Works Approval Supporting Document

Wallcliffe House Wastewater Treatment Plant

Wallcliffe House

15 May 2025

Project name	Wallcliffe House WWTP						
Document title	Works Approval Supporting Document | Wallcliffe House Wastewater Treatment Plant						
Project number	12635805						
File name	12635805_ REV 0_ Wallcliffe House WWTP_Works Approval Application Supporting Document .docx						
Status Code	**Revision**	**Author**	**Reviewer**		**Approved for issue**		
			Name	**Signature**	**Name**	**Signature**	**Date**
S3	A	[redacted]					
S3	B						29.09.2024
S4	0						6.11.2024
S4	1						15.05.2025

GHD Pty Ltd | ABN 39 008 488 373
Contact: [redacted] | GHD
999 Hay Street, Level 10, Perth WA 6000
Perth, Western Australia 6000, Australia
T +61 8 6222 8222 | **F** +61 8 6222 8555 | **E** permail@ghd.com | **ghd.com**

Executive summary

The story of Wallcliffe House is one of personal endeavour and a history of place that is inexorably tied to the identity of Margaret River. When Wallcliffe House was devastated by fire in 2011, the new owners Alexandra and Julian Burt felt the profound loss of this regional icon.

Having the chance to acquire the property and set about establishing a new venture provides the opportunity to share this special place with more people than ever before.

The vision for Wallcliffe House is to build and operate a low-key, yet luxury hotel on the site with a modest restaurant and guest facilities in keeping with a globally relevant, heritage house retreat.

In considering the architectural and interior design, the intention is to honour the historical architecture as well as the natural surrounds.

Sadly, the damage from the fire and intervening years has resulted in a series of ruins that have no remaining structural integrity, however, the intent is to re-use what stonework and timber can be salvaged and recycle the remaining material for on-site use.

In keeping with the tradition of the families who came before, the applicants are prioritising the use of local stone and timber in the building materials as well as local craftspeople to help create the new buildings and interiors and bring character to the finished product.

The aim is to design a unique, welcoming and inspirational boutique luxury hotel, reflecting the essence of Margaret River, in harmony with the landscape. A new Wallcliffe House – where Aboriginal and European histories will be jointly respected, a place where environmental and heritage values will be preserved and enhanced, and a place of extraordinary natural beauty and serenity that will touch hearts and minds within the community and the world.

The original Wallcliffe House was standing for 160 years and would still be so today, were it not for fire. Its replacement will, therefore, feel like both a re-birth and a continuation of the life of this house.

The legacy of the original house and all its previous owners will be a springboard for this next chapter in its history, where new memories and a new legacy will be created. And we hope it will endure beyond the next 160 years, into a time that we can imagine, even though we cannot experience it ourselves.

Included in the re-development of Wallcliffe House, is a facility to treat wastewater generated from the hotel. The wastewater treatment plant (WWTP) has been designed to treat water to deliver the highest water quality for disposal. Disposal methods have been determined such that there is no predicted environmental impact to the nearby sensitive receptors, including the Margaret River.

This document has been prepared to fulfil the requirements of Section 53 of the *Environmental Protection Act 1986* (EP Act) for works at scheduled premises which will, or are likely to, alter or increase the discharge of wastes or emissions to the environment, or be used for the treatment/storage of prescribed industrial wastes. The document includes technical information relevant to the prescribed activity (treating wastewater) and the proposed works (construction of a Wastewater Treatment Plant).

An environmental assessment report has been completed for the Site and is provided in Appendix E.

Acronyms

Acronym	Meaning
ACH	Aboriginal Cultural Heritage
ACHIS	Aboriginal Cultural Heritage Inquiry System
AHA	*Aboriginal Heritage Act 1972*
AHD	Australian Height Datum
AMR	Augusta-Margaret River
AS	Australian Standard
ASIC	Australian Securities and Investments Commission
ASS	Acid Sulphate Soils
BC Act	*Biodiversity Conservation Act 2016*
BGL	Below Ground Level
BOD	Biological Oxygen Demand
BoM	Bureau of Meteorology
CEB	Chemically enhanced backwash
CEMP	Construction Environmental Management Plan
CIP	clean-in-place
CPTs	Cone penetration tests
DBCA	Department of Biodiversity, Conservation and Attractions
DOL	Direct online
DPIRD	Department of Primary Industries and Regional Development
DPLH	Department of Planning, Lands and Heritage
DS	dry solids
DWER	Department of Water and Environmental Regulation
EP Act	*Environment Protection Act 1986*
EP Regulations	Environmental Protection Regulations 1987
EPA	Environmental Protection Authority
EPBC	*Environmental Protection and Biodiversity Act 1999*
ESAs	Environmentally Sensitive Areas
FRP	Fibre reinforced plastic
GoWA	Government of Western Australia
GPOs	General Power Outlets
GRP	glass reinforced plastic
ha	hectares
HDPE	High Density Polyethylene
IBC	Intermediate Bulk Container
ICA	Industrial Controls Australia
ILUA	Indigenous Land Use Agreement
kL	Kilolitres
kL/D	Kilolitres per day

Acronym	Meaning
km	Kilometres
L/s	Litres per second
LTA	Long Term Average
m	metres
MCC	Motor Control Centre
mm	Millimetres
MNES	Matters of National Environmental Significance
NATA	National Association of Testing Authorities
NVCP	Native Vegetation Clearing Permit
PDWSA	Public Drinking Water Source Area
PFD	Process Flow Diagram
PMST	Protected Matters Search Tool
PVC	Polyvinyl chloride
RIWI Act	*Rights in Water and Irrigation Act 1914*
SCADA	Supervisory Control and Data Acquisition
SWF	Southwest Forests
Total N	Total Nitrogen
Total P	Total Phosphorous
TSS	Total Suspended Solids
TWW	Treated Wastewater
UPS 24	Uninterruptable power supply
UV	Ultraviolet
VSDs	Variable Speed Drives
WAA	Works Approval Application
WWTP	Wastewater Treatment Plant
WWPS	Wastewater pump station

Defined Terms

Term	Definition
Membrane Bioreactor System	A complete onsite wastewater treatment system that includes biological treatment, nutrient removal, and polishing within a single unit and internal sludge storage
Infiltration structures	Below-ground structures formed using proprietary arch-storage elements and used for disposal of tertiary-treated wastewater via infiltration.
Premises or Premises boundary	The area within the boundary defined in Figure 1 of this document. The premises is located at Lot 101 Wallcliffe Road, Margaret River.
The Facility	The proposed Wallcliffe House Wastewater Treatment Plant (WWTP).
Treated Wastewater	The final treated water produced by the WWTP constructed and operated on the premises.
TunnelWell Systems	Below-ground arch storage systems that can be used for storage and/or infiltration of stormwater or treated wastewater.
The Site	A portion of Lot 101 Wallcliffe Road, Margaret River WA on which the Facility is proposed.
The Proponent	Wallcliffe House Pty Ltd.
Treated wastewater	An advanced level of secondary treatment. This includes activated sludge treatment, coagulation and membrane filtration to significantly reduce contaminants beyond what is achieved with secondary treatment alone.

Contents

Table index

Figure index

Appendices

1. Applicant information

1.1 Applicant details

Applicant details and contact information for Wallcliffe House are provided in Table 1.

Table 1 Applicant details

Applicant details		
Applicant name	Wallcliffe House Pty Ltd	
ABN	56 611 627 340	
Registered address	C/- The Landsmith Collection PO Box 319 Cottesloe WA 6911	
Postal address	C/- The Landsmith Collection PO Box 319 Cottesloe WA 6911	
Authorised Representative / contact person for enquiries	Name	[redacted]
	Position	
	Phone number	
	Email	

1.2 Scope and limitations

This report: has been prepared by GHD for Wallcliffe House and may only be used and relied on by Wallcliffe House for the purpose agreed between GHD and Wallcliffe House as set out in section 2.1 of this report.

GHD otherwise disclaims responsibility to any person other than Wallcliffe House arising in connection with this report. GHD also excludes implied warranties and conditions, to the extent legally permissible.

The services undertaken by GHD in connection with preparing this report were limited to those specifically detailed in the report and are subject to the scope limitations set out in the report.

The opinions, conclusions and any recommendations in this report are based on conditions encountered and information reviewed at the date of preparation of the report. GHD has no responsibility or obligation to update this report to account for events or changes occurring subsequent to the date that the report was prepared.

The opinions, conclusions and any recommendations in this report are based on assumptions made by GHD described in this report. GHD disclaims liability arising from any of the assumptions being incorrect.

Accessibility of documents

If this report is required to be accessible in any other format, this can be provided by GHD upon request and at an additional cost if necessary.

2. Introduction

Wallcliffe House Pty Ltd (the Proponent) proposes to re-develop Wallcliffe House which is located at Lot 101 Wallcliffe Road, Margaret River (the Site). The Site is located approximately 10 km from the Margaret River townsite and 250 km south of Perth (Figure 1). The Site currently has no connection to a street sewer main and is located approximately 10 km from the Margaret River Wastewater Treatment Plant (WWTP) that serves the township of Margaret River.

As part of the re-development, the Proponent proposes to construct an onsite WWTP and associated infrastructure (the Facility) to service the hotel. Wastewater from each building will be collected via gravity fed sewers and pumped to the Facility proposed to be located near the Site's entrance.

The proposed treatment system at Wallcliffe House comprises a flow equalisation tanka Membrane Bioreactor (MBR) (or equivalent) that will provide an advanced level of secondary treatment. This includes activated sludge treatment, coagulation and membrane filtration to significantly reduce contaminants beyond what is achieved with secondary treatment alone (TWW). This is designed to further remove phosphorous and suspended solids from the treated wastewater. Membrane filtration also removes a high fraction of viruses, pathogens, and other microorganisms. With this approach, the WWTP can reasonably be regarded as high quality wastewater treatment system with a particular focus on achieving total phosphorus and total suspended solids levels of less than 1 mg/L, and total nitrogen levels of less than 20 mg/L.

The final treated wastewater will be pumped to a series of below-ground infiltration structures, from which it will infiltrate into the underlying highly permeable sands and limestone which underlies much of the site including the area where the WWTP and infiltration systems will be located. Nutrients and other contaminants in the treated wastewater will be continue to be removed by natural purification and adsorption processes as TWW infiltrates the soil profile and limestone. Any nutrients not removed by these processes or taken up vegetation will laterally flow towards and ultimately discharge into the Margaret River as a subsurface flow. The proposed location of the Facility has a nominal 350 m subsurface flow path between the infiltration basin and the Margaret River.

2.1 Purpose of the Supporting Document

This Supporting Document has been prepared by GHD Pty Ltd (GHD) on behalf of Wallcliffe House Pty Ltd to inform a Works Approval application (WAA) for the Facility. This document has been prepared in accordance with Section 54 of the *Environmental Protection Act 1986* (EP Act) and aligns with the Works Approval application template. Details as to where each requirement of the application template provided in this Supporting Document is presented in Table 2.

Technical information relevant to the prescribed activity of treating wastewater as well as construction and commissioning of the Facility is presented in this document. Potential environmental and social impacts associated with the construction and commissioning of the Facility are also discussed, along with the proposed control measures and actions undertaken to either directly avoid or mitigate the potential impacts.

This document has been reviewed and approved by the Proponents of the Wallcliffe House re-development.

Table 2 References to DWER WAA form requirements

WAA form requirement	Supporting report location
Part 1: Application type	Section 1
Part 2: Application details	Section 1, Table 1
Part 3: Premises details	Section 3
Part 4: Proposed activities	Section 4
Part 5: Index of Biodiversity Surveys for Assessment and Index of Marine Surveys for Assessment	NA
Part 6: Other DWER approvals	Section 5.1
Part 7: Other approvals and consultation	Section 5

WAA form requirement	Supporting report location
Part 8: Applicant history	Section 2.2
Part 9: Emissions, discharges, and waste	Section 8
Part 10: Siting and location	Section 3.1
Part 11: Submission of any other relevant information	
Part 12: Category checklist(s)	
Part 13: Proposed fee calculation	Section 11
Part 14: Commercially sensitive or confidential information	N/A
Part 15: Submission of application	
Part 16: Declaration and Signature	Provided on Form
Attachment 1A: Proof of occupier status	Appendix B
Attachment 1B: ASIC company extract	Appendix A
Attachment 1C: Authorisation to act as a representative of the occupier	Appendix B
Attachment 2: Premises map/s	Section 1, 2 and 4
Attachment 3A: Environmental commissioning plan	NA
Attachment 3B: Proposed activities	Section 4
Attachment 3C: Map of area proposed to be cleared (only applicable if clearing is proposed)	Section 7
Attachment 3D: Additional information for clearing assessment	NA
Attachment 4: Marine surveys (only applicable if marine surveys included in application)	NA
Attachment 5: Other approvals and consultation documentation	Section 6
Attachment 6A: Emissions and discharges	Section 8
Attachment 6B: Waste acceptance	Section 4
Attachment 7: Siting and locations	Section 3.1
Attachment 8: Additional information submitted	Appendices
Attachment 9: Category-specific checklist(s)	
Attachment 10: Proposed fee calculation	Section 11
Attachment 11: Request for exemption from publication	N/A

2.2 Background

2.2.1 Historical Use

Wallcliffe House is one of the original farms and homesteads built by the Bussell family in the 1850's. It is known for its Aboriginal and European heritage as well as the surrounding natural values including the Margaret River, Indian Ocean and National Park. The buildings within the Site were significantly damaged by a bushfire in 2011 and have not been used for residential or tourism purposes since. The cultivated gardens and grounds surrounding the buildings have however continued to be maintained to a high standard.

2.2.2 Previous Wastewater Treatment

The Site is not connected to the Margaret River municipal sewer network, which is operated by Water Corporation. Prior to the 2011 bushfire, the Site was served by on-site domestic-scale treatment units which have been decommissioned.

2.3 Prescribed Premises category

The Facility will meet the design and definition threshold for a Category 85 (a) and (b) Prescribed Premises (Table 3), in accordance with the *Environmental Protection Regulations 1987* (EP Regulations).

Table 3 Prescribed Premises category for the proposed WWTP

Category number	Description	Production or design capacity
85	Sewage facility: premises – (a) On which sewage is treated (excluding septic tanks); or (b) From which treated sewage is discharged onto land or into waters	More than 20 but less than 100m^3 per day

The proposed Works Approval boundary and Prescribed Premises boundary for the Facility are shown in Figure 1.

3. Premises details

3.1 Location and legal land description

The Facility is located on Lot 101, Wallcliffe Road, on Plan 049026, Margaret River within the Shire of Augusta-Margaret River, approximately 10 km south-west of the Margaret River townsite.

The Facility is approximately 375 m south-east of the Margaret River and 1.2 km east of the Indian Ocean. Elevations across the Site range from 2 m Australian Height Datum (AHD) adjacent to the Margaret River to 64 m AHD closest to Wallcliffe Road. The elevation at the Facility is approximately 59 m AHD.

The Shire of Augusta-Margaret River (AMR) District Scheme reserves the land impacted by the Facility as land for Tourism. The Site for the Facility was selected as it is outside of the 100m buffer from the Margaret River.

Lot 101 is owned by The Proponent as per the Certificate of Title, provided in Appendix B.

The proposed Works Approval boundary, and therefore the Prescribed Premises boundary, and its co-ordinates are shown in Figure 1.

3.2 Access

The main operational entry to the Facility will be via a proposed access road connecting Wallcliffe House to Wallcliffe Road. A single lane road will be constructed connecting the Facility to the access road. A locked gate at the point of access to the dedicated road will prevent general public road traffic from accessing the Facility.

Electricity, water and telecommunication services required for operation of the Facility will be established along the new access road.

4. Project description

4.1 Project outline

The Facility will treat a maximum of 38.4 kL/d of wastewater generated from the various buildings associated with the proposed Wallcliffe House development. With attenuation of diurnal flow variations in the wastewater balance tank, wastewater will be treated at a peak rate of 0.44 L/s using biological and chemical treatment processes, and a final membrane filtration stage. Treated wastewater will be disposed via a below-ground infiltration system (modular arch storage-type system supplied by TunnelWell Systems). The wastewater flow design basis is shown in Table 4.

Table 4 Wastewater Flow Design Basis

Parameter	Units	Requirement
Seasonal occupancy range	%	57-79
Peak-Peak capacity (Full special event attendance)	kL/D	38.4
Peak capacity (100% occupancy)	kL/D	34.1
Average capacity	kL/D	27.4
Off peak (Min) capacity (57% occupancy)	kL/D	21.9
Peak instantaneous flow rate (averaged over 24 hour period)	L/s	0.44
Minimum instantaneous flow rate	L/s	0.25

Wallcliffe House Pty Ltd propose to commence early works of the Facility in November 2025, subject to receipt of required approvals. Clearing of native vegetation and civil earthworks is required to establish the foundations and drainage requirements for the Site.

Development, construction, commissioning and operation of the Facility will be undertaken in stages, with the current proposed schedule provided in Table 5.

Table 5 Wallcliffe WWTP proposed schedule

Component	Construction dates	Commissioning
Forward works incorporating WWTP inground infrastructure	November 2025	
WWTP Systems installation and initial commissioning - Site mobilisation - Mechanical, switchboards and SCADA, - Commissioning - As-builts	January 2026- April 2026	April 2026 – May 2026
Practical completion		June 2026
Second stage commissioning		August 2028- September 2028

4.2 Wallcliffe WWTP layout

The WWTP, access tracks and service alignment are in the south-east corner of the Site, adjacent to Wallcliffe Road. Preliminary site layout and proposed Prescribed Premises Boundary is shown in Figure 2.

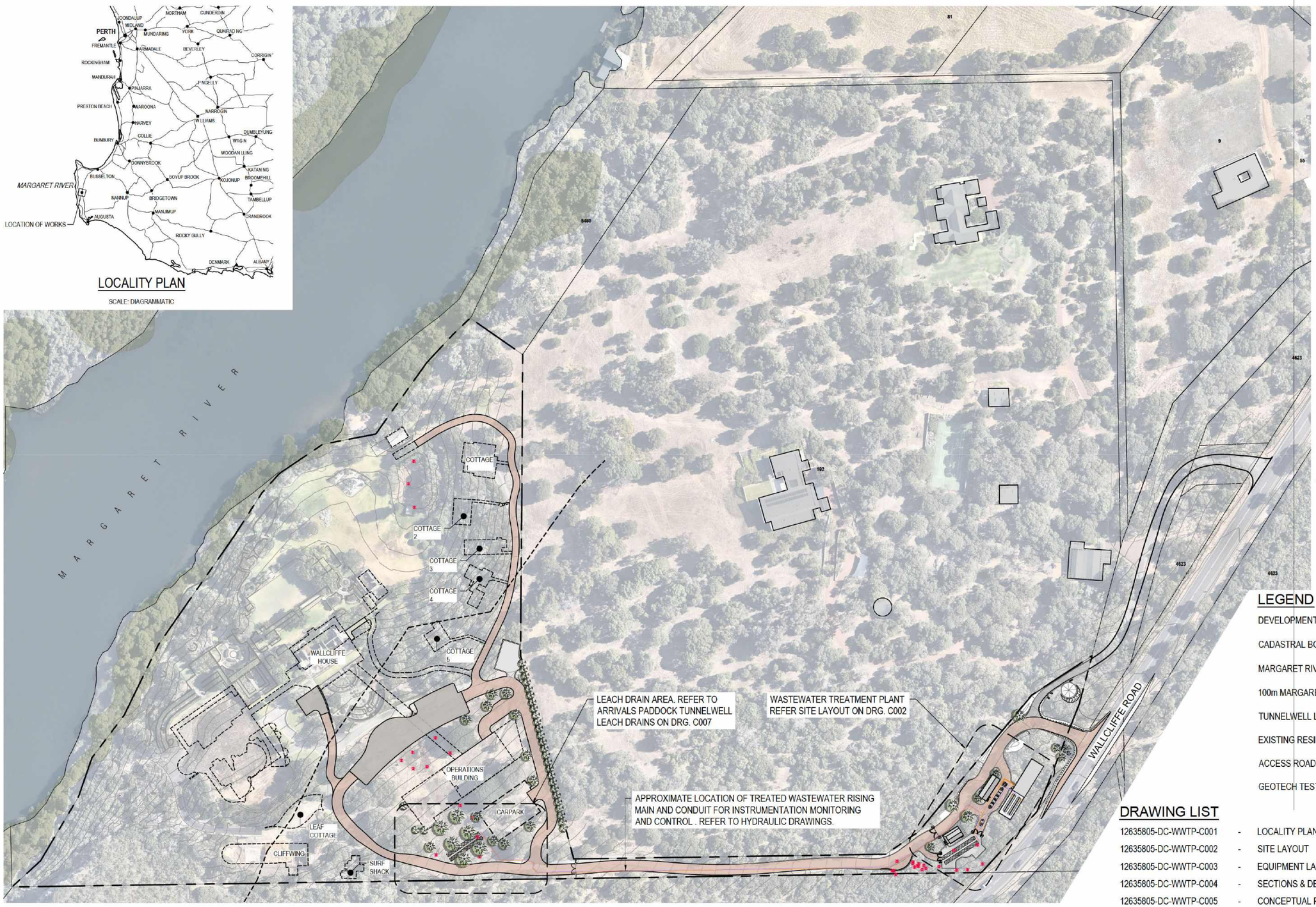
The Facility incorporates a package-type WWTP, to buffer and treat all on-site wastewater. The process includes activated sludge-type secondary treatment, chemical dosing and membrane filtration (polishing), odour control, and on-site disposal of treated effluent via infiltration. The Facility will treat all wastewater generated from hotel guest rooms, staff facilities, kitchen/restaurant, tearoom and bar, and spa. Wastewater will be collected from each building using property sewers and gravity fed to one main pump station, which, in turn, pumps the wastewater to the wastewater equalisation tank located adjacent to the WWTP.

Key drivers and philosophy for the preliminary site layout include:

– Design and operation of the Facility is sensitive and sympathetic to the cultural and environmental values of the Site, setback to the foreshore for protection.
– Consideration of the natural topography of this Site, with the key aim of minimising bulk earthworks and disturbance footprint.
– Wastewater is treated to an advanced level of secondary treatment standard and disposed in a manner that does not impact the Margaret River.
– Optimum site location (soil profile) for infiltration.
– Avoid amenity impacts to guests and staff.
– Sustainability in Design and Sustainability in Operation.
– Ease of access from Wallcliffe Road for deliveries, maintenance and repairs.

LOCALITY PLAN

SCALE: DIAGRAMMATIC



SITE PLAN

SCALE 1:1000

NOTE

1. REFER TO DOUGLAS PARTNERS INFILTRATION AREAS GEOTECHNICAL INVESTIGATION REPORT 96717.05.R.001

LEGEND

- DEVELOPMENT EXTENTS (BY OTHERS)
- CADASTRAL BOUNDARY
- MARGARET RIVER
- 100m MARGARET RIVER BUFFER
- TUNNELWELL LEACH DRAIN
- EXISTING RESIDENCES
- ACCESS ROAD
- GEOTECH TEST LOCATION (NOTE 1)

DRAWING LIST

Rev	Description	Checked	Approved	Date
C04	DESIGN REVISED	[redacted]		14/05/2025
C03	GEOTECH NOTE ADDED			19/3/2025
C02	GEOTECH TEST PITS OVERLAYED			18/3/2025
C01	BUILDING PERMIT ISSUE			14/3/2025
P04	REISSUED FOR TENDER EVALUATION			6/11/2024
P03	ISSUED FOR TENDER EVALUATION			6/11/24

Author [redacted] Drafting Check [redacted]
Designer Design Check

0 10 20 30 40 50m
SCALE 1:1000 AT ORIGINAL SCALE

N

GHD
Level 10, 999 Hay Street Perth WA 6000
PO Box 3106 Perth WA 6832 Australia
T 61 8 6222 8222 F 61 8 6222 8555
E permail@ghd.com W www.ghd.com
www.ghd.com

Project No. 12635805

Client WALLCLIFFE HOUSE PTY LTD

Project WALLCLIFFE HOUSE

Status

Drawing Title FIGURE 2 WASTEWATER TREATMENT PLANT LOCALITY PLAN & DRAWING LIST

Size A1

Drawing No. Rev

Plot Date: 15 May 2025 - 2:26 PM Plotted by [redacted]

File Name: N:\AU\Perth\Projects\61\12635805\CADD\Drawings\12635805-DC-WWTP-C001_C04.dwg

4.3 Process design components

The process flow diagram (PFD) describing the operation of the WWTP is provided in Appendix C.

The proposed design includes the following components:

- Raw wastewater is pumped via a raw wastewater pump station into the WWTP Feed / Equalisation Tank and then via gravity to a wet well. The wet well serves as the feed pumping station into the prefabricated activated sludge-type MBR package plant.
- The MBR initially provides secondary treatment including denitrification, nitrification and reduction in BOD and solids within an activated sludge type set up.
- Secondary quality treated wastewater then is dosed with coagulant (for P removal) before entering the membrane tank which houses the submerged membranes.
- Membrane filtration is the last part of the MBR treatment system which will remove remaining suspended solids (TSS) and precipitate associated with phosphorus removal from the treated wastewater.
- A Treated Wastewater storage Tank stores TWW before it is pumped to the infiltration structures (Tunnelwell leach drains)
- Sludge is stored in a tank internal to the MBR and will be removed periodically offsite.

Further detailed information on the design and features of the Facility is outlined in the Wallcliffe House WWTP Basis of Design (Appendix D).

4.4 Site development

Initial site development is proposed to commence in November 2025. Early works include clearing of native vegetation and cut-to-fill earthworks to establish the Facility's foundation and drainage system. Operating times during the Site development stage of work will be 7 am to 7 pm, Monday to Friday.

If required, site development works may occur on Saturdays and Sundays. There are nearby sensitive receptors (closest being approximately 85m) therefore, if any works are to occur over the weekend, noise and/or air quality impacts will be managed to avoid any impact to these receptors.

Establishment of the Site requires clearing of the earthworks footprint to allow for the construction and operation of the WWTP. The proponent has received an exemption from applying for a Native Vegetation Clearing Permit (NVCP) under *Regulation 5, Item 1* of the *Environmental Protection Regulations 2004*. Further details regarding the exemption are provided in Section 5.1.2. Further details relating to the vegetation within the Premises are provided in Section 7.6.

4.5 WWTP design and construction

4.5.1 WWTP Feed / Equalisation Tank

The WWTP feed / Equalisation tank receives and stores raw wastewater generated at the resort and pumped via the Main Pump Station (supplied and operated by others) to the WWTP. The tank serves to balance the flow and load of the incoming wastewater, which can vary significantly due to daily usage and seasonal patterns. By storing and gradually releasing wastewater at a controlled rate, the equalisation tank ensures a consistent flow to downstream treatment processes, optimizing their performance and efficiency. This buffering capability also helps to manage down time associated with maintenance activities. The tank is required to provide sufficient buffer for a maximum occupancy flow event such as weekend wedding or similar.

The main pumping station transfers wastewater into the EQ/Feed tank, the flow then moves by gravity into the wet well where it is pumped to the MBR inlet.

A summary of the equalisation / feed tank is provided in Table 6

Table 6 *Equalisation / Feed Tank*

Equipment	Information	Comment
Tank	23kL capacity	Fed by main PS flow rate estimate to be 2 to 3 L/sec with gravity feed to wet well.
Pumps	In wet well	
Level Monitoring	Yes	
Inhibits / alarms / control	High level in EQ Tank – stop main PS transfer pumps	There is no overflow at the WWTP

4.5.2 MBR Feed Pump Station (DN1800 Wet Well)

The wet well is fed by gravity from the EQ/Feed tank, the wet well should be deep enough to allow the EQ/Feed tank to drain completely during periods of low flow and also to minimise the potential of settlement of solids in the EQ/Feed Tank, Table 7.

Flow monitoring will be provided on the feed to the MBR.

Table 7 *Wet Well PS*

Equipment	Information	Comment
Wet Well	DN1800	Fed by gravity from EQ/Feed Tank
Pumps to MBR inlet	Macerator type Duty/Standby/Assist	
Level Control	Yes – for pump operation	Wet well pump cut out should be below the invert of the feed Gravity connection between tank and wet well should include a baffled connecting pipe,

		graded to the wet well.
Level Switches	Yes	Pump Control
Inhibits / alarms / control	Failure of both MBR feed pumps	Critical alarm

4.5.3 Membrane Bioreactor (MBR)

A Membrane Bioreactor (MBR) treats wastewater by combining biological treatment and membrane filtration. In this process, wastewater first undergoes biological treatment where microorganisms break down organic matter and remove Total Nitrogen (TN) through nitrification and denitrification.

Using submerged membrane technology, the treated water is then filtered through microfiltration membranes, which effectively separate solids and pathogens. For phosphorus (P) removal, chemical dosing with polyaluminium chloride (PAC) is employed, precipitating phosphorus as insoluble compounds that are then removed by the membrane. This integrated approach ensures high-quality treated wastewater with significantly reduced levels of phosphorus and nitrogen, making it suitable for discharge.

The MBR at Wallcliffe consists of two tanks operating in series, each tank will have several chambers that will have the following;

- Fine Screen
- Denitrification chamber
- Chemical dosing (Coagulant, Carbon Feed Source, Cleaning)
- Nitrification tank and membrane unit
- Treated wastewater Chamber
- Sludge Storage Chamber

Refer to Table 8 for further detail.

Pumps are used to transfer flow through the tanks and chamber before the treated wastewater is transferred to the Treated Wastewater Storage Tank prior to discharge at the TunnelWell Leach Drains.

The MBR system operates continuously, the recirculation and aeration systems operate 24 hours per day. The membrane system operates to meet the feed flow rate from the wet well and levels within the tanks allow the membrane to operate. Within the MBR the system operates on level control.

The MBR has some volume to allow buffering of inflows for events such as cleaning. If a high level was reached within the MBR, feed from the wet well would be stopped, a warning would be raised, if High-High level was reached an alarm would be raised.

Table 8 MBR

Equipment	Information	Comment
MBR Tanks	Two	Each tank will have a number of chambers

Fine Screen	max volume 200 kL/day	
Denitrification Chamber	Volume	TBC at detailed design
Chemical dosing **Coagulant (PAC)** **Methanol** **Sodium Hydroxide** **Sodium Hypochlorite**	Phosphate removal Carbon feed source pH correction and Cleaning Cleaning	(seasonal depending on influent)
Kubota Submerged Membrane Unit	Kubota Model - FF Type Surface area 0.8m^2 per sheet 30 to 50 sheets per cartridge two cartridges Membrane sheet – Microfiltration membrane	Dependant on flows Pore size - Nominal max 0.4, avg 0.2µm
Treated wastewater Chamber	Approx. 1kL	TBC at detailed design
Sludge Storage	Min 5kL	TBC at detailed design
Level Switches	Yes	Used for internal pump control in

		each chamber
Process Monitoring	pH, Dissolved Oxygen Mixed Liquor Suspended Solids Outlet pH and Turbidity	
Inhibits / alarms / control	High-High level within MBR	Stop EQ Wet Well / MBR Feed pumps / Alarm
	High High level in Effluent Storage Tank	Stop MBR / raise critical alarm
	High Turbidity, measured at MBR outlet	Stop MBR / raise critical alarm

4.5.4 Treated Wastewater Storage Tank

The treated wastewater from the MBR is transferred via Duty/Standby pumps to the Treated Wastewater Storage tank. This tank is provided with internal submersible pumps that will operate on the level within the tank and control valves on the discharge pipe to send flow to either of the two TunnelWell Leach Drain areas, Table 9.

- Area 1 - Entry Area
- Area 2 - Arrivals Paddock

Flow from the Treated Wastewater Storage tank to the TunnelWell Leach Drains is to be monitored for flow.

Table 9 Treated Wastewater Storage Tank

Equipment	Information	Comment
Tank	7kL capacity	
Pumps	Duty/Standby	
Flow monitoring	Yes	As a minimum operations will need to manually log monthly
Level Switches	Used for pump control	Low stop duty pump High start duty pump
Inhibits / alarms / control	High high level	Stop inlet flow from MBR / raise critical alarm

	High Level on all TunnelWell Leach Drains	Stop treated wastewater flow from Treated Wastewater Storage tank / raise critical alarm
	All 4 x TunnelWell Leach Drains inlet valves closed	Stop treated wastewater flow from Treated Wastewater Storage tank / raise critical alarm

4.5.5 Infiltration Structures

The TunnelWell Leach Drains receive treated wastewater pumped from the Treated Wastewater Storage tank, and will be configured to operate on a rotational Duty/Standby/Standby/Spare basis. The inlets to the TunnelWell Leach Drains will be designed to ensure that discharge of treated wastewater to the leach drains does not result in scouring of the leach drains' compacted sand foundation. The TunnelWell Leach Drains are the final element of the treated wastewater disposal system and each have been designed to infiltrate the treated wastewater at the maximum peak flow, Table 10

The TunnelWell Leach Drains will be cycled by the control system based on operating time (will be set during commissioning), they will also swap duty on detection of high level within an individual leach drain.

The flow will be directed via control valves to either the Entry Area or the Arrivals Paddock. Each Leach drain will also have an individual inlet control valve to allow flexibility in operation. Control valves and levels will be displayed on WWTP control system.

Table 10 Infiltration Structures

Equipment	Information	Comment
TunnelWell Leach Drains	Four	2 x Entry Area 2 x Arrivals Paddock
Pressure / Level monitoring	Yes, on each individual leach drains (x 4)	To warn of high level and signal the system to direct flows to another leach drain
Inhibits / alarms / control	High level	Redirect flow to another leach drain
	1 x TunnelWell Leach Drain Area and individual leach drain inlet valve to be open and able to always receive flow.	If not Stop treated wastewater flow from Treated Wastewater Storage tank / raise critical alarm

4.5.6 Sludge Waste

Excess sludge and screenings generated in the MBR, will be stored in an internal chamber with a capacity adequate to ensure desludging of the tank (by vacuum truck) is not required more frequently than once every 6 months. Sludge removal from the Feed/Equalisation tank or wet well if needed will also be by vacuum truck.

4.5.7 Chemical Storage and Dosing

Liquid chemical storage and dosing units will provide sufficient chemical storage for 28 days of peak operation and be stored in suitably bunded areas. Chemical selection is subject to the *Contractor*'s final process design; however, chemicals are expected to be required for coagulation, flocculation, precipitation of soluble material, dewatering flocculation, clean-in-place (CIP) or chemically enhanced backwash (CEB) procedures. All chemicals will be supplied to the WWTP using containers or tubs. The proposed design for chemical storage and design is summarised as follows:

- Coagulant (PAC, alum or ferric chloride or similar)
- Sodium Hypochlorite for membrane CEB or CIP

– Hydrochloric or Sulfuric Acid for membrane CEB or CIP
– Carbon supplemental feed source (methanol, acetic acid or similar)
– A common and bunded delivery area shall be provided for the unloading of all chemicals and swap out of spent IBCs. This will include:
    - A concrete load-in-apron for parking delivery truck and removing chemicals from the truck, and
    - Buried drainage pipework

Each storage and dosing unit shall be compliant with AS3780 and include:

– Primary storage tank
– Secondary containment sump
– Dosing cabinet
– Dose pump
– Valves, fittings, and instruments

4.5.8 Process Analysis

The WWTP process analysis system has the following features:

– Treated wastewater analysis:
    - PVC sample loop feed and return lines
    - Wall-mounted Analyser panel
    - Continuous online turbidity, conductivity and pH analysers
    - Collection of analyser and sample wastes for plumbing back to suitable drain location.

4.5.9 Air Systems

If required by the selected filtration technology, low pressure (blower) and high pressure (compressed) air systems will be constructed, including:

– A high-pressure air system comprising of an air compressor, air receiver, filters, air dryer and pipework and fittings.
– A low-pressure air system comprising of a filter, blower, silencer, and pipework and fittings

4.5.10 Odour Treatment Unit

An activated carbon filter odour control unit will consist of:

– A polyethylene carbon vessel, including inspection hatches and activated carbon
– A detachable vent stack
– An air blower, pipework, valves, actuators, instruments and fittings
– Instrumentation and a control panel
– All tank vents to be equipped with carbon filters (Mcberns or similar).

4.5.11 Ancillary Water Systems

Ancillary water systems servicing the WWTP will consist of:

– A potable water supply main located at the Site with a connection and buried supply main to the WWTP
– Safety showers nearby the chemical storage and dewatering WWTP feed water analysis
– A potable water tap within the WWTP building
– Hand basin in the WWTP Building
– Hose adjacent to the chemical storage and dosing area
– Hose adjacent to the MBR area.

4.5.12 Electrical Supply and Switchboards

Low voltage electricity will be supplied and distributed throughout the WWTP as follows:

– A feeder cable will connect to the WWTP main switchboard
– An earthing system will include earth rods, buried earthing conductors, connections, earth bars, and bonding cables.

A Motor Control Centre (MCC) will be installed in the Treatment Building and will include:

– Variable Speed drives
– Soft Starters
– DOL Starter
– One (1) UPS for 24
– A remote switching panel associated with the MCC will be installed in the Low Voltage Switch room
– Small Power and Light Distribution Board(s).
– Variable Speed Drives (VSDs)
– Pole-mounted Local Control Stations with motor isolate and start, stop and emergency push buttons will be installed for outdoor pumps and equipment.
– Area lighting, task-specific lighting, GPOs, and lighting switches

4.5.13 Instrumentation, Control and SCADA

SCADA and control assets at the WWTP will include:

– Remote monitoring by both hotel staff and operating *Contractor*, and shall raise the necessary alarm signals when faults occur
– Control (ICA) cubicle
– Instrument panels and cubicles
– 19” Communications Rack and associated equipment
– Client Workstation
– Configuration of communications interfaces and integration, testing and commissioning of vendor-supplied packages’ control systems and other external systems with the overall Plant Control System, including:
    - Wastewater Treatment Package
    - All pumps and Storage Tanks
    - Interlocks for pump protection on low levels
    - Interlocks to prevent tank overfilling
    - Online analysers (measuring flow, pH and Turbidity)
    - Upstream Master Pumping Station to stop pumping to WWTP if the Feed / Equalisation Tank reaches High High level (need to switch to 70kL emergency storage at the Master PS).

4.5.14 Environmental commissioning

At the end of the treatment process, treated wastewater flows into a 7kL holding tank before infiltration discharge (see Figure 2). During commissioning, this tank will be isolated from the infiltration beds to sample treated wastewater quality before discharge, ensuring compliance with DoH requirements. This will also allow for calibration of the SCADA analysers. If the sampling indicates non-compliance, a registered liquid waste contractor will remove the treated wastewater until it meets the necessary standards. Commissioning, sampling and laboratory services will be conducted by suitably accredited contractors.

5. Project approvals

5.1 *Environmental Protection Act 1986* (WA)

5.1.1 Part IV EP Act

The Shire of Augusta Margaret River prepared Amendment 67 to update the special conditions relating to the tourist zone for Lot 1 Wallcliffe Road, referring the Amendment to the Environmental Protection Authority (EPA) for assessment. The referral was under s48A of the *Environmental Protection Act 1986* (EP Act).

The EPA determined that the key environmental factors were:

– Flora and vegetation
– Terrestrial Fauna
– Inland Waters.

The EPA advised on 18 May 2020 that the scheme amendment was unlikely to have a significant effect on the environment and therefore does not warrant formal assessment under Part IV of the EP Act. The EPA considered that the amendment could be managed to meet the EPA's environmental objectives though existing planning controls.

The EPA advised the following controls are implemented to protect the environmental values:

– Threatened fauna habitat for black cockatoos and the Eastern Osprey is retained on Site
– A fauna management plan is prepared
– On site disposal is consistent with the Government Sewerage Policy, 2019
– The new development is set back a minimum of 30 m from the property boundary to protect the foreshore values
– Nutrient irrigation management, foreshore revegetation and potential river erosion is addressed during future stages of planning.

5.1.2 Part V EP Act – NVCP

Clearing of native vegetation at the Site is required to accommodate the infrastructure for the re-development. The clearing footprint has been designed to retain the majority of native vegetation and mature cultivated gardens including the trees. The Environmental Assessment Report (Appendix E) confirms that native vegetation to be cleared does not include riparian vegetation or threatened ecological communities and that the clearing of native vegetation footprint is less than 0.6 ha. The Environmental Assessment Report confirms that there is no significant impact to Matters of National Environmental Significance (MNES).

An environmental assessment confirmed that clearing of native vegetation can be undertaken under exemption under *Regulation 5, Item 1* of the *Environmental Protection Regulations 2004.* The exemption is based on the following:

– Clearing of a site for the lawful construction of a building or other structure on a property, being clearing which does not, together with all other limited clearing on the property in the financial year in which the clearing takes place, exceed five hectares, if:
  (a) the clearing is to the extent necessary; and
  (b) the vegetation is not riparian vegetation.

5.1.3 s.54 Part V EP Act – Works Approval Application

This WAA for the WWTP has been developed in accordance with Section 54 of the EP Act. The proposed WWTP will meet the design and definition threshold for a Category 85 Prescribed Premises in accordance with Schedule 1 of the EP Regulations.

5.1.4 S.57 Part V EP Act – Operating Licence

An application for registration to operate the WWTP under s.57 of the EP Act will be made once the construction and commissioning phases are complete and commissioning works are operating in accordance with the specified battery limits and the environmental conditions within the Works Approval.

5.2 *Environmental Protection and Biodiversity Conservation Act 1999* (Commonwealth)

No significant impacts are expected to occur to any species or communities listed under the *Environmental Protection and Biodiversity Conservation Act 1999* therefore the Proposal will not be referred to the Department of Climate Change, Energy, the Environment and Water.

5.3 *Planning and Development Act 2005* (WA)

A Development Application for the re-development was assessed by the Regional Development Assessment, Shire of Augusta Margaret River under Local Planning Scheme No.1, RDAP/23/02589. Development Approval was granted in March 2024.

5.4 *Aboriginal Heritage Act 1972*

Section 18 consent from the Minister was granted for this Proposal in March 2022.

5.5 *Public Health Act 2016* (WA)

An application for approval to install the proposed wastewater system (Application to Construct or Install an Apparatus for the Treatment of Sewage) will be submitted under *Health (Treatment of Sewage and Disposal of Effluent and Liquid Waste) Regulations 1974*.

6. Stakeholder consultation

The proposed redevelopment has been planned for several years and the Proponent has undertaken consultation with key stakeholders since 2018. Those consulted to date include government departments, local government, residents who may be impacted by the redevelopment, and the Wadandi people.

Key Stakeholders consulted in relation to the Facility are:

– Shire of Augusta-Margaret River (AMR)
– The Western Australian Heritage Council
– The Wadandi people of Margaret River
– South-West Boojarah #2 Land Use Agreement Group
– Karri Karrak Aboriginal Corporation
– Department of Water and Environmental Regulation (DWER)
– Department of Biodiversity Conservation and Attractions (DBCA)
– Department of Planning Lands and Heritage (DPLH)
– Department of Health (DoH)
– Department of Parks and Wildlife (DPAW)

A summary of the stakeholder consultation undertaken to date is summarised in Table 11.

Table 11 Summary of stakeholder consultation in relation to the Wallcliffe House WWTP

Consultation type	Purpose of consultation and outcome
Ongoing Meetings.	Engagement with Wadandi representatives to discuss the cultural significance of the Site.
Scheme Amendment, 2018 Site visits, 2019 and 2024 Participation in Design Review Process	Regular briefings with officers at the AMR Shire were undertaken including the commencement of a Scheme Amendment and the Design Review Process. Shire of AMR officers were also accompanied on site visits to get a better understanding of the Site layout.
Meeting, March 2024	Review of the Development Application by a DAP with Shire and Project representatives present.
Engagement, 2018 - present	Advice on the sensitivity of the historical buildings located onsite and the scale of impact.
Meetings 24 March 2021 and 6 August 2021.	Meetings to discuss the Aboriginal heritage and cultural values of the Site. It was determined that there were no new ethnographic sites, and the Traditional owners were supportive of the proposed works.
Public comments 24 November 2023 Webinars, 2020 Drop-in sessions, 2023	The development application was made available for public comment with 83 submissions having been received. The main issues of concern raised by the community were the Site's cultural significance, increased traffic, and the clearing of vegetation. The Proponents responses to these concerns included: the Project is a boutique hotel and will not have a high occupancy, therefore traffic will not be significantly increased; the Wadandi people have been engaged by the Proponent and Consulting Anthropologists and Archaeologists have been engaged to undertake an Ethnographic Aboriginal Heritage Survey of the Site; consent under Section 18 of the *Aboriginal Heritage Act 1972* has been granted; and that the impacts to existing native vegetation will be minimal. A series of open drop-in sessions and webinars were undertaken for community discussion and queries.
Comments on Development Application	The development application (DA) was issued to DPAW for comment. DPAW considered the existing planning framework was appropriate in covering any potential environmental impacts.

Consultation type	Purpose of consultation and outcome
Comments on Development Application	The DA was issued to DWER for comment. DWER highlighted issues surrounding decommissioning that the proponent responded to in submission of a decommissioning certificate. DWER also triggered the application of this Works Approval.
Comments on Development Application	The DA was issued to DoH for comment. DoH supported the proposal for a WWTP including secondary treatment.
Comments on Development Application	The DA was issued to DPLH for comment. DPLH stated that approvals under the *Aboriginal Heritage Act 1972* had been granted. DPLH supported the proposal with regards to the Site's heritage values on the condition that an Interpretation Plan and Archaeological Management Plan be prepared.

7. Existing environment and sensitive receptors

7.1 Climate

The Margaret River region experiences a Mediterranean climate and is characterised by warm, dry summers and cool, wet winters. Most rain falls between May and October with an annual average between 700 to 1200 millimetres (mm). There has been a marked decrease in rainfall over the last 40 years with a noticeable shift to a drier climate across the south-west of Western Australia. The weather station nearest to the Premises is Witchcliffe (Bureau of Meteorology (BoM) site number 009746). The Witchcliffe station is located approximately 11.5 km south-east of the Facility and has been recording monthly average temperatures and rainfall since 1999 (BoM, 2024). Climate statistics for the Witchcliffe weather station are presented in Figure 3.

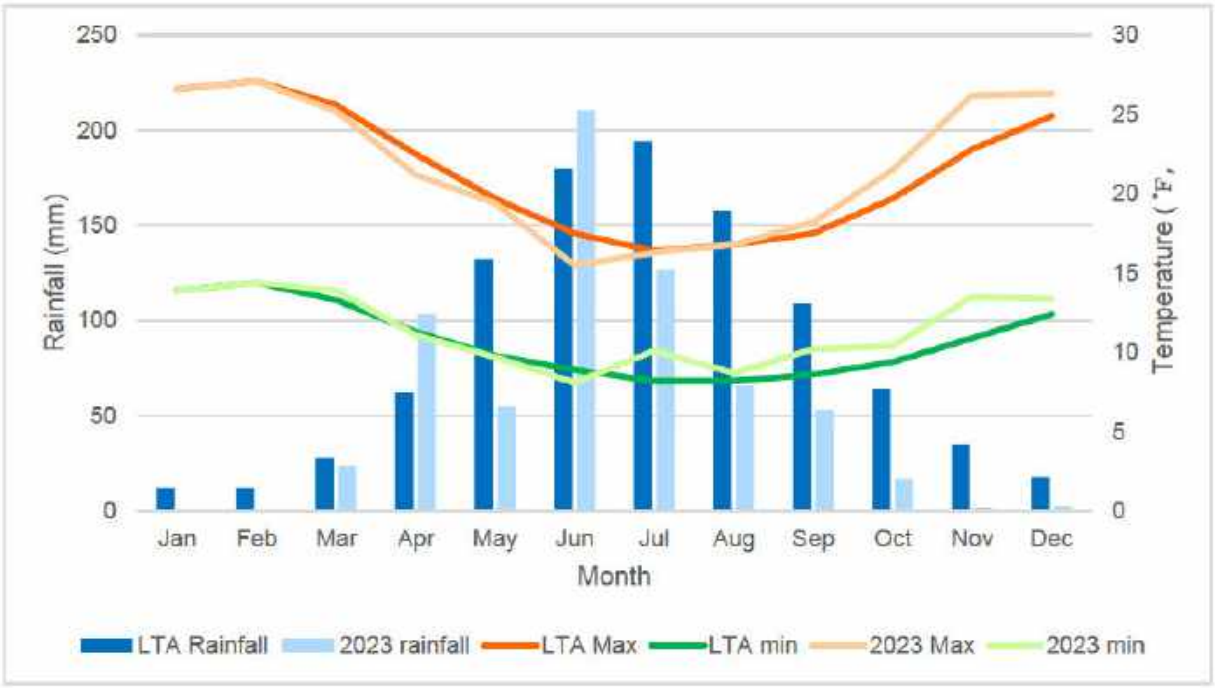


Figure 3 ***BoM climate statistics for the Witchcliffe station (No. 009746), annual and 2023***

7.2 Topography, geology and soils

The excised section of the Wallcliffe House property where the Facility will be located, slopes south-east to north-west from approximately 64 mAHD to 58 mAHD towards a neighbouring property.

The geology underlying the proposed works area comprises Tamala Limestone. It is described as *"Unconsolidated to strongly lithified calcarenite with calcrete/kankar soils; aeolian. Locally quartzose, feldspathic, or heavy-mineral-bearing"* (Geoscience, 2024).

The Facility is located within the Leeuwin Complex, as identified in the Soil-Landscape Mapping of the south-west of WA (DPIRD-076). More specifically, the premises is within the Gracetown Ridge System of the Swan Coastal Plain, which is described as:

– Gracetown Ridge System: Limestone ridge, in the coastal edge of the Leeuwin Zone. Yellow deep sand and red deep sand. Coastal scrub, peppermint woodland and jarrah-marri-karri forest.

A review of DWER's Acid Sulphate Soil (ASS) Risk Online Mapping (DWER-052) indicates that it isn't likely that ASS poses a risk at the Facility (DWER, 2024).

7.2.1 Onsite geotechnical investigations

Geotechnical investigations were undertaken by Douglas Partners (2020;2022;2023). These investigations confirmed the following ground conditions at the Site:

- Fine to coarse grained sandy topsoil with a thickness of 100-200 mm.
- Sandy fill (likely from soil disturbance associated with previous land uses) comprising of fine to medium grained particles, limestone cobbles and gravel to depths up to 1.6 m bgl.
- Fine to medium grained sands of the Spearwood system at depths up to 9.5 m bgl and with a thickness of 0.3– 6 m at some locations outside the Site boundary.
- Clayey sand, sandy gravel, sandy silt, silty sand, clay and sandy clay soils of the Leeuwin Complex underlying Spearwood soils at a maximum depth of 13.4m bgl.
- Granulite and granite soils of the Leeuwin Complex underlying the clayey sandy soils to a maximum depth of 20 m.
- A permeability of >25 m/day in shallow soils and 8-12 m/day in deeper soils.

7.3 Existing land use

The Site is bordered by Wallcliffe Road to the east, beyond which is uncleared natural vegetation and rural residential properties. Immediately north-west is a parcel of land containing two larger buildings, three smaller buildings, a tennis court, and a water tank. This property has been zoned as *Chalet and Camping* under the Shire of Augusta-Margaret River Local Planning Scheme No.1 (DPLH, 2023). Further north-west is Margaret River (river) and the Leeuwin-Naturaliste National Park. 1 km west of the Site is Ngari Capes Marine Park in the Indian Ocean. Immediately south of the Site is Wallcliffe Road. Further south is the Leeuwin-Naturaliste National Park.

The nearest residences are established in the neighbouring property approximately 144 m north-west. One DBCA legislated lands, conservation reserve or estate is in the immediate vicinity of the WWTP premises, this being the Leeuwin-Naturaliste National Park 31 m south and 447 m west of the Site (DBCA, 2024).

The Site is in an area reserved for *Tourism.* Areas to the east and north are zoned as *Rural Residential* with the area north of Margaret River (river) zoned as *National Parks and Nature Reserves.* Most of the land to the south is zoned as *National Parks and Nature Reserves* and *Parks and Recreation* with an area of *Residential* land approximately 726 m south-west where the townsite of Prevelly is located. Immediately west of the Site is zoned as *Chalet and Camping, Tourism,* and *Parks and Recreation* (DPLH, 2023).

7.4 Hydrology and hydrogeology

Water management within the Site is based on maintaining the existing hydrological regime of the Site which includes infiltrating at source and controlling erosion. A review of sensitive water resources is provided in Table 12. Further details on the Site's hydrology and hydrogeology are provided in the appended Water Management Plan (Emerge, 2023) (Appendix F).

Table 12 Results from a review of sensitive water resources in proximity to the Site

Sensitive land use	Applicable (yes/no)	Approximate distance from the Site
Public Drinking Water Source Area (PDWSA) (DWER-033)	No	Margaret River Catchment Area is the closest Public Drinking Water Source Area. This is located approximately 11km east of the Facility.
Groundwater Areas proclaimed under the *Rights in Water and Irrigation Act 1914* (RIWI Act) (DWER-034)	Yes	Located across the boundary of the Busselton- Capel Groundwater Area and the Cape-to-Cape North subarea (Emerge, 2023).
Surface Water Areas proclaimed under the RIWI Act (DWER-037)	No	The Facility is located approximately 1.6 km north and north-east of the Cape to Cape South Surface Water Area and 5.3 km south and south-west of the Cape-to-Cape North Surface Water Area.
Irrigation Districts proclaimed under the RIWI Act (DWER-037)	No	The Facility is located approximately 1.6 km north and north-east of the Cape to Cape South Surface Water Area and 5.3 km south and south-west of the Cape-to-Cape North Surface Water Area.
Rivers proclaimed under the RIWI Act (DWER-036)	Yes	The Facility is located approximately 180 m from Margaret River.
Waterways Management Areas proclaimed under the *Waterways Conservation Act 1976* (DWER-072)	No	None within 85 kms of the Facility.
Clearing in catchments proclaimed under the *Country Areas Water Supply Act 1947* (DWER-004) These controls apply in the Wellington Dam, Harris River Dam, Mundaring Weir and Denmark River catchment areas and the Kent River and Warren River water reserves.	No	None within 90 kms of the Facility.
Waterways (with ecological and/or recreational value)	Y	Margaret River
Wetlands: Ramsar Sites (DBCA-010) Directory of Important Wetlands in Australia – WA (DBCA-045)	No	The closest Ramsar site is Spearwood Creek (Draft proposed Ramsar addition), which is approximately 16 km south-east of the Facility.

7.4.1 Previous Investigations

A hydrogeological assessment of the Site was undertaken by Emerge Associates in 2022 (Emerge, 2022). Key findings from this assessment are summarised as follows:

- The topography of the Site suggests that rainfall would runoff into the Margaret River, however it is expected that runoff from most frequent rainfall events would infiltrate within the Site's sandy soils.
- In 2022 the level of Margaret River was observed at approximately 1.75 mAHD. In previous years it had been observed at 0.995 mAHD.
- Peak groundwater levels range from 1.72 mAHD to 3.78 mAHD throughout the Site, with groundwater levels (and depth to groundwater) increasing as you move east, away from Margaret River.

- A deep surficial aquifer (the Wallcliffe Aquifer) was identified approximately 300m west of the Site, based on geological observations made in geotechnical investigations (Douglas Partners, 2020; 2022) and testing completed by Emerge Associates (test pits, cone penetration test (CPTs) and diamond core drill holes). The estimated area of this groundwater resource is 31,776 m^2, the estimated saturated volume is 230,994 m^3 and the estimated static groundwater volume is 69,298 kL.
- The surficial aquifer has a recharge catchment area of 58 ha that runs approximately 1.5km south-east from the southern bank of the Margaret River, including the Site. It is estimated that approximately 22,079 kL/year is being recharged to the surficial resource from this catchment area.
- Production bores installed by Emerge Associates demonstrated water quality at a standard appropriate for irrigation.

Based on these observations, it is predicted that runoff from the Site will not impact Margaret River but will be infiltrated to the soil where it may potentially contribute to the recharge of the surficial aquifer. Control measures have been put in place to ensure there are no impacts to the aquifer (Section 9).

7.5 Contaminated sites

A search of the DWER database for Contaminated Sites did not identify any registered contaminated sites within the proposed works area. The closest contaminated site is located approximately 8 km north-east of the Facility which has been used as a power substation and is currently classified as *'Contaminated – restricted use'*. It is understood that the contamination is primarily associated with hydrocarbons present in surface soils and is isolated within the Site, and as such contamination is not anticipated within the Facility's proposed area (DWER, 2024).

7.6 Vegetation and flora

7.6.1 Regional vegetation

The Site is located in the south-west Botanical Province of WA (Beard 1990 and the Leeuwin-Naturaliste Coast Subregion of the South-West Forest bioregion (DBCA-047).

Regional vegetation was mapped by Heddle *et al* (1980), based on major geomorphic units in the South-West Forest. The Heddle mapping indicates the presence of one vegetation complex within the Facility's area:

- Gracetown (G3): Mixture of low woodland of *Agonis flexuosa*, open forest of *Corymbia calophylla-Eucalyptus marginata subsp. marginata* and tall open forest of *Eucalyptus diversicolor* with some *Corymbia calophylla* and *Eucalyptus cornuta* on eastward facing slopes in the hyperhumid zone.

GoWA (2017) has assessed the current extents of the vegetation complexes against presumed pre-European extents, Table 13.

Table 13 Current extents of vegetation complexes against pre-European extents

Vegetation Complex	Pre-European extent (ha)	Current extent (ha)	Proportion pre-European extent remaining in the South-West Forests (%)	Proportion pf current extent remaining in all DBCA Managed Lands (%)
Gracetown Complex (G3) (SWF)	4,465.08	3,833.03	85.84	57.36
Gracetown Complex (G3) (Shire of AMR)	3,284.92	2,896.16	73.57	88.17

7.6.2 Conservation significant flora

Most of the native vegetation within the Site is highly disturbed and modified ('completely degraded') and historically cleared to support the previous farming/residential land uses. Approximately 4 ha of the Wallcliffe House property (which encompasses the Prescribed Premises extent) is cleared and/or planted and dominated by landscaped gardens that include native and exotic plant species. Small areas of the Facility contain more intact remnant vegetation in 'degraded' and 'good' condition and show evidence of weed control. In addition:

One individual of the priority four species *Banksia sessilis var. cordata* was recorded in the south-eastern corner of the Facility adjacent to the existing driveway (with other individuals likely to be present, just not recorded). No other threatened or priority flora species were identified within the Facility (Emerge, 2023).

No threatened or priority ecological communities were identified within the Facility (Emerge, 2023).

A search of the EPBC Act Protected Matters Search Tool (PMST) within a 2 km radius of the Facility identified four threatened species of flora as Matters of National Environmental Significance (MNES) (Table 14). A search of the DBCA Dandjoo Biodiversity Data Repository (DBCA, 2024) identified one Priority 3 and two Priority 4 flora species potentially located within the Site, Table 14.

Table 14 Conservation significant flora species potentially present within 2 km of WWTP

Species Name	Conservation significance	
	DBCA listed (NatureMap)	EPBC Act listed (EPBC PMST)
Acacia tayloriana	P4	-
Banksia sessilis var. cordata	P4	-
Caladenia excelsa	-	Endangered
Caladenia lodgeana	-	Critically Endangered
Drakaea micrantha	-	Vulnerable
Gastrolobium papillo	-	Endangered
Stylidium lowrieanum Carlquist	P3	-

7.7 Environmentally Sensitive Areas

Environmentally Sensitive Areas (ESAs) are declared by notice under Section 51B of the EP Act. A search of the DWER Clearing Regulations – Environmentally Sensitive Areas (DWER-046) protected under the *Environmental Protection (Clearing of Native Vegetation) Regulations 2004* dataset (GoWA, 2024) did identify an ESA on the southern border of the Facility and on the northern boundary of the nearby Margaret River. This ESA is the Leeuwin-Naturaliste National Park listed as Crown Reserve (Figure 4).

7.8 Fauna

7.8.1 Conservation significant fauna

A search of the EPBC Act PMST within a 2km radius of the Facility identified 49 listed threatened fauna species and 44 listed migratory fauna species as MNES. A search of the DBCA Dandjoo Biodiversity Data Repository (DBCA, 2024) identified 6 vulnerable species, 2 endangered species, 1 Priority 3 species, 4 Priority 4 species, 1 extinct species, 1 critically endangered species, and 1 species of special conservation interest potentially within the Site boundary.

Conservation significant fauna species were identified using habitat within the Facility including osprey, western ringtail possum, the three black cockatoo species (Carnaby's, Baudin's and forest red tailed (Table 15)), with a potential breeding habitat tree in the north-western portion of the Facility. As part of approved demolition works (P221600) that took place in 2021, an established osprey nest was relocated from the top of the fire damaged house, over to a new purpose-built platform designed especially for the birds, with subsequent successful breeding observed (Emerge, 2023).

Table 15 Conservation significant species potentially occurring in the vicinity of the Premises

Species Name	Conservation significance			Likelihood of occurrence
	DBCA listed	BC Act listed	EPBC Act listed	
Western Ringtail Possum (*Pseudocheirus occidentalis)*	Critically endangered	Critically endangered	Critically endangered	Known to occur
Carnaby's Black Cockatoo (*Zanda latirostris)*	Endangered	Endangered	Endangered	Known to occur
Baudin's Black Cockatoo (*Zanda baudinii*)	-	Endangered	Endangered	Known to occur
Forest Red-Tailed Black Cockatoo (Calyptorhynchus banksii)	Vulnerable	Vulnerable	Vulnerable	Known to occur
Eastern Osprey (*Pandion haliaetus)*	-	Migratory	Migratory	Not likely to occur

7.9 Cultural heritage

7.9.1 Aboriginal heritage

The Facility is within the Southwest Boojarah Indigenous Land Use Agreement (ILUA). A search of the Department of Planning, Lands and Heritage (DPLH) Aboriginal Cultural Heritage Inquiry System (ACHIS) identified that the Facility is located within a listed Aboriginal Cultural Heritage (ACH) Site. This ACH site is identified as site 5848 (Cliffs at Wallcliffe) and is registered as an Artefacts / Scatter; Creation / Dreaming Narrative; Rock Shelter site.

Section 18 consent from the Minister has already been granted over the Site in March 2022 for the purpose of "Wallcliffe House Redevelopment." In this case, approvals under the *Aboriginal Heritage Act 1972* (AHA) have already been granted. However, should the scope of works change beyond that which was given Ministerial consent, approvals under the *Aboriginal Heritage Act 1972* (AHA) will be required (Shire of AMR, 2024).

7.9.2 Other heritage places

There is one State Registered heritage site immediately south and west of the proposed Facility. This is site 114, Wallcliffe House and Landscape (DPLH-006).

DPLH has supported the Development Application (DAP/23/02589) relating to this project subject to the following conditions:

1. An Interpretation Plan for *Wallcliffe House and Landscape* is to be fully implemented prior to occupancy of the new boutique hotel. The plan is to be provided to the satisfaction of the Director Historic Heritage Conservation prior to the application for a Building Permit. The Interpretation Plan should include interpretation strategies for the place and implementation proposals.
2. An Archaeological Management Plan is to be prepared to include appropriate procedures for identification, assessment, documentation and management of any archaeological material encountered during ground disturbance work required (Shire of AMR, 2024).

Paper Size ISO A3

0 25 50

Meters

Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 50

N

GHD

The Landsmith Collection
Wallcliffe House WWTP

Environmentally sensitive areas in the vicinity of the WWTP

Project No. 12635805
Revision No. C
Date 16/05/2025

FIGURE 5

Print date: 16 May 2025 - 10:11

Data source: DWER Environmentally sensitive areas; MRWeir : Created by: cbotsko

8. Impact assessment

This section of the Supporting Document describes the potential emissions, discharges and impacts associated with the construction and operation of the Facility.

8.1 Point source air emissions

8.1.1 Construction

Construction activities associated with the Facility will not result in any significant point source air emissions, with air emissions associated with the proposed works expected to be limited to exhaust emissions from the mobile plant. These air emissions are considered to be a low risk (negligible) and not expected to have a significant impact on the environment or nearest sensitive receptor (a residential property approximately 150 m from the Facility) during the design and construction of the Facility.

8.1.2 Operational

Point source air emissions are expected to be limited to vehicle exhaust emissions on the access tracks around the Facility during operation, maintenance and routine checks. As a result, point source air emissions are not expected to be significant.

8.2 Dust emissions

8.2.1 Construction

Some dust is likely to be generated as a result of earthworks and the movement of machinery and materials during clearing and site preparation, and construction of the Facility. Dust emissions are considered to be low risk and not expected to result in significant impact on the environment or nearest sensitive receptors.

To minimise the generation of dust during the design and construction phase, dust suppression measures (e.g. water carts) will be implemented in accordance with the Construction Environment Management Plan (CEMP). The CEMP will be prepared and implemented by the contractors who construct the Facility.

8.2.2 Operational

Dust emissions attributable to the operation of the Facility is expected to be limited to vehicle movement on the access tracks around the Facility during operation, maintenance and routine checks. These dust emissions are considered to be very low risk to negligible and not expected to result in any noticeable impact on the environment or nearest sensitive receptors. Therefore, dust emissions are not considered to require ongoing management.

Legend
Prescribed premises boundary
Aboriginal Cultural Heritage - Register (DPLH-099)
Sensitive receptor
Church
National Park
Residence
Water body
Woodig Dunes
303.83 m
Cliffs at Wallcliffe
0 m
318.3 m
228.7 m
815.39 m
149.15 m
86.93 m
873.12 m
900.04 m
934.07 m
764.88 m
934.07 m
934.07 m
787.55 m
938.27 m
938.27 m
731.64 m
873.74 m
655.91 m
820.91 m
893.85 m
720.13 m
849.28 m
598.88 m
598.88 m
488.99 m
514.16 m
396.18 m
502.58 m
309.04 m
246.42 m
617.7 m
475.88 m
658.59 m
463.81 m
278.69 m
563.63 m
733.85 m
192.17 m
629.96 m
443.4 m
324.26 m
792.47 m
928.81 m
451.88 m
534.58 m
924.85 m
580.98 m
955.8 m
659.29 m
703.8 m
657.16 m
640.76 m
720.47 m
747.1 m
668.01 m
693.1 m
680.46 m
738.41 m
774.7 m
753.85 m
739.8 m
802.87 m
772.41 m
764.89 m
797.9 m
803.93 m
762.7 m
835.27 m
827.05 m
805.4 m
836.54 m
SLIP
Paper Size ISO A3
0 50 100 150 200
Meters
Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 50
N
GHD
The Landsmith Collection
Wallcliffe House WWTP
Sensitive Receptors in the Vicinity of the Premises and WWTP
Project No. 12635805
Revision No. C
Date 16/05/2025
FIGURE 5
Print date: 16 May 2025 - 10:23
Data source: DPLH: Aboriginal cultural heritage; MRWeb: ; Created by: cbotsko

8.3 Noise emissions

8.3.1 Construction

Noise emissions during construction of the Facility are considered a low risk and not expected to result in significant noise impact on the nearest sensitive receptors. There will be minor temporary increases to the noise emissions from the premises due to the operation of heavy machinery during construction of the Facility. However, construction activities will be undertaken during the day and comply with the *Environmental Protection (Noise) Regulations 1997*.

There are two sensitive receptors within 200 m of the Facility which are residences. The majority of sensitive receptors are approximately 300m to 500m east of the Facility.

8.3.2 Operational

In operation, the Facility is not expected produce significant noise emissions. Noise emissions are generally limited to the operation of pumps. The Facility is entirely enclosed within a shed which will baffle noise. Operating as a boutique hotel, the design of the Facility must take into account the requirement to not disturb paying guests. Noise impacts are therefore unlikely to occur.

There are two established sensitive receptors (residences) within 200 m of the Facility. The majority of established sensitive receptors are approximately 300m to 500m east of the Facility.

The noise emissions during operation of the Facility would be insignificant and considered to be low risk.

8.4 Odour emissions

8.4.1 Construction

No odour emissions are expected to occur during the construction of the Facility.

8.4.2 Operational

Odour emissions are considered to be low risk given that this will be managed through on-going operations and the activated carbon filter odour control unit (see Section 4.5.10) as well as plant maintenance and off-site sludge removal. Operating as a boutique hotel, the design of the Facility has taken into account the requirement to not impact guests or offsite sensitive receptors with any odours from the WWTP. The activated carbon filter odour control unit removes this risk.

Odour emissions are considered to be low risk during operation of the Facility.

8.5 Light emissions

8.5.1 Construction

Construction of the Facility will be undertaken during daylight hours, and therefore there will be no change to existing light emissions from the premises. Light emissions are considered to be low risk during construction.

8.5.2 Operational

Overnight lighting of the Facility will be installed and maintained to the minimum required for safety purposes. Light emissions are considered to be low risk during operations.

8.6 Hydrocarbon/chemical discharges to land

8.6.1 Construction

There is the potential for discharges to land to occur due to spills or leaks of hydrocarbons from temporary storage areas or from mobile equipment. If not removed effectively, hydrocarbons spills can contaminate the soil profile and potentially spread to water receptors.

The following management principles will be implemented to minimise any potential impact of hydrocarbon spills:

– Spill kits will be available on the premises and will be accessible to all personnel.
– Any hydrocarbon spill will be controlled, contained and removed.
– Contaminated soils and spill kit materials will be collected and removed offsite to an approved waste disposal facility.
– Mobile equipment will be regularly inspected, operated and maintained in accordance with manufacturer's specifications.
– Hydrocarbons will be stored within low permeability bunded areas that hold 110% of the volume being stored.
– Any hydrocarbon spills are expected to be minor and have a temporary localised impact to soils based on the implementation of the above controls.

8.6.2 Operational

There is the potential for discharges to land to occur due to spills or leaks of hydrocarbons from temporary storage areas or from mobile equipment. If not cleaned up effectively, hydrocarbon spills can contaminate the soil and potentially spread to water receptors through stormwater runoff.

The following management principles will be implemented to minimise the impact of hydrocarbon spills:

– Spill kits will be available on the premises and will be accessible to all personnel.
– Any hydrocarbon spill will be controlled, contained and removed.
– Contaminated soils and spill kit materials will be collected and removed offsite to an approved waste disposal facility.
– Mobile equipment will be regularly inspected, operated and maintained in accordance with manufacturer's specifications.
– Hydrocarbons will be stored within low permeability bunded areas that hold 110% of the volume being stored.

Any hydrocarbon spills are expected to be minor and have a temporary localised impact to soils with the above controls.

8.7 Operational discharges to surface water and overflow risks

There are no proposed discharges to surface water, and the location of the proposed infiltration structures is greater than 100 m distance from Margaret River.

To reduce risks of potential overflow to surface water and the surrounding environment, the WWTP includes the following conservative design and contingencies:

– As described in section 4.1, the facility has capacity to treat a maximum of 38.4 kL/d which is based on the worst-case scenario of full special event attendance. Daily flows are unlikely to exceed this, but if they do, flows to the WWTP can be cut-off and excess flows will be routed to the emergency storage tanks at the pump station.
– The Site is designed to treat at a constant rate (0.44 L/s) by attenuating peak flows within the WWTP Feed tank (23 kL) and buffer tanks. Excess flows are unlikely but can be routed to emergency storage at the pump station.

– Output flows into the infiltration structures will typically be relatively constant as a consequence of attenuation within the WWTP and its associated buffer tanks, however the infiltration structures include 2 x 13 kL of storage which will provide additional contingency.
– The infiltration structures are sized based on the adopted infiltration rates of 2 m/day, which is considered to be conservative and sustainable (see section 4.5.5). Two (2) duty/standby infiltration structures have been provided, which meets the minimum requirements for DoH.

8.8 Operational infiltration discharges to groundwater

It is proposed that treated wastewater will be disposed of via infiltration into the sands and limestone underlying two infiltration structures operated on a rotational duty/standby basis. Each structure will have a storage capacity of 13 kL and an infiltration capacity of 39.5 kL/day (refer to section 4.5.5 for further details).

Disposal of treated wastewater via infiltration into the sands and limestone underlying the infiltration structures is not anticipated to have any significant impacts on local groundwater or downgradient receiving waters given:

– Only very minor mounding of groundwater levels is expected beneath or downgradient of the infiltration structures given the high permeability of the insitu sands and limestone (i.e. measured permeability of 5-20 m per day) and depth to groundwater (refer to Section 7.4).
– The high quality of the treated wastewater (target TP:TN levels less than 1:10 mg/L, respectively) discharged to the infiltration structures, and the further reduction of phosphorus levels achieved as treated wastewater infiltrates through engineered soil media proposed to be installed below the infiltration structures.
– The nutrient uptake/reduction and additional polishing that will occur (via natural filtration, adsorption and microbiological processes) before any infiltrated water reaches the Margaret River (a flow path of approximately 350m) as a sub-surface flow.

8.9 Operational discharges to land

There are operational discharges to land. Floor drains to collect accidental spills and/or washdown of equipment discharge into the WWTP Feed Tank, to be recirculated through the WWTP.

8.10 Solid/liquid wastes

8.10.1 Construction

Apart from general construction wastes (e.g. packaging, material offcuts), there will be no significant amounts of solid or liquid waste associated with construction phase of the proposed works. Where possible, waste materials will be recycled, and the remainder will be removed from site for disposal at an authorised waste facility.

8.10.2 Operational

Treated Wastewater

Treated wastewater will be disposed via discharge to buried infiltration structures:

– Infiltration area in excess of 100 m from Margaret River foreshore (approx. 350 m).
– Geotechnical Investigations identified sandy soils, with an observed infiltration capacity of >10 m/day. This exceeds the maximum treated wastewater disposal requirements of 2 m/day.
– Duty/Resting operation of infiltration structures for contingency, maintenance, and opportunity for aerobic microbiological breakdown of organic matter under the infiltration surface.
– Discharge will exceed Department of Health effluent criteria.

The product water quality from the WWTP (outlet of treated wastewater polishing plant) is described in Table 16. As shown in the table, it exceeds the water quality requirements for medium exposure risk recycled water schemes.

Table 16 Anticipated treated wastewater quality for each of the operating scenarios

Operating scenario	BOD (mg/L)	TSS (mg/L)	Turbidity (NTU)	pH	Total N (mg/L)	Total P (mg/L)
Minimum production	<5	<1	<5	6.5 - 8.5	<20	<1
Maximum production	<5	<1	<5	6.5 - 8.5	<20	<1
DoH Medium Exposure Risk Compliance Value*	**<20**	**<30**	**< 5 (95%ile)**	**6.5-8.5**	**Not Specified**	**Not Specified**

Notes:
***DoH medium exposure risk compliance values (for validation and verification monitoring) have been sourced from the Department of Health's (DoH) Guidelines for the Non-potable Uses of Recycled Water in Western Australia** (DoH, 2011).

Solid Waste

Solid waste will accumulate within the WWTP Feed Tank. When necessary to maintain an adequate effective volume in this tank, this sludge will be extracted via vacuum removal, and delivered off site to an appropriately licensed disposal facility.

Low volumes of sludge will also be generated from the proposed MBR system which will be designed to reduce phosphorus levels via chemical precipitation and filtration processes. The solid waste stream shall be stored within a internal chamber before removal by vac-truck or tanker to an appropriately disposal facility.

8.11 Impacts to native vegetation

8.11.1 Construction

Construction of the Facility will result in the clearing of native vegetation. Clearing of native vegetation will be undertaken under exemption, Section 5.1.2.

Avoidance of native vegetation clearing was a key consideration in the preparation and planning of the Facility. Several site and layout options were explored, with the pipe route and infrastructure footprint with the lowest potential to impact on environmental factors selected. Every effort has been taken during the design phase to minimise the clearing footprint of both native vegetation and the mature gardens. The final clearing footprint is less than 0.6 ha and does require clearing of riparian vegetation or Threatened Ecological Communities.

8.11.2 Operational

Clearing of native vegetation is unlikely to be required once the re-development is complete, with any further clearing undertaken for safety or maintenance reasons. Established native vegetation and gardens will be an important feature of this boutique hotel.

8.12 Traffic impacts

There will be an increase in traffic movements at the Site during the construction. This traffic movements will primarily occur during construction hours.

Traffic impact during operation of the hotel is anticipated as being minimal to avoid disruption and amenity to paying guests. Traffic is likely to be contained to service vehicles, staff and guest vehicles.

The roads will be designed to ensure safe operation of traffic during construction and operation. Hard stand areas will be constructed that are suitable for low-speed vehicular traffic including mobile cranes and loaded transport vehicles.

Road pavements and hardstand areas will be designed to accommodate:

- Vehicles of operation and maintenance staff.
- Supply vehicles

– Construction plant and equipment.

8.13 Erosion Control

8.13.1 Construction

A sediment management plan will be prepared and implemented by the construction contractor in accordance with the *Shire of Augusta Margaret River Erosion and Sediment Control Local Law 2019* (SAMR 2019).

8.13.2 Operational

A sediment management plan will be prepared and implemented by the operator in accordance with the *Shire of Augusta Margaret River Erosion and Sediment Control Local Law 2019* (SAMR 2019).

9. Environmental risk assessment

A high-level environmental risk assessment has been conducted for the impacts discussed in Section 8, which are associated with the construction and operation of the Facility. The risk assessment has been conducted in accordance with guidance in the DWER *Guidance Statement: Risk Assessments 2017*. Risks have been assessed based on the controlled risk. The risk rating matrix used is outlined in Table 17 and Table 19.

There are several environmentally sensitive receptors within a 1km radius of the Facility that have informed the risk assessment (Figure 5). These receptors are:

- Residential dwellings (the closest being approximately 85 m north and 155m north-west)
- Margaret River (approximately 364 m northwest)
- The Indian Ocean (approximately 1060 m west)
- The Leeuwin Naturalist Nature Park (approximately 465 m northwest)
- Depth to Groundwater.

The risk assessment for these receptors is presented in Table 19 and Table 20

Table 17 Risk rating matrix (DWER 2017)

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

Table 18 Risk criteria table (DWER 2017)

Consequence			Likelihood	
The following criteria will be used to determine the consequences of a risk event occurring			The following criteria will be used to determine the likelihood of the risk event occurring	
Rating	**Environment**	**Public health and amenity**	**Rating**	**description**
Severe	On-site impacts: catastrophic Off-site impacts local scale: high level or above Off-site 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	Almost certain	The risk event is expected to occur in most circumstances
Major	On-site impacts: high level Off-site impacts local scale: mid-level Off-site 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	Likely	The risk event will probably occur in most circumstances
Moderate	On-site impacts: mid-level Off-site impacts local scale: low level Off-site 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	Possible	The risk event could occur at some time
Minor	On-site impacts: low level Off-site impacts local scale: minimal Off-site 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	Unlikely	The risk event will probably not occur in most circumstances.
Slight	On-site impact: minimal Specific Consequence Criteria (for environment) met	Local scale: minimal impacts to amenity Specific Consequence Criteria (for public health) criteria met	Rare	The risk event may only occur in exceptional circumstances

Table 19 Site development and construction risk assessment

Activity/Source	Potential Emissions/Discharges/Impacts	Pathway	Receptors	Consequence	Likelihood	Risk Rating	Controls
Vegetation clearing and site development	Dust due to mechanical disturbance and from open, cleared areas	Air/wind dispersion	Sensitive receptors - Residences from 85 m north and 155 m north-east	Minor	Unlikely	Medium	– Implement Dust Management Plan. – Daily monitoring of weather conditions with – associated changes to dust controls or activities if strong winds are likely to occur. – Restrict clearing if windy conditions are occurring and dust control is ineffective. – Daily visual monitoring of open areas and – activities with targeted dust suppression – application. – Application of water or chemical dust – suppressant as required. – Vehicles restricted to established tracks and – 25 km/hr on unsealed areas. – Water spray when clearing as required based on visual observations. – Record, investigate and respond to any dust – complaints.
	Noise from machinery activity and generators	Air/wind dispersion	Sensitive receptors - Residences from 85 m north and 155 m north-east	Minor	Unlikely	Medium	– Operate machinery in accordance with – manufacturer's specifications. – Record, investigate and respond to any noise – complaints.
	Silt and erosion run off during rain events	Stormwater	Sensitive receptors - Margaret river approximately 364m west	Minor	Unlikely	Medium	– Manage site in accordance with construction environmental management plan and silt management plan.
Vehicle servicing and refuelling	Hydrocarbon release from mobile equipment, or during storage, servicing or refuelling (includes	Direct discharge to ground Infiltration to groundwater	Ground water at least 2.4m BGL	Slight	Unlikely	Low	– Implement spill response procedure and – training via the Site induction. – Spill kits distributed across site, at the location of any storage infrastructure, at any refuelling areas and at any temporary servicing areas.

Activity/Source	Potential Emissions/Discharges/Impacts	Pathway	Receptors	Consequence	Likelihood	Risk Rating	Controls
	contaminated waste)	Discharge to surface water during rainfall					– All vehicle and equipment servicing to be – undertaken within the designated servicing – areas. – Refuelling to be undertaken within a low – permeability bunded area (portable rollover bund) or where not practical (service truck refuelling mobile equipment) a drip tray or bund will be placed below the refuelling point. – Accumulated stormwater and debris will be removed from the refuelling bunded area on a regular basis. – All storage of hydrocarbons will be within a low permeability bund. – Any contaminated waste will be stored within sealed containers or bins and stored within a bunded area pending transport to a licensed disposal facility.
Fabrication and installation of infrastructure	Noise from construction activity	Air/wind dispersion	Sensitive receptors - Residences from 85 m north and 155 m north-east	Minor	Unlikely	Medium	– Record, investigate and respond to any noise – complaints. – Select quietest practical construction equipment.
Waste generation and storage	Waste material into the environment	Wind blown	Sensitive receptors - Indian Ocean – 1060m west Margaret river approximately 364m west Residences from 85 m north and 155 m north-east	Slight	Unlikely	Low	– General construction wastes will be collected in covered skip bins and transported to a licensed landfill for disposal. – Recyclable wastes will be collected in segregated areas or covered skip bins within the Premises pending transport to a recycling facility. – Waste storage areas will be included in site – inspections to ensure appropriate storage of – wastes and regular removal.

Table 20 Commissioning and operation risk assessment

Activity/source	Potential Emissions/Discharges/Impacts	Pathway	Receptors	Consequence	Likelihood	Risk Rating	Controls
Reagent storage, delivery and handling	Chemical release from storage areas during delivery, from tanks or from pipelines delivering reagents to the Plant. General spills may also occur during use.	Direct discharge to ground Infiltration to groundwater. Discharge to surface water during rainfall	Ground water at least 2.4m BGL Indian Ocean – 1060m west Margaret river approximately 364m west	Minor	Unlikely	Medium	– All water treatment reagents will be stored within tanks which meet the relevant AS for the reagent being stored, and concrete bunded areas which meet the requirements of AS 3780- 2008 for Class 8 substances, and AS 1940:2017 for all other reagents and diesel. – Implement Spill Response Procedure. – Provide spill kits at the reagent storage area.
WWTP Pipelines	Spillage of pre-treated wastewater due to failure of pipework or infrastructure.	Direct discharge to ground. Infiltration to Groundwater Discharge to surface water during rainfall	Ground water at least 2.4m BGL Margaret river approximately 364m west	Minor	Unlikely	Medium	– Buffering storage will be incorporated into the system to provide contingency storage in the event of maintenance, power outage, or fault with individual system components. – The buffer storage will be incorporated before and after the package WWTP and will ensure there is time for an operator to attend the Site. This will safeguard the surrounding environment from potential wastewater spillage or overflow.
Solid and liquid wastes	Generation of solid and liquid wastes during the treatment of wastewater	Direct discharge to ground. Infiltration to groundwater. Discharge to surface water during rainfall.	Ground water at least 2.4m BGL Margaret river approximately 364m west	Slight	Unlikely	Low	Treated waste from the facility will be of very high quality and therefore poses a low risk. – The solid waste stream shall be dewatered to a 'spade-able' dry solids (roughly ~20% dry solids), which allows collection and storage in an IBC-framed Geobag, to be transported off-site. – Solids will be delivered offsite to a suitable and appropriately licensed landfill.

10. Monitoring and reporting

10.1 Site development and construction

During Site development, a Construction Environmental Management Plan (CEMP) as well as the following monitoring is proposed to be undertaken:

– Monitoring of vegetation clearing footprint to ensure it remains within the Premises boundary footprint.
– Aboriginal monitors may be employed subject to the Conditions listed in the approved the Section 18 approval to observe excavation works for possible disturbance to artefacts or skeletal remains.
– Monitoring of potential hydrocarbon spills to the soil profile or drainage pathways.
– Visual monitoring of air quality to determine the requirement for dust suppression.
– Regular visual monitoring of regulatory requirements.

10.2 Operation

Staff will be trained to manage the WWTP and undertake online monitoring through a SCADA system during operation of the Facility. Monitoring will include:

– Membrane permeate
    - Turbidity
    - Flow
    - pH
– Treated wastewater
    - Flow rate and volume of discharge

The WWTP will be fully linked to a SCADA system to permit remote monitoring and operational capabilities. This system enables staff and maintenance contractors to oversee system performance.

10.3 Reporting

Reporting will be undertaken in accordance with requirements outlined in approvals from DWER and DoH.

11. Proposed works approval fee

The estimated cost of the Facility on which the fee calculation is based is [redacted]

Using the Works Approval fee calculator available via the DWER website, the fee for this Works Approval has been calculated as [redacted] (Figure 6). This fee was calculated from the estimated cost of the works in accordance with Regulation 5BA and Schedule 3 of the EP Regulations, including all costs associated with the construction and establishment of the WWTP.

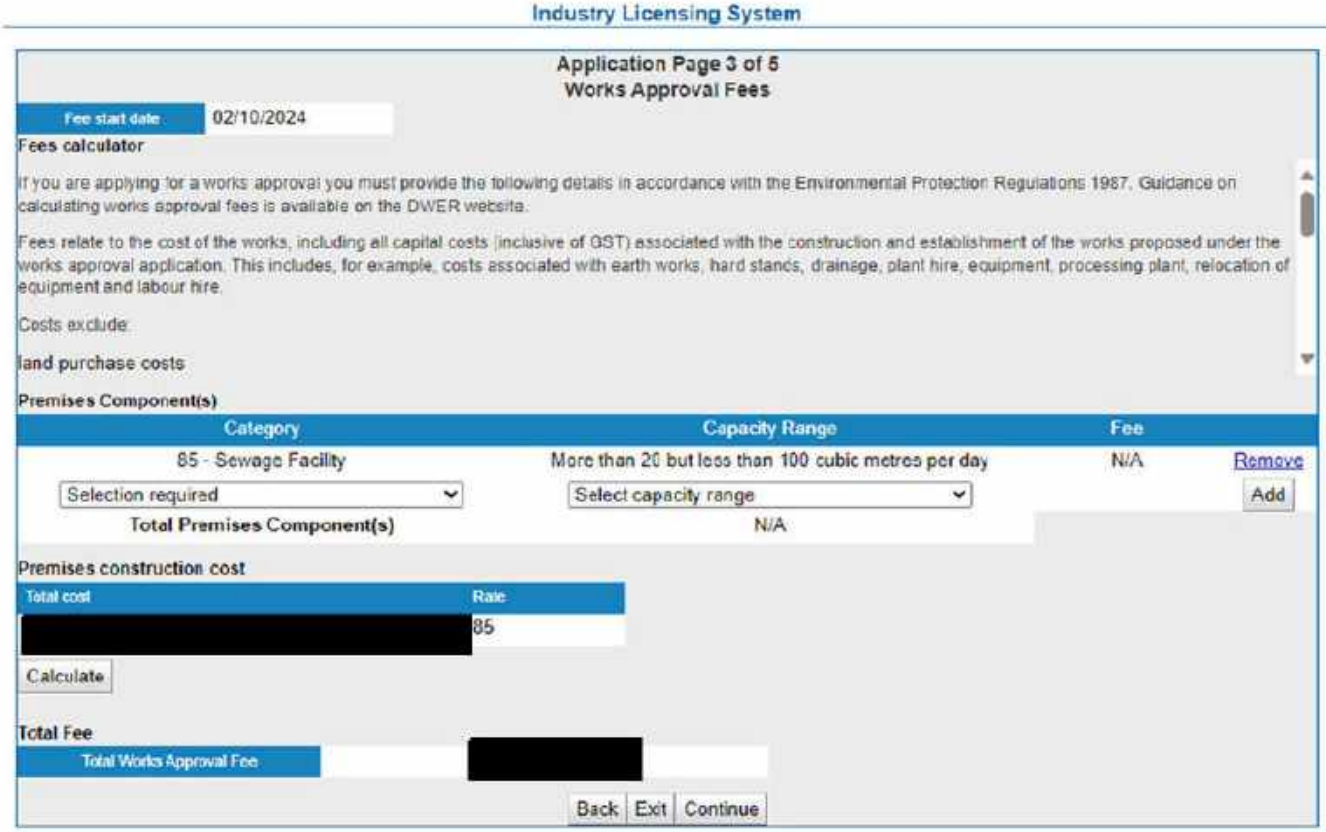


Figure 6 Calculation of Works Approval Application fees

12. References

BC Act . (2016). Biodiversity Conservation Act 2016 (BC Act). In *Western Australian Government, Parliamentary Council's Office.*

BoM. (2024). *Climate Statistics for Australian Locations.* Retrieved August 2024, from http://www.bom.gov.au/

DBCA. (2024). *Dandjoo Biodiversity Data Repository.* Retrieved from https://dandjoo.bio.wa.gov.au/

DBCA. (2024). *Legislated Lands and Waters.* Retrieved from https://maps.slip.wa.gov.au/landgate/locate/

Department of Biodiversity, Conservation and Attractions (DBCA-010). (2024). *Ramsar Sites.* Retrieved August 2024, from https://catalogue.data.wa.gov.au/dataset/ramsar-sites

Department of Biodiversity, Conservation and Attractions (DBCA-019). (2024). *Geomorphic Wetlands, Leeuwin Naturaliste Ridge and Donnybrook to Nannup.* Retrieved August 2024, from https://catalogue.data.wa.gov.au/dataset/geomorphic-wetlands-swan-coastal-plain/resource/2b7d92bfdf10-

Department of Planning, Lands and Heritage (DPLH). (2024). *Aboriginal Heritage Inquiry System*. Retrieved August 2024, from http://maps.dia.wa.gov.au/AHIS2/default.aspx.

Department of Primary Industries and Regional Development (DPIRD-076). (2024). *Soil Landscape Mapping - Western Australia attributed by WA Soil Group*. Retrieved August 2024, from https://catalogue.data.wa.gov.au/dataset/pre-european-dpird-006/resource/fd60c5ac-f62e-43fb-8ce5-

Department of Water and Environmental Regulation (DWER-046). (n.d.). *Clearing Regulations - Environmentally Sensitive Areas*. Retrieved August 2024, from https://catalogue.data.wa.gov.au/dataset/clearing-regulations-environmentally-sensitive-areas-dwer-

DoH. (2011). The Guidelines for the Non-potable Uses of Recycled Water in.

Douglas Partners. (2020). Geophysical Investigation for Subsurface Geological Mapping - Wallcliffe House, 752 Wallcliffe Road, Margaret River Western Australia, 70585, 0.

Douglas Partners. (2022). Geotechnical Investigation - Proposed Wallcliffe House Redevelopment, 752, Wallcliffe Road Margaret River WA, R.001, 0.

Douglas Partners. (2023). Potential Treated Water Infiltration Areas - 752 Wallcliffe Road, Margaret River, WA, R.001.Rev0.

DPLH. (2023). *Shire of Augusta-Margaret River Local Planning Scheme No. 1 (District Scheme).* Retrieved from https://www.wa.gov.au/system/files/2023-08/map12_augusta-margaret_river_tps1_margaret_river_locality_central_west.pdf

DWER. (2024). *Acid Sulfate Soil Risk Map, Lower South West (DWER-052)*. Retrieved August 2024, from https://maps.slip.wa.gov.au/landgate/locate/

DWER. (2024). *Contaminated Sites Database (DWER-046)*. Retrieved August 2024, from https://secure.dec.wa.gov.au/idelve/css/

Emerge. (2022). Hydrogeological Assesment: Lot 1 Wallcliffe Road, Prevelly.

Emerge. (2023). *Lot 101 (no. 752) Wallcliffe Road, Margaret River - Environmental Assessment Report.*

Emerge. (2023). *Lot 101 (no.752) Wallcliffe Road, Margaret River - Water Management Plan.*

EPBC Act 1999. (1999). *Environmental Protection and Biodiversity Conservation Act 1999 (EPBC Act).* Government, Office of Legislative Drafting and Publishing (OLDP), Canberra.

Geoscience. (2024). *Geology of the Surface of Australia Dataset.*

Government of Western Australia (GoWA). (2024). *South West Vegetation Complex Statistics,.* Department of Biodiversity, Conservation and Attractions. Retrieved from https://catalogue.data.wa.gov.au/dataset/dbca.

GoWA. (2017). *South West Vegetation Complex Statistics Report.* Retrieved from https://catalogue.data.wa.gov.au/dataset/dbca#:~:text=From%202016%20to%202018,%20DBCA%20provided%20annual%20updates%20of%20statistics

GoWA. (2024). *Clearing Regulations - Environmentally Sensitive Areas (DWER-046).*

Harewood, G. (2019). Fauna Assessment: Lot 101 Wallcliffe Road Prevelly.

Heddle, E., Loneragan, O., & Havel, J. (1980). Vegetation Complexes of the Darling System, WA. *Atlas of Natural Resources, Darling System, WA*.

Shire of AMR. (2024). Schedule of Submissions - JDAP Application DAP/23/02589. *Regional Development Assessment Panel.* Perth.

Appendices

Appendix A

Company extract

ASIC
Australian Securities & Investments Commission

Australian Company

WALLCLIFFE HOUSE PTY LTD
ACN 611 627 340

Extracted from ASIC's database at AEST 13:10:01 on 05/09/2024

Company Summary	
Name:	WALLCLIFFE HOUSE PTY LTD
ACN:	611 627 340
ABN:	56 611 627 340
Registration Date:	01/04/2016
Next Review Date:	01/04/2025
Status:	Registered
Type:	Australian Proprietary Company, Limited By Shares
Locality of Registered Office:	NEDLANDS WA 6009
Regulator:	Australian Securities & Investments Commission

Further information relating to this organisation may be purchased from ASIC.

Appendix B

Certificate of Title

WESTERN AUSTRALIA

REGISTER NUMBER	
101/DP49026	
DUPLICATE EDITION	DATE DUPLICATE ISSUED
3	17/4/2018

VOLUME 2673 FOLIO 254

RECORD OF CERTIFICATE OF TITLE

UNDER THE TRANSFER OF LAND ACT 1893

The person described in the first schedule is the registered proprietor of an estate in fee simple in the land described below subject to the reservations, conditions and depth limit contained in the original grant (if a grant issued) and to the limitations, interests, encumbrances and notifications shown in the second schedule.

[redacted]

R S

LAND DESCRIPTION:

LOT 101 ON DEPOSITED PLAN 49026

REGISTERED PROPRIETOR:
(FIRST SCHEDULE)

WALLCLIFFE HOUSE PTY LTD OF SUITE 12 LEVEL 1 40 ST QUENTIN AVENUE CLAREMONT WA 6010
(T N874830) REGISTERED 16/4/2018

LIMITATIONS, INTERESTS, ENCUMBRANCES AND NOTIFICATIONS:
(SECOND SCHEDULE)

1. *J415551 MEMORIAL. HERITAGE OF WESTERN AUSTRALIA ACT 1990. AS TO PORTION ONLY LODGED 31/8/2005.

Warning: A current search of the sketch of the land should be obtained where detail of position, dimensions or area of the lot is required.
* Any entries preceded by an asterisk may not appear on the current edition of the duplicate certificate of title.
Lot as described in the land description may be a lot or location.

----------END OF CERTIFICATE OF TITLE----------

STATEMENTS:

The statements set out below are not intended to be nor should they be relied on as substitutes for inspection of the land and the relevant documents or for local government, legal, surveying or other professional advice.

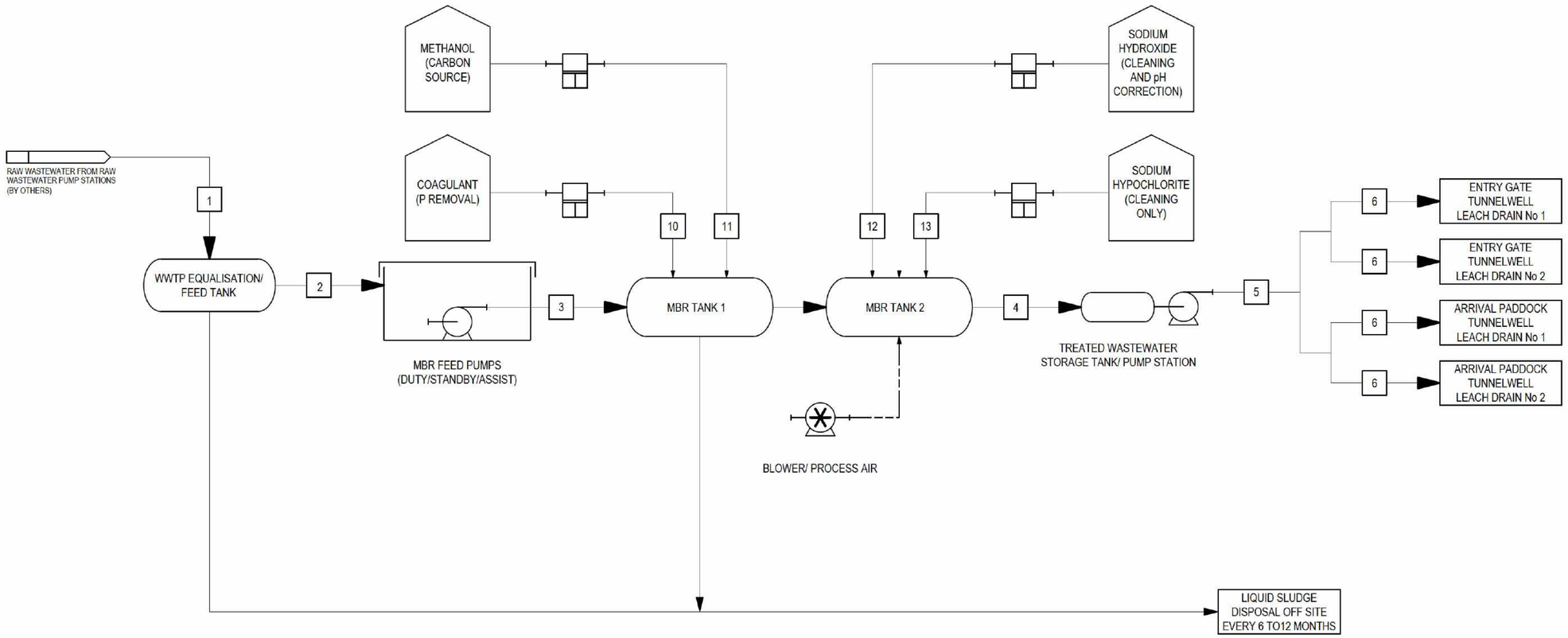
SKETCH OF LAND:	DP49026
PREVIOUS TITLE:	2138-882, 2138-883
PROPERTY STREET ADDRESS:	752 WALLCLIFFE RD, MARGARET RIVER.
LOCAL GOVERNMENT AUTHORITY:	SHIRE OF AUGUSTA MARGARET RIVER

Appendix C

Process flow diagram

LEGEND

- MAJOR PROCESS
- MINOR PROCESS
- CHEMICAL DOSING
- LOW PRESSURE AIR



STREAM #		1	2	3	4	5	6
STREAM NAME		INFLUENT	FEED EQUALISATION	MBR FEED	MBR TREATED WASTEWATER	INFILTRATION FEED	TUNNELLWELL LEACH DRAIN INLET
MAX. FLOW	kL/d	38.37	38.37	38.37	38.37	38.37	38.37
AVE. FLOW	kL/d	27.4	27.4	27.4	27.4	27.4	27.4
MIN. FLOW	kL/d	21.9	21.9	21.9	21.9	21.9	21.9
OPERATION TIME	h/d	24	24	24	24	24	24
INSTANTANEOUS FLOW	L/s	2 - 3 (BY OTHERS)	0.44	0.44	0.44	0.44	0.44
BOD (TOTAL)	mg/L	370	370	370	20	20	20
TOTAL NITORGEN	mg/L AS N	80	80	80	20	10	10
TOTAL PHOSPHORUS	mg/L AS P	13	13	13	1	1	1
TSS	mg/L	370	370	370	1	1	1

STREAM #		10	11	12	13
CHEMICAL		COAGULANT	METHANOL	SODIUM HYDROXIDE	SODIUM HYPOCHLORITE
DOSE RATE	mg/L	76	TBC	TBC	TBC
FLOW RATE	L/d	6	TBC	TBC	TBC
CONCENTRATION	%	20	30	30	12.5

Rev	Description	Checked	Approved	Date
C02	DESIGN REVISED	[redacted]		14/05/2025
C01	BUILDING PERMIT ISSUE			14/3/2025
P03	REISSUED FOR TENDER EVALUATION			8/11/2024
P02	ISSUED FOR TENDER EVALUATION			6/11/2024
P01	ISSUED FOR CLIENT COMMENT			1/08/2024

Author [redacted] Drafting Check [redacted]
Designer Design Check

Plot Date: 13 May 2025 - 12:25 PM Plotted by: [redacted]

File Name: N:\AU\Perth\Projects\61\12635805\CADD\Drawings\12635805-DC-WWTP-C005_C02.dwg

GHD
Level 10, 999 Hay Street Perth WA 6000
PO Box 3106 Perth WA 6832 Australia
T 61 8 6222 8222 F 61 8 6222 8555
E permail@ghd.com W www.ghd.com
www.ghd.com

Project No. 12635805

Client WALLCLIFFE HOUSE PTY LTD

Project WALLCLIFFE HOUSE

Status

Drawing Title

Size A1

Drawing No. Rev

Appendix D

Basis of design report