Government of Western Australia
Department of Water and Environmental Regulation

Amendment Report

Application for Licence Amendment

Part V Division 3 of the *Environmental Protection Act 1986*

Licence Number	L8807/2013/2
Licence Holder	Rottnest Island Authority
File Number	APP-0026524 / ILS2013/000004-1~14
Premises	Rottnest Island Wastewater Treatment Plant Kingsway, The Basin ROTTNEST ISLAND WA 6161 Legal description - Part Lot 10976 on Deposited Plan 216860 Certificate of Title Volume LR3096 Folio 976 As defined by the coordinates in Schedule 2 of the revised licence
Date of Report	27 October 2025
Decision	Revised licence granted

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1. Decision summary

Licence L8807/2013/2 (L8807) is held by Rottnest Island Authority (licence holder) for the Rottnest Island Wastewater Treatment Plant (WWTP) (the premises), located at Part Lot 10976 on Rottnest Island.

This amendment report documents the assessment of potential risks to the environment and public health from proposed changes to the emissions and discharges during the construction and operation of the premises. As a result of this assessment, revised licence L8807/2013/2 has been granted.

The revised licence issued as a result of this amendment consolidates and supersedes the existing licence previously granted in relation to the premises. The revised licence has been granted in a new format with existing conditions being transferred, but not reassessed, to the new format.

2. Scope of assessment

2.1 Regulatory framework

In completing the assessment documented in this amendment report, the department has considered and given due regard to its regulatory framework and relevant policy documents which are available at https://dwer.wa.gov.au/regulatory-documents.

2.2 Application summary

On 25 November 2024, the licence holder submitted an application to the department to amend licence L8807/2013/2 under section 59 and 59B of the *Environmental Protection Act 1986* (EP Act). The following amendments are being sought:

- Installation and operation of a 3.7 m diameter, 50 m^3 capacity storage tank (chlorine contact tank) to store treated wastewater. The tank is to be installed adjacent to existing infrastructure (Tank 6) and will be placed on compacted Bitumen Stabilised Limestone (BSL).
- Installation of a portable building 3 x 6 m in size on compacted BSL (with concrete footings and a 1.2 m concrete apron), to house the tank 6 chlorination disinfection system, recirculation pump, transfer pump and associated valves, alarms, cables, instrumentation and control panels.
- Operation of the tank 6 chlorination disinfection system.
- Installation and operation of above ground and below ground pipelines (and valves) between tank 6, the chlorine contact tank, and the newly installed building.
- Installation of a motorised valve to bypass the chlorine contact tank as needed.
- Earthworks and civil works including grading, construction of a concrete footing, an apron slab and a retaining wall to accommodate the new infrastructure.
- Construction of a drainage system consisting of swales and drainage pipes to service the new infrastructure.
- Addition of limestone to the existing gravel road to provide access for a forklift.
- Installation of above ground and below ground electrical and communication conduit, pits and cabling to service the newly installed building.
- Clearing of approximately 0.026 ha of native vegetation with a bulldozer / excavator to accommodate the new infrastructure.
- Amendment to the prescribed premises boundary.

Assembly of the tank 6 chlorination disinfection system equipment and the Factory Acceptance Test (FAT) will occur within a workshop off-site to determine functionality and to detect faults prior to transport to site.

2.2.1 Operations

Tank 6 is used to store excess recycled water that has been transported via an underground pipeline from the Recycled Water Storage Tank (RWST) within the WWTP. Tank 6 is situated to the west of the WWTP facility and to the south of Longreach Bay, on the opposite end of the golf course to the wastewater treatment plant.

Currently, treated wastewater from tank 6 is fed back to the WWTP (as shown in Figure 2), is reprocessed through the facility and is stored in the RWST before it is irrigated to the golf course and oval. The installation of the new tank and chlorination system will allow the recycled water from tank 6 to be chlorinated then fed directly to the RWST within the WWTP facility without being reprocessed.

Figure 1 provides an overview of the design of the new storage tank and chlorination system, Figure 2 provides an overview of the new process flow, Figure 3 shows the current and proposed prescribed premises boundary, Figure 4 shows the location of tank 6 and the RWST and Figure 5 shows the extent of native vegetation clearing.

A pipeline will connect tank 6 to the chlorine contact tank and incoming flow will be controlled by a transfer pump. The transfer pump is designed to shut down when the chlorine contact tank water levels are high or when tank 6 water levels are low, halting flow into the chlorine contact tank. Similarly, when the chlorine contact tank water levels are low, the transfer pump will restart, and the tank will refill. High and low tank levels will raise warning alarms and will automatically trigger or halt operation of the transfer pump.

Chlorine gas cylinders will be stored in a dedicated chlorine storage building and chlorine gas will be added to the treated water via a vacuum injector. The chlorination system will be attached to a flow control device (FCD). A minimum level set point on the chlorine contact tank will trigger a chlorine recirculation pump (CRP) to start, and the CRP pump discharge line will be fitted with a flow switch, triggering the chlorination unit to start, stop or continue operation based on a minimum chlorination level set point to maintain optimal chlorination levels within the chlorine contact tank.

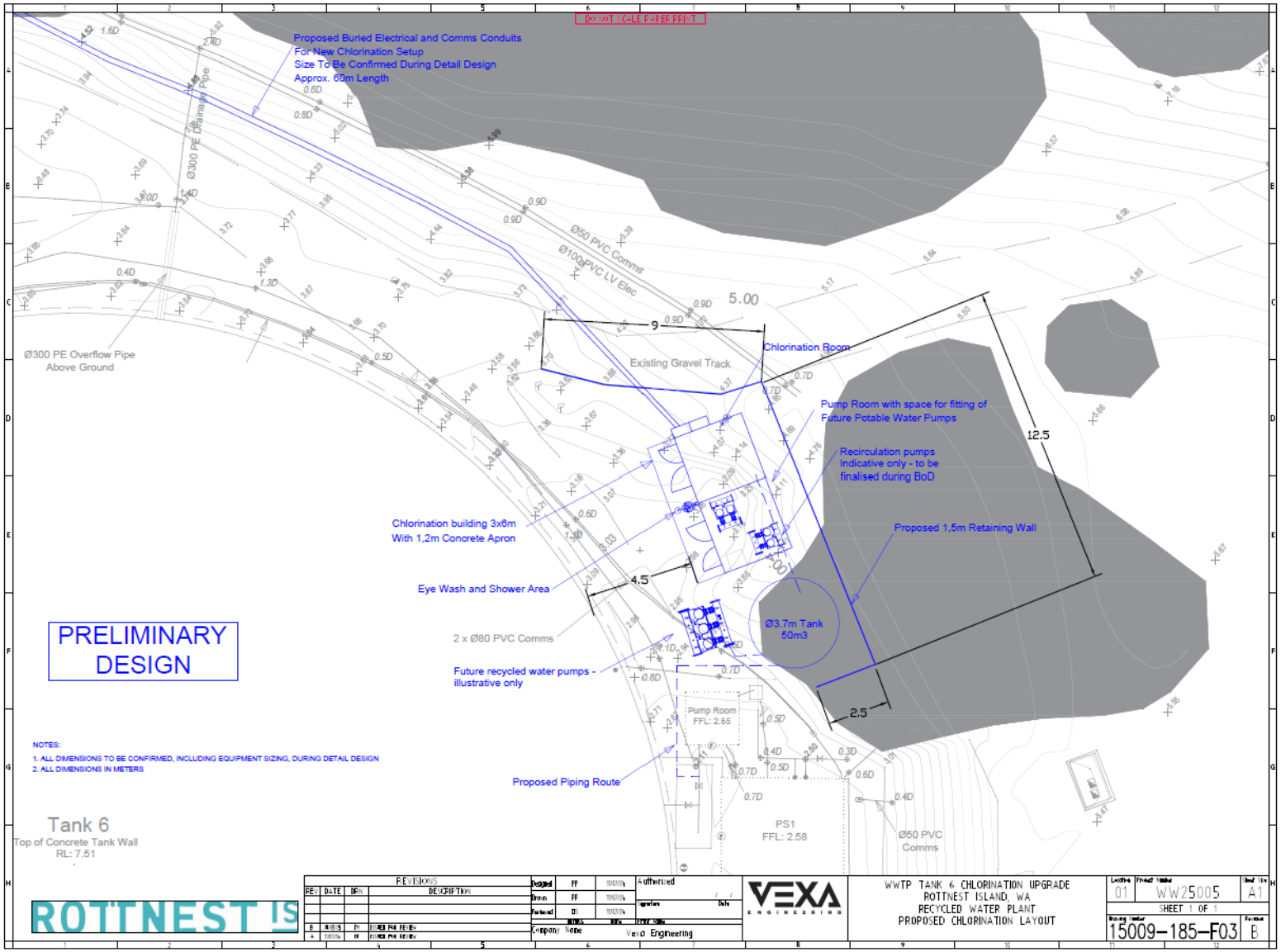

Figure 1: Chlorine contact tank and chlorination disinfection system overview

Licence: L8807/2013/2

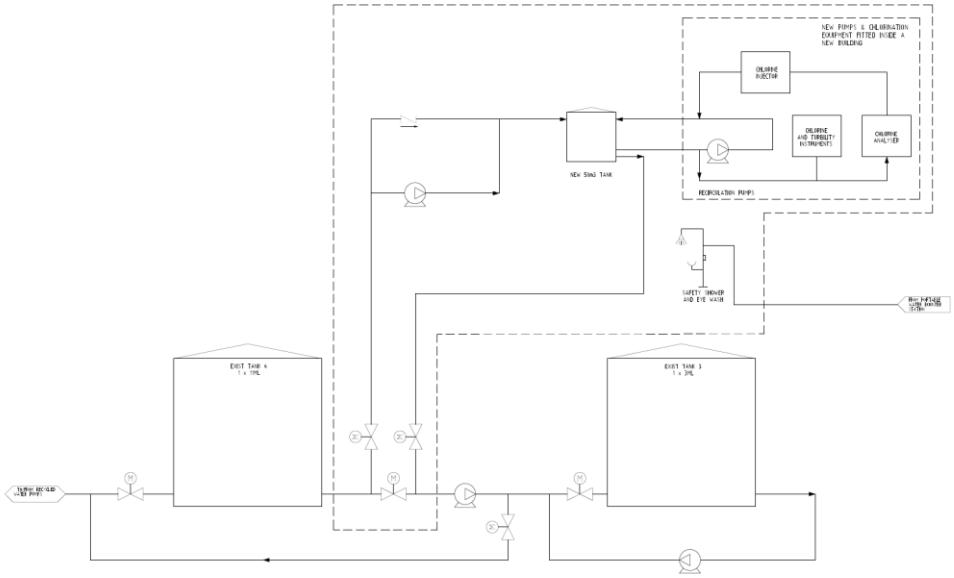

Figure 2: Proposed storage tank and chlorination disinfection system process flow

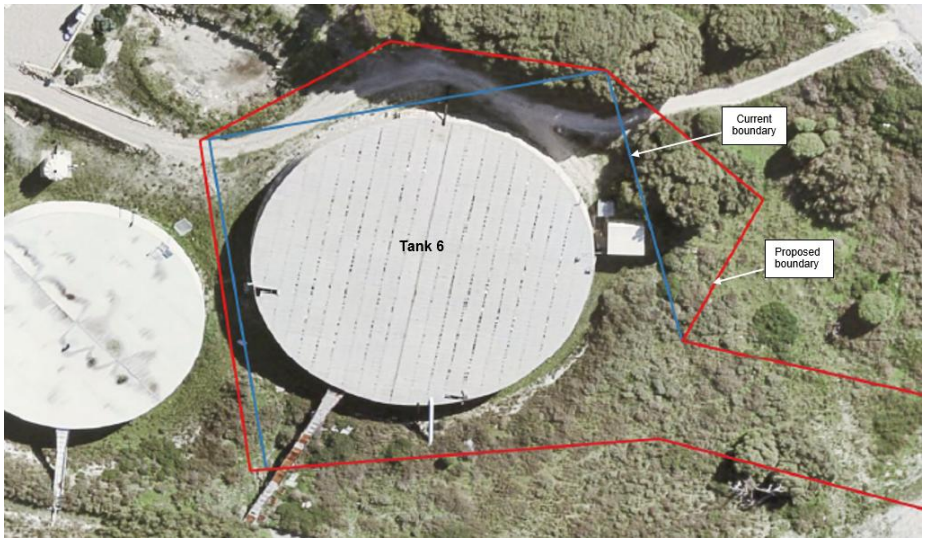

Figure 3: Proposed prescribed premises boundary changes

Figure 4: Location of tank 6 and the Recycled Water Storage Tank (RWST/RWT)

2.3 Native vegetation clearing

The licence holder has advised in the application form that clearing of the 0.026 ha area shown in Figure 4 qualifies for exemption of a clearing permit under Regulation 5, Item 1 of the EP Act (clearing to construct a building).

The department's Native Vegetation Regulation branch were referred the application and advised that exemption for a native vegetation clearing permit is not something that is granted under the EP Act and it is the responsibility of the applicant to determine whether the exemption applies, and to ensure that all approvals including development approvals and building permits are granted prior to the commencement of clearing under the exemption.

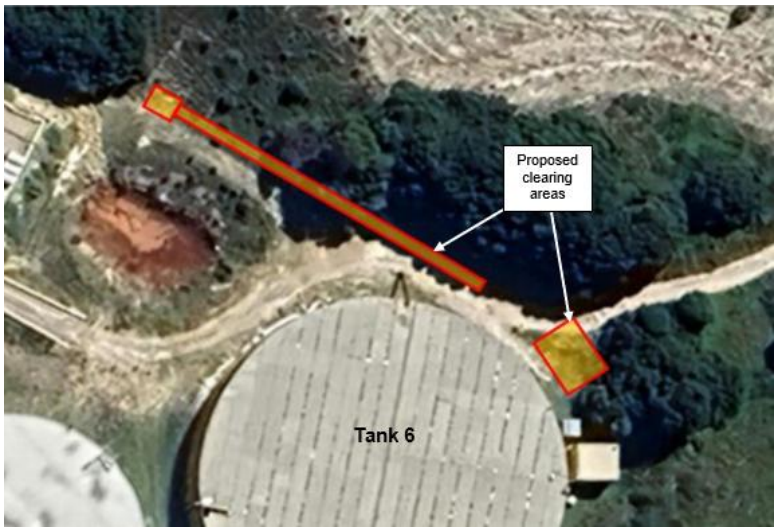

Figure 5: Proposed native vegetation clearing

2.4 Part IV of the EP Act

The premises is governed by Ministerial Statement No: 324, EPA Report No: 598 under Part IV of the EP Act, published 15 October 1993. Conditions within MS 324 relate to water supply and groundwater abstraction, effluent disposal, groundwater monitoring, decommissioning and compliance auditing.

In October 2017, under section 46A of the EP Act, alterations were made to condition 4 of MS 324 as per the 'Notice of Interim Implementation Conditions'. Interim condition M4-1 states that 'the proponent shall not cause the surface water and groundwater quality of the Rottnest Island salt lakes catchment area to be adversely affected by nutrients or bacterial contamination' and that WWTP effluent disposal is to occur in accordance with an approved Nutrient Irrigation Management Plan. The Rottnest Island Recycled Water Scheme NIMP (GHD 2016) is an environmental and health monitoring program developed to monitor for nutrient and bacterial contamination to surface water and groundwater in accordance with MS 324.

The proposed operations are not expected to alter final effluent quality as the treated wastewater returned to the RWST is chlorinated treated wastewater and is therefore low in nutrients and pathogens. As the proposed operations are not expected to modify final effluent quality, do not involve additional direct discharge to land and do not alter the current effluent disposal methods, conditions existing within the current licence relating to irrigation of treated wastewater will not be amended and remain in line with MS 324 requirements.

3. Risk assessment

The department assesses the risks of emissions from prescribed premises and identifies the potential source, pathway and impact to receptors in accordance with the Guideline: Risk assessments (DWER 2020).

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.

3.1 Source-pathways and receptors

3.1.1 Emissions and controls

The key emissions and associated actual or likely pathway during premises construction and operation which have been considered in this amendment report are detailed in Table 1 below. Table 1 also details the proposed control measures the licence holder has proposed to assist in controlling these emissions, where necessary.

Table 1: Licence holder controls

Emission	Sources	Potential pathways	Proposed controls
Construction			
Dust	Vehicle movements, lift-off from stockpiles, earthworks, retaining wall construction, limestone application to roads, installation of underground pipework etc.	Air/windborne pathway	- The area to be excavated is within a depression, protected by vegetation and topography. - Air quality to be maintained via dust suppression measures such as water carts and covering stockpiles, as required. - Works to be ceased in weather conditions predicted to generate significant migration of dust. - Construction will take place between 8 am to 4 pm Monday to Friday. - The duration of works relating to prescribed activities producing dust emissions is expected to be limited to 1 week.
Noise	Operation of medium sized earth moving equipment and vehicle movements		- Construction and installation will take place between 8 am to 4 pm Monday to Friday. - The duration of works relating to prescribed activities producing noise is expected to be limited to 1 week.
Chlorine, hydrocarbon or chemical leaks/spills	Installation of the chlorination system including tie-in works. Operation of medium sized earth moving equipment and	Overland runoff and seepage to soil and groundwater	- Chlorination building assembled off-site. - Chlorination system including pump, piping, valves, instrumentation, electrical work and control equipment inside the chlorination building will be assembled and Factory Acceptance Tested (FAT) prior to assembly on-site to identify/correct any issues before on-site installation and operation.

Emission	Sources	Potential pathways	Proposed controls
	vehicle movements		- Commissioning and tie-in works timed/planned to minimise impact on tank 6 and irrigation.
Commissioning			
Odour	Commissioning of new storage tank and chlorination disinfection system	Air/windborne pathway	- A Site Acceptance Test (SAT) is to be conducted on-site. - Chlorine dosing and storage occurs within the chlorination building (which is ventilated) and the chlorination system will be installed and FAT prior to delivery on-site.
Treated wastewater containing chlorine		Overland runoff and seepage to soil and groundwater Discharge to land	- An SAT is to be conducted on-site. - Commissioning timed/planned to minimise impact on tank 6 and irrigation. - Daily sampling of chlorine contact tank effluent for 5 days post-connection to test and verify desired water quality. Testing to be performed by a NATA accredited laboratory. Sampling and testing conducted as per Department of Health (DoH) '*Standard Recycled Water Sampling Technique'* and '*Standard Method for Examination of Water and Wastewater – APHA-AWWA-WEF*'.
Operation			
Odour	Operation of new storage tank and chlorination disinfection system	Air/windborne pathway	- An SAT is to be conducted on-site. - Chlorine dosing and storage occurs within the chlorination building (which is ventilated) and the chlorination system will be installed and FAT prior to delivery on-site.
Treated wastewater containing chlorine		Overland runoff and seepage to soil and groundwater Discharge to land	- An SAT is to be conducted on-site. - Chlorine dosing is automatically controlled and connected to a Supervisory Control and Data Acquisition (SCADA) system to alert staff of faults or defects. - High tank levels in the chlorine contact tank trigger a warning alarm to prevent tank overflow - Low tank levels in the chlorine contact tank shut down the recirculation pump which triggers chlorine dosing. - Debounce time delay implemented to avoid false alarms.

Emission	Sources	Potential pathways	Proposed controls
			- In the case of power failure, where out-of-specification water is detected and where multiple components fail, operation of the combined system will cease.
Chlorine, hydrocarbon or chemical leaks or spills	Operation of new storage tank and chlorine system	Overland runoff and seepage to soil and groundwater	- An SAT is to be conducted on-site. - Emergency automatic shutdown devices installed on in-service chlorine gas cylinders triggered by gas monitors to detect leaks or defects. - Chlorine gas cylinders to be stored in a contained and ventilated dedicated chlorine storage building.

3.1.2 Receptors

In accordance with the Guideline: Risk assessments (DWER 2020), the Delegated Officer has excluded employees, visitors and contractors of the licence holder's from its assessment. Protection of these parties often involves different exposure risks and prevention strategies, and is provided for under other state legislation.

Table 2 below provides a summary of potential human and environmental receptors that may be impacted as a result of activities upon or emission and discharges from the prescribed premises (Guideline: Environmental siting (DWER 2020)).

Table 2: Sensitive human and environmental receptors and distance from prescribed activity

Human receptors	Distance from prescribed activity
Longreach Bay Settlement - Accommodation	The closest accommodation is approximately 130 m north-northwest measured from the northern amendment activity boundary as shown in Figure 7.
Geordie Bay Settlement - Accommodation and General Store	The general store is approximately 280 m northwest and the closest accommodation is approximately 340 m west-northwest, measured from the westernmost amendment activity boundary as shown in Figure 7.
Discovery Parks Rottnest Island - Accommodation and resort facilities	The closest accommodation is approximately 820 m east-northeast, measured from the easternmost amendment activity boundary as shown in Figure 7.
Thompson Bay Settlement - Accommodation and Town Centre	The closest Thompson Bay dwelling is approximately 940 m east-northeast, measured from the easternmost amendment activity boundary as shown in Figure 7.
Environmental receptors	**Distance from prescribed activity**
Rottnest Island Nature Reserve – Class nature reserve as described in the *Rottnest Island Authority Act 1987*	The premises is located within the Rottnest Island Nature Reserve.

Threatened Ecological Communities (TECs	One BCA Critically Endangered TEC is located within 1 km of amendment activity boundary and within 200 m of prescribed premises boundary.
Fauna: - Threatened and Priority Fauna (EPBC Act) - Specially Protected Migratory Birds (EPBC Act)	10 specially protected migratory bird species, one critically endangered bird species, one threatened (vulnerable) mammal species, one threatened (vulnerable) bird species and 10 specially protected migratory bird species are located within 500 m of the amendment activity boundary and prescribed premises boundary.
Public Drinking Water Source Areas: - Longreach Bay Saltwater Borefield (Priority 3 Rottnest Island Water Reserve - Wellhead Protection Zone) - Wadjemup Borefield (Priority 1 Rottnest Island Water Reserve - Wellhead Protection Zone)	The amendment activity boundary and the prescribed premises boundary is within the Longreach Bay Saltwater Borefield protection zone. Wadjemup Borefield is 1370 m west of the amendment activity boundary and 1333 m west of the prescribed premises boundary The distance to groundwater is approximately 3.7 to 5 mbgl.
Priority Ecological Communities (PECs): Microbialites and microbial mats of coastal hypersaline lakes (Rottnest Island) (Priority 1): - Lake Baghdad - Herschel Lake - Serpentine Lake - Lake Timperley - Lake Vincent - Garden Lake Hypersaline microbial community 1 (Priority 2): - Government House Lake	Two Priority 1 PECs within 500 m of amendment activity boundary and prescribed premises boundary. One Priority 1 PEC within 1 km of amendment activity boundary and within 100 m of prescribed premises boundary. One Priority 2 PEC within 1km of the amendment activity boundary and within 500 m of prescribed premises boundary.
Rottnest Island Lakes: Nationally Important Wetlands (Directory of Important Wetlands in Australia) - 18 lakes & swamps on the north-eastern part of the island, including: - Garden Lake - Herschel Lake - Lake Baghdad - Government House Lake - Serpentine Lake - Lake Timperley - Lake Vincent	The closest lakes to the premises are: Hershel Lake is approximately 380 m south of the amendment activity boundary and is approximately 18 m south of the closest prescribed premises boundary as shown in Figure 6. Lake Baghdad is approximately 395 m southwest of the amendment activity boundary and approximately 280 m southwest of the closest prescribed premises boundary as shown in Figure 7. Garden Lake is approximately 800m southeast of the amendment activity boundary and 0 m south of the closest prescribed premises boundary as shown in Figure 7. Government House Lake is approximately 830 m southwest of the amendment activity boundary and approximately 330 m south of the premises boundary and as shown in Figure 7.

Indian Ocean: - Longreach Bay - Geordie Bay	Closest is Longreach Bay, approximately 175 m north of the amendment activity boundary (and the prescribed premises boundary) and Geordie Bay is approximately 414 m northwest of the amendment activity boundary and 340 m from the closest prescribed premises boundary as shown in Figure 7.
Aboriginal heritage sites	Sites within prescribed premises boundary (on the golf course): – ID 3782 Rottnest: Golf Course – ID 39235 WAD-2021-001 – ID 39237 WAD-2021-002 – ID 31746 Gold Course South Glass Artefact Scatter. Sites within and adjacent to the prescribed premises boundary (on the golf course): – ID 3440 Rottnest Cycleway (on the northern prescribed premises boundary) – ID 31747 Golf Course Northeast Site Glass Artefact Scatter (on the northeastern premises boundary) – ID 39239 SSPAA-2017-01 (on the southeastern premises boundary). Sites within close proximity to the prescribed premises boundary (golf course area): – ID 39238 WAD-2021-004, 9 m from the northern premises boundary – ID 39236 WAD-2021-003, 36 m from the northern premises boundary – ID 3418 Rottnest: Peacock Hill, 7 m southeast of the southeastern premises boundary. ID 3781 Wadjemup Prisoners Cemetery, 36 m southeast of the southeastern premises boundary.

Figure 6: Location of L8807/2013/2 prescribed premises boundary, amendment activity boundary and WWTP

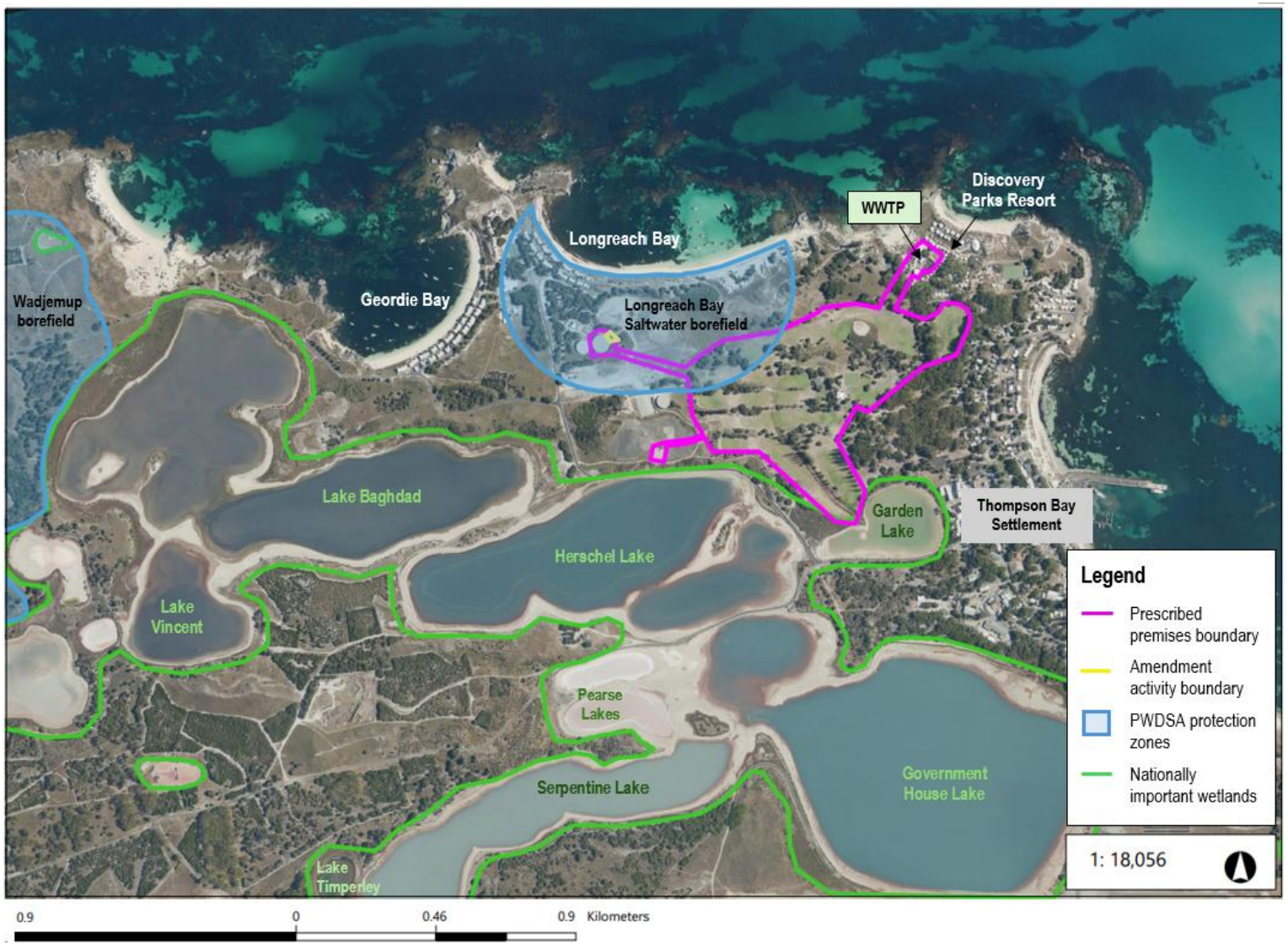

Figure 7: Distance to sensitive receptors

3.2 Risk ratings

Risk ratings have been assessed in accordance with the Guideline: Risk Assessments (DWER 2020) for those emission sources which are proposed to change and takes into account potential source-pathway and receptor linkages as identified in Section 3.1. Where linkages are incomplete they have not been considered further in the risk assessment.

Where the licence holder has proposed mitigation measures/controls (as detailed in Section 3.1), these have been considered when determining the final risk rating. Where the Delegated Officer considers the licence holder's proposed controls to be critical to maintaining an acceptable level of risk, these will be incorporated into the licence as regulatory controls.

Additional regulatory controls may be imposed where licence holder's controls are not deemed sufficient. Where this is the case the need for additional controls will be documented and justified in Table 3.

The revised licence L8807 that accompanies this amendment report authorises emissions associated with the operation of the premises.

The conditions in the revised licence have been determined in accordance with Guidance Statement: Setting Conditions (DER 2015).

Table 3: Risk assessment of potential emissions and discharges from the premises during construction and operation

Risk Event					Risk rating[1] C = consequence L = likelihood	Licence Holder's controls sufficient?	Conditions[2] of licence	Justification for additional regulatory controls
Source/Activities	**Potential emission**	**Potential pathways and impact**	**Receptors**	**Licence Holder's controls**				
Construction								
Earthworks, construction activities and vehicle/machinery operation Native vegetation clearing	Dust	**Pathway:** Air/windborne pathway **Impact:** Health and amenity	Longreach Bay Settlement – closest accommodation is ~ 130 m north-northwest Geordie Bay Settlement – closest accommodation is ~280 m northwest Residences Discovery Parks accommodation is ~820 m east-northeast Thompson Bay Settlement – closest accommodation is ~940 m east PECs within 500 m	Refer to Section 3.1	C = Minor L = Unlikely **Medium Risk**	Y	N/A	Dust generating activities will occur on Monday to Friday 8am until 4 pm only, limiting the impact on sensitive receptors to within these hours. Additionally, dust generating activities relating to prescribed activities are limited to the construction period only and are expected to be for a one week duration; therefore, the general provisions of the EP Act are deemed sufficient to manage dust emissions. The licence holder will apply controls to control dust emissions as necessary, if required.
Placement and installation of tank and associated pipework Installation of chlorination building, chlorination equipment and pumps Earthworks, construction activities and vehicle/machinery operation Native vegetation clearing	Noise		Longreach Bay Settlement – closest accommodation is ~ 130 m north-northwest Geordie Bay Settlement – closest accommodation is ~280 m northwest Residences Discovery Parks accommodation is ~820 m east-northeast Thompson Bay Settlement – closest accommodation is ~940 m east	Refer to Section 3.1	C = Minor L = Possible **Medium Risk**	Y	N/A	Noise generating activities will occur on Monday to Friday 8am until 4 pm only, limiting the impact on sensitive receptors to within these hours. Additionally, noise generating activities related to prescribed activities are limited to the construction period only and are expected to be one week duration; therefore, the *Environmental Protection (Noise) Regulations 1987* are deemed sufficient to manage noise emissions.

Risk Event					Risk rating[1] C = consequence L = likelihood	Licence Holder's controls sufficient?	Conditions[2] of licence	Justification for additional regulatory controls
Source/Activities	**Potential emission**	**Potential pathways and impact**	**Receptors**	**Licence Holder's controls**				
Operation of medium sized earth moving equipment and vehicle movements	Chlorine, hydrocarbon or chemical leaks/spills	**Pathway:** Discharge to land or subsurface seepage caused by tank overtopping or infrastructure defects **Impact:** Soil contamination, degradation of groundwater quality and impacts to downgradient receptors	Rottnest Island Nature Reserve Nationally important wetlands (Rottnest Island lakes) – closest is ~ 380 m south Threatened fauna and specially protected birds - closest within premises boundary PECs within 500 m and TECs within 1 km Longreach Bay Saltwater Borefield (P3 PWDSA) within and surrounding amendment activity boundary Wadjemup Borefield (P1 PWDSA) ~ 1370 m west Indian Ocean ~ 175 m north	Refer to Section 3.1	C = Minor L = Unlikely **Medium Risk**	N	**Conditions 5 & 6**	Applicant controls to address potential emissions of hydrocarbons or other environmentally hazardous materials due to spills or leaks resulting from machinery/vehicle faults or defects, errors or accidents have not been proposed. Conditions 5 and 6 ensure that any potential spills or leaks that may occur during construction activities do not impact sensitive receptors.
Tie-in of new pipework from Tank 6 to chlorine contact tank and chlorine contact tank to chlorination building.	Treated wastewater and chlorine				C = Minor L = Unlikely **Medium Risk**	N	Conditions 23, 24 & 25 **Conditions 5 & 6**	Conditions 5 and 6 ensure that any potential spills or leaks (chlorine or other environmentally hazardous materials) that may occur during construction activities do not impact sensitive receptors.
Commissioning								
Commissioning of the chlorine contact tank and chlorine disinfection system	Odour	**Pathway:** Air/windborne pathway **Impact:** Health and amenity	Longreach Bay Settlement – closest accommodation is ~ 130 m north-northwest Geordie Bay Settlement – closest accommodation is ~280 m northwest Residences Discovery Parks accommodation is ~820 m east-northeast Thompson Bay Settlement – closest accommodation is ~940 m east	Refer to Section 3.1	C = Slight L = Rare **Low Risk**	Y	Conditions 26, 27, 28, 29, 30 & 31	Licence holder controls are deemed sufficient to manage the risk and have been incorporated as conditions in the licence.

Risk Event					Risk rating[1] C = consequence L = likelihood	Licence Holder's controls sufficient?	Conditions[2] of licence	Justification for additional regulatory controls
Source/Activities	**Potential emission**	**Potential pathways and impact**	**Receptors**	**Licence Holder's controls**				
	Treated or partially treated wastewater potentially containing excess chlorine, pathogens or other chemical contaminants	**Pathway:** Discharge to land or subsurface seepage via tank overtopping, spills or infrastructure defects **Impact:** Soil contamination, degradation of groundwater quality and impacts to downgradient receptors	Rottnest Island Nature Reserve Nationally important wetlands (Rottnest Island lakes) – closest is ~ 380 m south Threatened fauna and specially protected birds - closest within premises boundary PECs within 500 m and TECs within 1 km Longreach Bay Saltwater Borefield (P3 PWDSA) within and surrounding amendment activity boundary Wadjemup Borefield (P1 PWDSA) ~ 1370 m west Indian Ocean ~ 175 m north	Refer to Section 3.1	C = Moderate L = Possible Medium Risk	N	Condition 23, 24 & 25 Conditions 26, 27, 28, 29, 30 & 31 **<u>Conditions 5 & 6</u>**	Integrity of infrastructure, valves, pipework, fittings and pumps is to be maintained to prevent unintended release of emissions to the environment via leaks, spills and defects. The licence holder proposes to conduct an FAT off-site and an SAT on-site to manage the risk of emissions due to infrastructure leaks, defects and faults. The Delegated Officer deems the proposed controls sufficient to manage the risk; however, as the requirements of the SAT are not outlined, pre-operational checks are specified in condition 26. Conditions 5 and 6 ensure that any potential spills or leaks (chlorine, partially treated wastewater, treated wastewater or other environmentally hazardous materials) that may occur during commissioning do not impact sensitive receptors.
	Treated wastewater potentially containing excess chlorine, pathogens or other chemical contaminants	**Pathway:** Transfer via bidirectional pipeline to RWST and subsequent discharge to land **Impact:** Soil contamination, degradation of groundwater quality and impacts to downgradient receptors				Y	Conditions 26, 27, 28, 29, 30 & 31	The licence holder proposes to monitor the chlorine contact tank output for five days following construction/installation and tie-in work. The Delegated Officer deems the proposed controls sufficient to manage the risk and this requirement has been incorporated into the licence (conditions 27 to 31) with specifications on water quality parameters to be tested and associated reporting requirements, providing assurance that the water quality delivered to the RWST meets requirements for irrigation.

Risk Event					Risk rating[1] C = consequence L = likelihood	Licence Holder's controls sufficient?	Conditions[2] of licence	Justification for additional regulatory controls
Source/Activities	**Potential emission**	**Potential pathways and impact**	**Receptors**	**Licence Holder's controls**				
	Chlorine, hydrocarbon or chemical leaks or spills due to operation of the chlorination disinfection system or associated pumps and pipework	**Pathway:** Discharge to land and subsurface seepage caused by infrastructure defects or equipment malfunction **Impact:** Ecosystem disturbance caused by altered soil chemistry, groundwater quality and surface water quality and impacts to downgradient receptors	Rottnest Island Nature Reserve Nationally important wetlands (Rottnest Island lakes) – closest is ~ 380 m south Threatened fauna and specially protected birds - closest within premises boundary PECs within 500 m and TECs within 1 km Longreach Bay Saltwater Borefield (P3 PWDSA) within and surrounding amendment activity boundary Wadjemup Borefield (P1 PWDSA) ~ 1370 m west Indian Ocean ~ 175 m north	Refer to Section 3.1	C = Minor L = Unlikely **Medium Risk**	Y	Conditions 26, 27, 28, 29, 30 & 31. **Conditions 5 and 6**.	The integrity of chlorination equipment, pipework, fittings and pumps is to be verified and maintained to prevent unintended release of chemicals to the environment via leaks, spills and defects. The licence holder proposes to conduct an FAT off-site and an SAT on-site to manage the risk of emissions due to chlorination disinfection system leaks, defects and faults. The Delegated Officer deems the proposed controls sufficient to manage the risk; however, as the requirements of the SAT are not outlined, pre-operational conditions have been incorporated into the licence in condition 26. Conditions 5 and 6 ensure that any potential spills or leaks (chlorine, partially treated wastewater, treated wastewater or other environmentally hazardous materials) that may occur during commissioning are responded to appropriately, so they do not impact sensitive receptors. Refer to Section 3.3.

Risk Event					Risk rating[1] C = consequence L = likelihood	Licence Holder's controls sufficient?	Conditions[2] of licence	Justification for additional regulatory controls
Source/Activities	**Potential emission**	**Potential pathways and impact**	**Receptors**	**Licence Holder's controls**				
Operation								
Storage of treated wastewater within new storage tank and associated pipework	Treated or partially treated wastewater via loss of containment	**Pathway:** Discharge to land or subsurface seepage caused by tank overtopping or infrastructure defects **Impact:** Soil contamination, degradation of groundwater quality and impacts to downgradient receptors	Rottnest Island Nature Reserve Nationally important wetlands (Rottnest Island lakes) – closest is ~ 380 m south Threatened fauna and specially protected birds - closest within premises boundary PECs within 500 m and TECs within 1 km Longreach Bay Saltwater Borefield (P3 PWDSA) within and surrounding amendment activity boundary Wadjemup Borefield (P1 PWDSA) ~ 1370 m west boundary Indian Ocean ~ 175 m north	Refer to Section 3.1	C = Moderate L = Unlikely **Medium Risk**	Y	**Conditions 23, 24, 25** **Condition 4** **Conditions 5 & 6**	The controls proposed by the licence holder (tank design, level sensors, automatically activated equipment and connection to the SCADA system) enables potential overflow events to be prevented/detected and actioned to mitigate the risk of emissions to land. However, given that the amendment area is within a P3 PDWSA wellhead protection zone with the ability to impact the water supply, additional requirements have been added to the licence to mitigate the risk of contaminated wastewater to land and subsequently groundwater. Additionally, the depth to groundwater and direction of groundwater flow towards nationally important wetlands and P1 and P2 PECs, warrant additional provisions to protect groundwater from contamination. Tank design and installation specifications relating to infrastructure integrity have been added to condition 23, along with licence holder controls, to prevent unintended release of treated or partially treated wastewater to the environment resulting from leaks and spills due to infrastructure defects or overtopping. The chlorine contact tank and chlorination building require installation on a surface with low permeability to prevent emissions to groundwater due to leaks, spills or

Risk Event					Risk rating[1] C = consequence L = likelihood	Licence Holder's controls sufficient?	Conditions[2] of licence	Justification for additional regulatory controls
Source/Activities	**Potential emission**	**Potential pathways and impact**	**Receptors**	**Licence Holder's controls**				
								overtopping; therefore, it is a requirement of the Environmental Compliance Report to provide permeability specifications for the Bitumen Stabilised Limestone (BSL) post-construction. Refer to Section 3.3.
	Odour	**Pathway:** Air/windborne pathway **Impact:** Health and amenity	Longreach Bay Settlement – closest accommodation is ~ 130 m north-northwest Geordie Bay Settlement – closest accommodation is ~230 m west-northwest Residences Discovery Parks accommodation is ~820 m east-northeast Thompson Bay Settlement – closest accommodation is ~940 m east	Refer to Section 3.1	C = Slight L = Rare **Low Risk**	Y	Conditions 23, 24, 25 Condition 4	No additional controls added as existing conditions relating to containment of treated wastewater are sufficient to manage the risk.

Risk Event					Risk rating[1] C = consequence L = likelihood	Licence Holder's controls sufficient?	Conditions[2] of licence	Justification for additional regulatory controls
Source/Activities	**Potential emission**	**Potential pathways and impact**	**Receptors**	**Licence Holder's controls**				
Operation of chlorination system and associated pumps and pipework	Chlorine, hydrocarbon or chemical leaks or spills	**Pathway:** Discharge to land and subsurface seepage caused infrastructure defects or equipment malfunction **Impact:** Ecosystem disturbance caused by altered soil chemistry, groundwater quality and surface water quality and impacts to downgradient receptors	Rottnest Island Nature Reserve Nationally important wetlands (Rottnest Island lakes) – closest is ~ 380 m south Threatened fauna and specially protected birds - closest within premises boundary PECs within 500 m and TECs within 1 km Longreach Bay Saltwater Borefield (P3 PWDSA) within and surrounding amendment activity boundary Wadjemup Borefield (P1 PWDSA) ~ 1370 m west	Refer to Section 3.1	C = Moderate L = Unlikely **Medium Risk**	Y	Conditions **23, 24 & 25** Condition 4 Conditions 5 & 6	The Delegated Officer considers the licence holder controls (FAT, SAT, and automated equipment consisting of a shutoff system, emergency shut down devices, leak detection equipment, injectors, gas analysers, sensors and chlorine monitoring systems) sufficient to manage the risk of spills resulting from equipment or infrastructure leaks, faults or defects. Additionally, connection to the telemetry and control systems allow for early identification of faults and malfunctions to prevent incorrect dosing and loss of containment. Chemical reagents and chlorine are also to be located within the enclosed chlorination building located on a low permeability Bitumen Limestone Base (BSL) to prevent contamination of groundwater and surface water resulting from unintentional spills and leaks.

Risk Event					Risk rating[1] C = consequence L = likelihood	Licence Holder's controls sufficient?	Conditions[2] of licence	Justification for additional regulatory controls
Source/Activities	**Potential emission**	**Potential pathways and impact**	**Receptors**	**Licence Holder's controls**				
	Odour	**Pathway:** Air/windborne pathway **Impact:** Health and amenity	Longreach Bay Settlement – closest accommodation is ~ 130 m north-northwest Geordie Bay Settlement – closest accommodation is ~230 m west-northwest Residences Discovery Parks accommodation is ~820 m east-northeast Thompson Bay Settlement – closest accommodation is ~940 m east	Refer to Section 3.1	C = Minor L = Rare **Low Risk**	Y	Conditions 23, 24 & 25 Condition 4	No additional controls added as existing conditions relating to containment of treated wastewater are sufficient to manage the risk.
Irrigation of treated or partially treated wastewater to land	Treated wastewater or partially treated wastewater potentially containing excess chlorine, pathogens and other chemical contaminants	**Pathway:** Discharge to land and subsurface seepage to groundwater **Impact:** Ecosystem disturbance caused by altered soil chemistry, groundwater quality and surface water quality and impacts to downgradient receptors	Rottnest Island Nature Reserve Nationally important wetlands (Rottnest Island lakes) – closest is ~ 380 m south Threatened fauna and specially protected birds - closest within premises boundary PECs within 500 m and TECs within 1 km Longreach Bay Saltwater Borefield (P3 PWDSA) within and surrounding amendment activity boundary Wadjemup Borefield (P1 PWDSA) ~ 1370 m west	Refer to Section 3.1	C = Moderate L = Unlikely **Medium Risk**	Y	Conditions 23, 24, 25, 26, 27, 28, 29, 30 & 31 Condition 4	During commissioning, outflow from the chlorination contact tank will be monitored for 5 days to ensure optimal water quality is achieved. The Delegated Officer considers the licence holder controls sufficient to manage the risk, and these controls have been added to the licence within conditions 23, 26, 27 and 4; however, the requirement to monitor residual free chlorine levels from the chlorine contact tank outflow has been added to the licence to ensure sufficient disinfection and to prevent the addition of excess chlorine.

Note 1: Consequence ratings, likelihood ratings and risk descriptions are detailed in the *Guideline: Risk assessments* (DWER 2020).

Note 2: Proposed Licence Holder's controls are depicted by standard text. **Bold and underline text** depicts additional regulatory controls imposed by department.

3.3 Detailed risk assessment

The proposed development area is within the Longreach Bay Saltwater Borefield Wellhead Protection Zone, a Priority 3 Public Drinking Water Source Area (PDWSA) designated to protect the drinking water supply. The land within the borefield boundary is managed under the Rottnest Island Water Reserve drinking water source protection plan by the Rottnest Island Authority (Department of Water, 2014).

The use of land with a P3 PDWSA for a wastewater treatment plant is deemed compatible, providing specific conditions are applied. In this instance, conditions 13, 22, 24 and 28 are applicable. Condition 13 states that land use for WWTP activities are not supported within Wellhead Protection Zones unless special circumstances apply; however, as the proposed activities do not involve a direct discharge to land and involve treated wastewater (and not untreated wastewater containing excess nutrients), and given that the water extracted from Longreach Bay Saltwater Borefield is processed through a desalination plant prior to potable use, the proposed activities are considered acceptable in this instance, providing conditions are applied to protect the groundwater from contamination (DWER, 2021).

Condition 22 stipulates that 'where organic materials and/or turbid wastewaters are stored, adequate bunding should prevent the escape of potential contaminants (such as pathogens and nutrients) into the environment, including planning for contingencies and floods' (DWER, 2021). This requirement in addition to the proximity of P1 and P2 PECs and nationally important wetlands combined with the relatively shallow depth to groundwater and direction of groundwater flow (towards the PECs and wetlands), supports the need for adequate containment to prevent groundwater contamination in the event of unforeseen overtopping, leaks or spills; therefore, conditions 4 (items 23 and 24), 5, 6, 23, 24 and 25 have been added to the licence.

Condition 24 states that "hydrocarbons, chemicals and other toxic or hazardous substances should be stored so there is no discernible risk of contamination to groundwater or surface water" (DWER, 2021). Licence holder controls are sufficient to manage this risk as chlorine will be stored within an enclosed, designated chlorination building on a base with low permeability. The requirement to store chlorine according to Australian standard AS 2927:2019 The storage and handling of liquefied chlorine gas and this condition has been added to conditions 23 and 4. Additionally, conditions 5 and 6 ensure that any spills are contained and that hazardous materials are removed from the site.

Condition 17 states that the proposed activity/land use may require assessment by the department under the EP Act (DWER, 2021). This requirement has been met, and no additional controls are required under this condition.

4. Consultation

Table 4 provides a summary of the consultation undertaken by the department.

Table 4: Consultation

Consultation method	Comments received	Department response
Local Government Authority advised of proposal (25/06/25)	No comments received.	Note that development applications are managed by the Rottnest Island Authority (the licence holder).

Department of Planning, Lands and Heritage (DPLH) advised of proposal (25/06/25)	The DPLH Heritage Conservation Team replied on 10/07/25 stating that the subject area does not intersect with any known Aboriginal heritage places or registered sites; therefore, *Aboriginal Heritage Act 1972* approvals are not required. DPLH advises the Rottnest Island Authority (RIA) to regularly monitor the Aboriginal Cultural Heritage Inquiry System (ACHIS) to identify newly reported Aboriginal heritage within the proposal area using the following link: Aboriginal Cultural Heritage Inquiry System.	Noted.
Department of Health (DoH) advised of proposal (25/06/25)	DoH replied on 07/07/25 stating/advising that: - Amendment to Rottnest Island Authority Recycling Scheme Approval (D98/00000) is required. The Rottnest Island Authority will need to contact the Water Unit of the Department of Health for proper assessment and approval. - Engineering certification for the structural integrity of the chlorine contact tank is required. - Validation and verification samples for water quality from the chlorine contact tank may be required. - An updated Recycled Water Quality Management Plan is required. - Figures 2 and 3 in the application documents are of low resolution and are illegible.	Applicant to note advice from DoH regarding the need for amendment to the Scheme Approval and to update the Recycled Water Quality Management Plan. Engineering certification verifying the structural integrity of the chlorine contact tank has been incorporated into licence conditions. Sampling from the chlorine contact tank for the first 5 days of operation during environmental commissioning has been incorporated into the licence.
Department of Biodiversity, Conservation and Attractions (DDBA) advised of proposal (25/06/25)	DBCA replied on 26/06/25 stating no comments.	N/A
Discovery Parks (DP) advised of proposal (25/06/25)	No comments received.	N/A
Licence Holder was provided with draft amendment on (01/09/25)	Refer to Appendix 1	Refer to Appendix 1

5. Conclusion

Based on the assessment in this amendment report, the Delegated Officer has determined that a revised licence will be granted, subject to conditions commensurate with the determined controls and necessary for administration and reporting requirements.

5.1 Summary of amendments

Table 5 provides a summary of the proposed amendments and will act as record of implemented changes. All proposed changes have been incorporated into the revised licence as part of the amendment process.

Table 5: Summary of licence amendments

Condition no.	Proposed amendments
N/A	Correction of minor administrative and grammatical errors.
N/A	Licence history table updated to include this amendment.
N/A	Year added to Australian Standards throughout the document as requested by the applicant.
N/A	Addition of 'Operations' heading.
Condition 4, Table 3 Item 13(a)	Australian Standard '*AS 3780-2020: Storage and handling of corrosive substances*' updated to '*AS3780:2023 Storage and handling of corrosive substances*' to reflect the most recent standard.
Condition 4, Table 3 Items 23 & 24	Inclusion of operational requirements for chlorine contact tank and tank 6 chlorination disinfection system.
N/A	Addition of 'Environmentally hazardous materials' heading
Condition 5	Inclusion of requirements for removal of spills of environmentally hazardous materials.
Condition 6	Inclusion of requirements for disposal of environmentally hazardous materials.
N/A	Addition of 'Operations' heading.
Condition 7, Table 4 Previously Condition 5, Table 4	Revised condition and table numbering.
Condition 8, Table 5 Previously Condition 6, Table 5	Revised condition and table numbering.
Condition 9 Previously Condition 7	Revised condition numbering.
Condition 10 Previously Condition 8	Revised condition numbering.

Condition 11 Previously Condition 9	Revised condition numbering.
Condition 12 Previously Condition 10	Revised condition numbering.
Condition 13 Previously Condition 11	Revised condition numbering.
Condition 14 Previously Condition 12	Revised condition numbering.
Condition 15 Previously Condition 13	Revised condition numbering.
Condition 16 Previously Condition 14	Revised condition numbering.
N/A	Addition of 'Records' heading as per revised licensing format.
Condition 17 Previously Condition 15	Condition 17(c) added and conditions 17(d) and 17(e) updated to include the works, maintenance and monitoring conducted under this amendment. Revised condition numbering.
Condition 18 Previously Condition 8	Revised condition numbering.
Condition 19 Previously Condition 17	Revised condition numbering.
N/A	Addition of 'Reporting' heading as per revised licensing format.
Condition 20 Previously Condition 18	Revised condition numbering.
Condition 21 Previously Condition 19	Revised condition numbering.
Condition 22 Previously Condition 20	Revised condition numbering.

N/A	Addition of ‘Specified actions’ heading.
N/A	Addition of ‘Tank 6 chlorination system construction / installation’ heading.
Condition 23, Table 9	Inclusion of infrastructure and equipment design and construction / installation requirements for the chlorine contact tank, tank 6 chlorination system and the chlorination building.
Condition 24	Inclusion of Environmental Compliance Report submission requirements.
Condition 25	Inclusion of Environmental Compliance Report content requirements.
N/A	Addition of ‘Environmental Commissioning’ heading.
Condition 26	Inclusion of infrastructure and equipment testing requirements during Environmental Commissioning.
Condition 27, Table 10	Inclusion of chlorine contact tank outflow water quality monitoring requirements during Environmental Commissioning.
Condition 28	Inclusion of chlorine contact tank outflow water quality monitoring records requirements during Environmental Commissioning.
Condition 29	Added to ensure sampling and analysis during environmental commissioning is NATA accredited for the parameters specified.
Condition 30	Inclusion of Environmental Commissioning Report submission requirements.
Condition 31	Inclusion of Environmental Commissioning Report content requirements.
N/A Definitions Table Table 11, previously Table 9.	Definitions added: ‘AS 2927:2019’, ‘AS 4766:2020’, ‘environmentally hazardous materials’, ‘environmental commissioning’, ‘environmental commissioning report’, ‘environmental compliance report’, ‘recycled water tank’ and ‘suitably qualified civil or structural engineer’. Definitions updated: ‘AS 4482.1’, ‘AS/NZS 5667.1’, ‘AS/NZS 5667.4’, ‘AS/NZS 5667.10’, ‘AS/NZS 5667.11’ and ‘department’. Revised table numbering.
N/A Schedule 1: Maps	Figure 1 Premises map updated to reflect amended prescribed premises boundary and premises map description added. Inclusion of Figure 10: Tank 6 chlorination system site layout map. Inclusion of Figure 11: Tank 6 chlorination system process flow diagram map. Inclusion of Figure 12: Tank 6 chlorination system process and instrumentation diagram. Inclusion of Figure 13: Chlorination building footing design drawings. Inclusion of Figure 14: Chlorination building concrete footing layout.
N/A Schedule 2: Premises boundary co-ordinates Table 12, previously Table 10	Premises boundary co-ordinates updated to amended prescribed premises boundary co-ordinates. Description and table headings updated as per revised licensing wording. Revised table numbering.

N/A Schedule 3: Monitoring program Conditions 1 to 4	Revised table numbering. Tables 11 to 14 renumbered to 13 to 16. In Table 16 of condition 4, duplication of monitoring location HA08 removed from row 1, column 1.

References

1. Department of Environment Regulation (DER) 2015, *Guidance Statement: Setting Conditions*, Perth, Western Australia.
2. Department of Environment Regulation (DWER) 2021, *Water Quality Protection Note 25 (WQPN 25): Land Use Compatibility Tables for Public Drinking Water Source Areas*, Perth, Western Australia.
3. Department of Water (DoW) 2014, *Rottnest Island Water Reserve: Drinking Water Source Protection Plan*, Perth, Western Australia.
4. Department of Water and Environmental Regulation (DWER) 2020, *Guideline: Environmental Siting*, Perth, Western Australia.
5. DWER 2020, *Guideline: Risk Assessments*, Perth, Western Australia.

Appendix 1: Summary of licence holder's comments on risk assessment and draft conditions

Condition	Summary of licence holder's comment	Department's response
Condition 23 (Condition 4 in DRAFT licence)	Request to include the drawings/diagrams/set points and to move the construction and commissioning requirements to an Appendix or separate memorandum, as the current layout compromises readability.	The format and wording of condition 23 is the standard format and wording for construction / installation of infrastructure within works approvals and licences. The conditions relating to the construction of 'tank 6 chlorination system project' infrastructure have been added to the end of the licence as specified actions to address the concern of licence readability. The intent of the conditions has not been changed.
Condition 23 Item 3(e) (Condition 4 in DRAFT licence)	The hardstand to be used beneath the chlorine contact tank (CCT) is Bitumen Stabilised (BSL) which does not have a permeability less than 1 x 10^{-9} m/s (or equivalent). Following receipt of comments from the licence holder, a request for further information regarding hardstand specifications and permeability was requested. The proposed hardstand is 150 mm thick and compacted to 95% Maximum Modified Dry Density (MMDD); however, a permeability range for this BSL and hardstand permeability specifications cannot be provided pre-construction. Request to remove this condition as the expense of a concrete hardstand is prohibitive for the project and it is deemed unnecessary. RIA considers the potential for contamination of groundwater very low given: • Wastewater stored within the CCT is treated to a high quality, posing a very low to negligible risk of pollution, backed up by monthly laboratory testing, occurring over several years with recent laboratory testing submitted to support this. • Golf course irrigation occurs within the PDWSA with treated wastewater of similar quality to that stored in Tank 6 and the CCT; therefore, it doesn't seem	The tank 6 chlorination system project area is within a PDWSA wellhead protection zone and is within closer proximity to PECs than the WWTP area; therefore, the groundwater requires protection greater than areas outside this zone or further away from PECs (for example, the WWTP and flow balance tank location). Control measures, including a hardstand with a low permeability, is therefore required within this area to protect groundwater quality. Irrigation of treated wastewater is not comparable to unforeseen spills. Irrigation is regulated via licence conditions and the area is vegetated to reduce the potential for nutrient migration to groundwater. In contrast, spills, leaks and overtopping involve uncontrolled release of unknown volumes of wastewater to unvegetated land with greater potential of impacting sensitive receptors and groundwater quality. Unforeseen tank overflow or spillage is unlikely to reach sensitive receptors via overland flow as the area is within a depression and water will either drain into surrounding soil and groundwater or into the PVC drainage pipe (then the

Condition	Summary of licence holder's comment	Department's response
	that an impermeable barrier beneath the CCT tank will decrease the risk to groundwater within the PDWSA. • The treated wastewater within the CCT is the same quality as water stored within the recycled water storage tank. • MS324 aims to protect groundwater quality although it permits irrigation to the golf course with treated wastewater. • *Water Quality Protection Note 25 (WQPN25): Land use compatibility tables for public drinking water source areas* does not refer to storage of treated wastewater and WQPN25 does not preclude this type of activity • Control measures to detect/eliminate overflow. • The flow balance tanks are not installed on a concrete hardstand.	drainage sump) as shown in Figure 11 of the licence. Considering the information provided, the Delegated Officer considers the Bitumen Stabilised Limestone (BSL), alongside remaining control measures, sufficient to protect groundwater quality and sensitive receptors. Condition 23 Item 3(e) requires installation of a low permeability BSL hardstand, as proposed and a requirement to provide permeability specifications for the BSL post-construction as per condition 25(b).
Condition 23 Item 1(a) (Condition 4 in DRAFT licence)	Upon requesting further details regarding the chlorine contact tank hardstand, it was clarified that the area beneath the chlorination building will consist of Bitumen Stabilised Limestone (BSL) which does not have a permeability less than 1 x 10^{-9} m/s (or equivalent). The hardstand proposed is 150 mm thick and compacted to 95% Maximum Modified Dry Density (MMDD); however, a permeability range for this BSL and hardstand permeability specifications cannot be provided pre-construction. Concrete footings design drawings and layout provided.	Considering the information provided, the Delegated Officer considers the Bitumen Stabilised Limestone (BSL), alongside remaining control measures and the addition of condition 25(b), sufficient to protect groundwater quality and sensitive receptors. The requirement to install a bunded concrete hardstand with a permeability of less than 1 x 10^{-9} m/s (or equivalent) has been replaced with the requirement to install a BSL hardstand (condition 23, item 3e). The requirement to provide permeability specifications for the BSL post-construction as per condition 25(b) and the requirement to install concrete footings as per design specifications shown in Figures 13 and 14 of the revised licence have been added.
Condition 4 Table 3, Item 24b (Condition 12 Table 5, Item 24b in DRAFT licence)	Duty/standby pumps have not been included as part of the system. RIA conducted a risk assessment, and the risk is deemed low, based on other controls to mitigate the effects of pump failure such as ceasing transfer of treated water from the chlorine contact tank to the RWST and ceasing transfer of treated water from Tank 6 to the chlorine contact tank until the failed or malfunctioning	The Delegated Officer considers the remaining control measures sufficient to mitigate the risk; therefore, condition 4, item 24(b) (within Table 3), has been removed from the licence.

Condition	Summary of licence holder's comment	Department's response
	pump is replaced.	
All	Request to add the year (in brackets) to Australian Standards.	The Australian Standards referenced in the licence have been updated to include the publication year, as requested. Please note that the year is formatted using a colon (e.g. AS 2927:2019) rather than within enclosed in brackets.