises boundary.

8.3 Acceptability and treatment of Risk Event

DWER will determine the acceptability and treatment of Risk Events in accordance with the Risk treatment table 12 below:

Table 12: Risk treatment table

Rating of Risk Event	Acceptability	Treatment
Extreme	Unacceptable.	Risk Event will not be tolerated. DWER may refuse application.
High	May be acceptable. Subject to multiple regulatory controls.	Risk Event may be tolerated and may be subject to multiple regulatory controls. This may include both outcome-based and management conditions.
Medium	Acceptable, generally subject to regulatory controls.	Risk Event is tolerable and is likely to be subject to some regulatory controls. A preference for outcome-based conditions where practical and appropriate will be applied.
Low	Acceptable, generally not controlled.	Risk Event is acceptable and will generally not be subject to regulatory controls.

8.4 Risk Assessment – Treated sewage discharge to land (commissioning and operation)

8.4.1 Description of treated sewage (nutrient rich effluent) emissions

Nutrient rich effluent discharged from the WWTP through irrigation to land causing human health impacts on receptors outside the Premises. Also causes soil and groundwater contamination and impacts to native vegetation and promotes opportunistic weed invasion.

8.4.2 Identification and general characterisation of emission

Irrigated wastewater when treated to secondary standards has potential to contain contaminants that can still be harmful to environmental receptors. The characteristics of TWW include suspended solids, salts, floatable materials, pathogens, odour and nutrients.

Other emissions often associated with the discharge of TWW irrigations are emissions of spray drifts and over sprays. Therefore the frequency or duration and timing of emissions and discharges are depended on the weather conditions and the quality of treated sewage for discharge.

8.4.3 Description of potential adverse impact from the emission

Emissions such as nutrients and other contaminants in the sewage when not removed or properly treated prior to discharge, can become potential hazard to plants and soil when sprayed. This also includes nutrient loading to the environment, weed invasion and potential nutrient wash into waterways promotes algal bloom and eutrophication.

Irrigation of TWW on native vegetation can disrupt and extend growing season of plants and nutrient loading on the land. Although the irrigation of TWW is conducted in a controlled and in

a defined irrigation field by the Applicant; the risk of overspray and spray drift can cause water logging/ponding and possibly localized eutrophication and potentially affect soil chemistry and water holding capacity of soil and excess nutrient runoff. The nature and extent of any impacts depend on many factors including level of exposure and length of time exposed.

The Premises is located at the head of the Balingup Brook catchment and based on contours surface water and surficial GW is likely to move in a northeast direction. However, the area is classified as a fractured rock aquifer and it is difficult to provide generalized comments on groundwater quality, depth and flow direction as it can be highly variable over short distances. Groundwater bores located within a 5km radius of the Premises indicate water levels and electrical conductivity are highly variable.

The Ballingup Brook tributary is has a stream length of approximately 8km before discharging into the Balingup Brook, approx. 5km upstream of Balingup town site. The Shire of Bridgetown and Balingup have constructed a reservoir in the town site to hold back water for irrigation on the town's public open space.

The Dumpling Gully Surface Water Area (DGSWA), which is an unproclaimed surface water system is located 0.5 south west of the Premises. The DGSWA is not licensed under the *Rights in Water and irrigation Act 1914.* The Water Corporation has outlined that the DGSWA is no longer used as a public water source.

8.4.4 Criteria for assessment

Although the *Water Quality Protection Note 22 – Irrigation with Nutrient-rich Wastewater (WQPN) 22* is not recommended for use for irrigation of treated sewage in native vegetation; the criteria for treated sewage irrigation as proposed by the Applicant is based on WPQN 22. The Applicant has proposed that the WWTP will be expected to operate with low influent flow rates with biological and chemical treatment to remove excess nutrients.

Water quality criteria proposed by the Applicant

The following Table 13 lists water quality outputs proposed by the Applicant for treated sewage during operation.

Table 13: Water Quality outputs proposed by the Applicant

Parameters	Expected Water Quality (based on 50kL/day irrigation)
Biological Oxygen Demand (BOD5)	< 20 mg/L
Total Suspended Solids (TSS)	< 30 mg/L
Total Thermo-tolerant Coliforms (TTCs)	< 10 cfu/100
Total Nitrogen (TN)	< 38 mg/L
Total Phosphorus (TP)	< 9 mg/L
pH**	6.5 – 8.5 pH units

** Guideline for the non-potable uses of recycled water in Western Australia – Department of Health (DOH).

The Applicant stated the soil type to be category "D" with fine grained soil and low vulnerability for eutrophication. The proponent provided limited information on the soil type of the areas.

8.4.5 Applicant controls

This assessment has reviewed the Applicant's proposed controls for the irrigation of treated sewage as set out in Table 17 below..

Table 14: Applicant's proposed controls

Infrastructure	*Applicant's control*
Packaged WWTP	- Biological and chemical treatment to remove nutrients - Overflow safety margins in the tanks and alarms to notify tank's potential overflows. Each tank is equipped with water level monitors – hydrostatic transducers/sensors to trigger alarms for *Top of Water levels (TWL)* and *Below Water level (BWL)* to start pumps to transfer water in case of emergencies. - monitoring WWTP performance via Programmable Logic Controller (PLC) to ensure WWTP is operating to expected quality and standard to prevent unauthorised discharge/malfunctions - Storage of chemicals in a fully enclosed enclosure with restricted access
Irrigation field	- Irrigation field is proportionally sized to take up nutrient without causing nutrient load on the land or soil - Irrigation of treated wastewater to be less than 10k/L in a discharge event to prevent pooling. - Recording and monitoring of discharge sewage via electronic meters to monitor water volumes prior to discharge - Maintenance and management of sprinklers as per Technical and Maintenance manual - Record keeping and data collection - Use of impact sprinklers with large droplets to prevent misting and unwanted dispersal of sewage beyond approved irrigation fields - A controlled irrigation program for approved irrigation field and operation of sprinklers by qualified technicians,

8.4.6 Consequence

Based upon the proposed controls and sewage treatment; the Delegated Officer has determined that the impact of irrigation onto land will be limited to minimal off-site impacts. Therefore, the Delegated Officer considers the consequence of irrigation to land during operation to be ***Minor.***

8.4.7 Likelihood of Risk Event

The likelihood of irrigation water with excess nutrient load is unlikely due to biological and chemical treatment and plant operation at a reduced capacity. Therefore, the Delegated Officer considers the consequence to be ***Rare*** and will only occur in exceptional circumstances.

8.4.8 Overall rating of irrigation to land

The Delegated Officer has compared the consequence and likelihood of the risk event and risk treatment as described above with the risk rating matrix **Error! Reference source not ound.** and determined that the overall rating for the risk of irrigation to land during operation is **Low**. The Premises will operate under a Registration

8.5 Summary of acceptability and treatment of Risk Events

A summary of the risk assessment and the acceptability or unacceptability of the risk events set out above, with the appropriate treatment and control, are set out in Table 18 below. Controls are described further in section 11.

Table 15: Risk assessment summary

	Description of Risk Event			**Applicant controls**	**Risk rating**	**Acceptability with controls (conditions on instrument)**
	Emission	**Source**	**Pathway/ Receptor** **(Impact)**			
1.	*Treated sewage (nutrient rich effluent) to land*	WWTP and irrigation field sprinklers	Discharge to land with potential impacts on soil and native vegetation	Management controls	minor consequence with minimal on-site impact the likelihood of emission is Rare **the risk event is Low**	Acceptable subject to Applicant controls conditioned and required by DoH and DWER

9. Regulatory controls

A summary of regulatory controls determined to be appropriate for the Risk Event is set out in Table 19. The risks are set out in the assessment in section 10 and the controls are detailed in this section. DWER will determine controls having regard to the adequacy of controls proposed by the Applicant. The conditions of the Works Approval will be set to give effect to the determined regulatory controls.

Table 16: Summary of regulatory controls to be applied

	Controls **(references are to sections below, setting out details of controls)**		
	Error! eference source not found. **Infrastructure and equipment**	Error! eference source not found. **controls**	Error! eference source not found. **overall rating of risk**
1. Discharge of Treated Sewage	●	●	●

10. Determination of Works Approval conditions

The conditions in the issued Works Approval in Attachment 1 have been determined in accordance with the *Guidance Statement: Setting Conditions*.

Table 20 provides a summary of the conditions to be applied to this Works Approval.

Table 17: Summary of conditions to be applied

Condition Ref	Grounds
Infrastructure and Equipment Condition 1	Environmental compliance is a valid, risk-based condition to ensure appropriate linkage between the licence and the EP Act.
Notification of Material Change 2 and 3	These conditions are valid, risk-based and enable flexibility in operations.
Environmental Compliance Conditions 4 and 5	These conditions are valid, risk-based and contain appropriate controls.
Emissions Condition 6	This condition is valid, risk-based and consistent with the EP Act.
Information Condition 7 and 8	These conditions are valid and are necessary administration and reporting requirements to ensure compliance.

DWER notes that it may review the appropriateness and adequacy of controls at any time and that, following a review, DWER may initiate amendments to the Works Approvals under the EP Act.

11. Applicant's comments

The Applicant was provided with the draft Decision Report and draft issued Works Approval on 5 December 2017. Comments were received from the Applicant on 18 December 2017. Please refer to Appendix 2 for further information.

12. Conclusion

This assessment of the risks of activities on the Premises has been undertaken with due consideration of a number of factors, including the documents and policies specified in this Decision Report (summarised in Appendix 1).

Steve Checker
MANAGER LICENSING (WASTE INDUSTRIES)
Delegated Officer
under section 20 of the *Environmental Protection Act 1986*

Appendix 1: Key documents

	Document title	In text ref	Availability
1.	DER, July 2015. *Guidance Statement: Regulatory principles.* Department of Environment Regulation, Perth.	DER 2015a	accessed at www.dwer.wa.gov.au
2.	DER, October 2015. *Guidance Statement: Setting conditions.* Department of Environment Regulation, Perth.	DER 2015b	
3.	DER, August 2016. *Guidance Statement: Licence duration.* Department of Environment Regulation, Perth.	DER 2016a	
4.	DER, November 2016. *Guidance Statement: Risk Assessments*. Department of Environment Regulation, Perth.	DER 2016b	
5.	DER, November 2016. *Guidance Statement: Decision Making*. Department of Environment Regulation, Perth.	DER 2016c	

Appendix 2: Summary of applicant's comments on risk assessment and draft conditions

Condition	Summary of Licence Holder comment	DWER response
1	The Applicant stated that the supplementary air blower will only be in operation if required.	Condition amended to require supplementary air blower to be used when required
1	Applicant stated that the belowground pump station will be located on a concrete slab and will not be bunded	Condition amended to state that the belowground pump station will be located on a concrete slab
1	The Applicant stated that the chemical storage area will be constructed to comply with AS3870 Minor Storage as opposed to contain 110% of storage capacity	Condition amended to ensure the chemical storage area is constructed to comply with AS3870 Minor Storage
Decision Report: Table 14: Applicants proposed controls	Applicant stated that there will be no inlet screening on the WWTP and outlined screenings will be are disposed of with waste activated sludge every 3 months	Requirement for inlet screen removed from
Decision Report: Table 14: Applicants proposed controls	Applicant stated that discharges will be measured via electronic metres.	Requirement for mag flow meter removed from the table and replaced with electronic meter to monitor discharges from the WWTP.

Attachment 1: Works Approval W6097/2017/1