Government of Western Australia
Department of Water and Environmental Regulation

Licence

Licence number	L8321/2008/2
Licence holder	Margaret Rive Wine Production Pty Ltd
ACN	158 503 470
Registered business address	Level 2, 24 Outram St WEST PERTH WA 6005
Duration	16/01/2014 to 22/01/2045
Date of amendment	02/10/2025
Premises details	Margaret Rive Wine Production Pty Ltd Cnr Payne an Treeton Roads JINDONG WA 6280 Legal description – Being lot 3955 on Plan 203041 & Lot 1 on Diagram 87982

Prescribed premises category description (Schedule 1, *Environmental Protection Regulations 1987*)	**Assessed production capacity**
Category 25: Alcoholic beverage manufacturing: premises on which an alcoholic beverage is manufactured and from which liquid waste is or is to be discharged onto land or into water.	9000 kilolitres (wine) processed per annual period

This licence is granted to the licence holder, subject to the attached conditions, on 02 October 2025, by:

Caron Goodbourn

Digitally signed by Caron Goodbourn
Date: 2025.10.02 16:09:16 +08'00'

MANAGER, PROCESS INDUSTRIES
STATE-WIDE DELIVERY
an officer delegated under section 20 of the *Environmental Protection Act 1986* (WA)

Licence history

Date	Ref number	Summary of changes
13/12/2012	L8321/2008/1	Licence transfer from Boar's Rock Pty Ltd to Margaret River Wine Production Pty Ltd
16/1/2014	L8321/2008/2	Licence reissue, including conversion to REFIRE format
29/4/2016	L8321/2008/2	Amendment by notice to extend expiry date to 22/1/2030
02/10/2025	L8321/2008/2	Department initiated amendment (risk-based review) of licence. In addition to regulatory control, includes administrative updates and changes to the format of the licence and extending the expiry date to 2045.

Interpretation

In this licence:

a) the words 'including', 'includes' and 'include' in conditions mean "including but not limited to", and similar, as appropriate;
b) where any word or phrase is given a defined meaning, any other part of speech or other grammatical form of that word or phrase has a corresponding meaning;
c) where tables are used in a condition, each row in a table constitutes a separate condition;
d) any reference to an Australian or other standard, guideline, or code of practice in this licence:
   (i) if dated, refers to that particular version; and
   (ii) if not dated, refers to the latest version and therefore may be subject to change over time;
e) unless specified otherwise, any reference to a section of an Act refers to that section of the EP Act; and
f) unless specified otherwise, all definitions are in accordance with the EP Act.

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

Licence conditions

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

Production Limits

1. The Licence holder must ensure that the production limits listed in Table 1 are not exceeded.

Table 1: Production limits

Product		Production Limit
1	Wine or grape juice produced or processed[1]	<9000 kL per annual period

[1] Licence holder may accept third-party juice for processing and bottling, but the total volume of juice or wine processed must not exceed the production limit

Works

2. The Licence holder must construct or install the listed infrastructure and equipment in accordance with Table 2.

Table 2. Construction works

	Infrastructure and equipment	Design and construction / installation requirements	Infrastructure location – Schedule 1	Due date
1	Tank Farm 3 and Potters Tank Farm	a) Must be installed on a concrete hardstand area where all wastewater or spillages will drain to the Main Wastewater Sump.	Depicted in Figure 3, Schedule 1 as: Tank Farm 3 Potters Tank Farm In Figure 2, Schedule 1 as: Main Wastewater Sump	31 December 2027

3. The licence holder must, within 30 calendar days of the infrastructure items required by condition 1 being installed:

a) undertake an audit of their compliance with the requirements of condition 1; and

b) prepare and submit to the CEO an Environmental Compliance Report on that compliance.

4. The Environmental Compliance Report required by condition 2, must include as a minimum the following:

a) certification by a person authorised to represent the licence holder that each item of infrastructure or component thereof, as specified in condition 1, have been installed in accordance with the relevant requirements.

b) as constructed plans and a detailed site plan for each item of infrastructure or component of infrastructure specified in condition 1, Table 1.

c) photographs of the installed infrastructure.

d) be signed by a person authorised to represent the licence holder and contains the printed name and position of that person.

5. The licence holder must by **30 December 2025** submit to the CEO an Environmental Assessment Report assessing all the potential impacts of discharging winery wastewater directly into the water table, via the soak. The report must include, but not be limited to:

a) an analysis of current and historic upgradient and downgradient groundwater chemistry, flow path and depth.

b) an analysis of the potential impacts to the local environment caused by the soak overflowing into the stormwater drain;

c) measures to prevent wastewater leaving the soak either via infiltration or overtopping; and

d) the potential for short and long-term groundwater pollution and the effects it may have on water quality for other uses, nearby users and surrounding ecosystems such as groundwater dependent ecosystems and surface water.

6. If wastewater disposal area L2 (woodlot) is to be used for wastewater irrigation, the licence holder must by **30 June 2026** submit to the CEO a Wastewater Management Plan for the wastewater disposal area L2 (woodlot). The Plan must include, but not be limited to:

a) a specific nutrient balance specifying the following:
   i. what crop or plants are to be established to maximise nutrient uptake and export through harvesting the biomass;
   ii. determination of site-specific wastewater nutrient application rates for Nitrogen and Phosphorous (kg/hectare/year), based on the irrigated crop's demonstrated ability to take up the applied nutrients (a nutrient balance), and
   iii. a harvest strategy.

b) assessment of the viability of irrigating wastewater over winter and proposed controls to mitigate risks associated with irrigating wastewater through winter.

c) an assessment of the soil conditions in the tree lot (including but not limited to exchangeable sodium percentage (ESP) and cation exchange capacity (CEC)) and provide details of ongoing monitoring, triggers, and management responses for sodicity.

d) a review of current and historic SAR levels in wastewater and include a SAR management plan.

7. If the Report required by Condition 5 does not conclude that the long-term discharge of winery wastewater into the soak is environmentally sustainable, then the Plan required by Condition 6 must also include:

a) assessment of the viability of irrigating wastewater directly to L1 over winter and proposed controls to mitigate risks associated with irrigating L1 through winter.

b) If irrigation is not viable over winter, the selected method for providing adequate wastewater storage during winter periods, being either additional storage tanks or an impervious wastewater holding dam.

c) assessment of wastewater storage including:
   i. monthly water balance showing the wastewater produced compared to when irrigation cannot occur.[1]
   ii. contingency plan for storage of wastewater during wet weather periods

when irrigation cannot occur.

d) where the Plan identifies any issues with (a), (b) or (c) above, the Plan must include recommendations on how to resolve the limitations.

Note 1: The 95th percentile number of rain days over winter, and not averages, that occur in a year must be used when calculating storage requirements for when irrigation is not suitable.

Infrastructure and Operational Requirements

8. The licence holder must ensure that the site infrastructure and equipment listed in Table 3 is operated in accordance with the corresponding requirements

Table 3: Infrastructure and equipment requirements

	Site infrastructure and equipment	Operational requirement	Infrastructure location
Winery external hardstand area			
1	Impervious graded and drained hardstand area housing the following equipment: • Tank Farm 1 • Tank Farm 2 • Tank Farm 9 Tank Farm 3 (when constructed as per Condition 1) • Potters Tank Farm (when constructed as per Condition 1) • Waste bins	a) All tanks and waste bins must be situated upon a hardstand area that is graded and drained to the Main Wastewater Sump. b) All wastewater drains and sumps must be kept free of solids to enable the free flow of wastewater to the WWTS.	Figure 2 in Schedule 1 and shown as: Tank Farm 1 Tank Farm 2 Tank Farm 3 Tank Farm 9
2	Marc Bay (impervious concrete, graded and bunded to the drainage system)	a) All marc and other organic solids (including screening solids) are either stored within the Marc Bay or in sealed bins on the winery external hardstand area. b) Marc and other organic solids (including screening solids) must be removed from the premises for off-site disposal.	Figure 2 in Schedule 1 and shown as: Marc Bay
Winery Buildings - Internal Processing			
3	Red Barrel Hall	a) All Winery Buildings must be designed and maintained to ensure that all wastewater drains to or is capable of being directed to the WWTS b) All wastewater generated from the Sanector Bottling Hall must pass	Figure 2 in Schedule 1 and shown as: White Barrell Hall Red Barrel Hall Sanector Bottling Hall
4	White Barrel Hall		

5 6	Sanector Bottling Hall Tank Farm 1	through flowmeter (FM2) before being directed to the WWTS. c) Flowmeter (FM2) must be maintained to ensure that the cumulative volumes of wastewater generated from the Sanector Bottling Hall to the WWTS are accurately measured and recorded.	FM2
Winery wastewater treatment system			
7	Wastewater treatment system (WWTS) consisting of: • Main wastewater sump • A rotary Screen • Equalisation Basin • 1000kL Sequence Batch Reactor (SBR) Tank • 6 x 225kL wastewater Storage Tanks • Wastewater irrigation flowmeter (FM1) on the outlet valve of SBR tank. • Belt Press	a) The main wastewater sump must have the ability to divert clean stormwater away from entering the WWTS. b) All wastewater must flow through a solids screen before entering the treatment plant. c) Sludge removed from the WWTS must be disposed of off-site to a licensed facility. d) A flow meter (FM1) must be maintained to enable the cumulative volume of wastewater discharged to the soak and L2 to be accurately measured and recorded. e) Wastewater volumes must be measured in a manner that clearly distinguishes between the quantities discharged to the soak and those discharged to L2 (woodlot). f) A logbook must be kept differentiating wastewater volumes sent to L2 and the soak. g) The LB1 logbook must include: i. Name and signature of the person filling out the logbook. ii. Date and time of the entry. iii. The meter read of FM1 at the time of entry. g) A photograph at the end of each month must be taken of the flow meter read (FM1)[1].	Figure 2 in Schedule 1 and shown as: Main Wastewater Sump Rotary Screen Equalisation Basin Flowmeter (FM1) Wastewater storage tanks Wastewater plant control and belt press shed
Wastewater disposal areas			
8	Wastewater disposal areas consisting of: • L2 – 1ha (woodlot) • L1 (46 ha vines) • Wastewater distribution pumps, pipelines and drippers	a) Wastewater must only be irrigated to areas where vegetation or crops have been intentionally planted and established within L2. b) Diluted wastewater from the soak can be irrigated to L1. c) Wastewater must be evenly distributed over the entirety of L1 and L2. d) Irrigation system valves, pumps, pipelines, and other fittings must be maintained in good working order, with no leaks, and must be routinely inspected for ruptures or failures during irrigation.	Figure 1 in Schedule 1 and shown as: L1 – 46ha vineyard L2 – Woodlot Soak Flowmeter (FM3)

		e) During April, May, September and October no wastewater irrigation to L2 must occur during rainfall, or for 24 hours after a rainfall event of 5 mm or more. f) Must ensure that no wastewater irrigation runoff, spray drift, or discharge occurs beyond the boundary of L2. g) Must ensure that no soil erosion or ponding of wastewater occurs as a result of irrigating wastewater.	
9	Soak including Flowmeter (FM3) installed on irrigation line outlet	a) Flow meter (FM3) must be maintained to enable the cumulative volume of water taken from the soak to be accurately measured and recorded. b) Soak must be managed to ensure that all wastewater that is not being irrigated is contained within the soak. c) Wastewater must not be discharged into the soak if the soak is at maximum capacity or at imminent risk of spilling into the stormwater drain.	

Note 1: A maximum of 3 missed flowmeter photographs per annual period is accepted with an explanation.

Emissions and discharges

Emissions to land limits

9. The licence holder must ensure that treated wastewater is discharged to land in accordance with the limits specified in Table 4.

Table 4: Wastewater irrigation limits

Discharge point	Parameter	Limit value (including units)	Sampling
Wastewater irrigation area L2 (Woodlot) as shown in Schedule 1 Figure 1	Total nitrogen	<250 kg/ha/annual period	Annual loading (See Schedule 3)
	Total phosphorus	<30 kg/ha/annual period	
	Biochemical oxygen demand	<1500 kg/ha/month	Monthly loading (see Schedule 3)
	pH	≥6 and ≤9	Spot sample
	Sodium absorption ratio (SAR) and EC	Must not fall within the “soil structural problems likely” zone as depicted in the graph - Figure 4, Schedule 2	

Monitoring

General monitoring

10. The licence holder must ensure that:

a) all water samples are collected and preserved in accordance with AS/NZS 5667.1;
b) all wastewater sampling is conducted in accordance with AS/NZS 5667.10; and
c) all laboratory samples are submitted to and tested by a laboratory with current NATA accreditation for the parameters being measured.

11. The licence holder must ensure that monthly monitoring is undertaken at least 15 days apart.

12. The licence holder must ensure that quarterly monitoring is undertaken at least 45 days apart.

13. The licence holder must ensure that all monitoring equipment used on the premises to comply with the conditions of this licence is calibrated in accordance with the manufacturer's specifications.

Monitoring of wastewater emissions to land

14. The licence holder must undertake monitoring in Table 5 according to the specifications in that table.

Table 5: Emissions and discharge monitoring

Emission point references	Monitoring point reference	Parameter	Units	Frequency
Wastewater Irrigation areas L2	Flow meter (FM1) on outlet of the SBR tank	Volumetric flow rate (cumulative) discharged individually to soak and L2	kL	Continuous
	Flow meter (FM3) on outlet irrigation line from the soak	Volumetric flow rate (cumulative) discharged from the soak	kL	Continuous
	Sample collected from the "treated Basin" from SBR tank.	pH[1]	-	Monthly when irrigating to L2 or discharging to the soak.
		Electrical conductivity[1]	dS/m	
		Total nitrogen	mg/L	
		Total phosphorous		
		Total dissolved solids		
		Total suspended solids		
		BOD		
		SAR		Quarterly
		Sodium ion (Na^+)		
		Calcium ion (Ca^{2+})		
		Magnesium ion (Mg^{2+})		

Note 1: In field non-NATA accredited analysis permitted for pH and electrical conductivity

Monitoring of ambient soil

15. The licence holder must monitor soil for the identified parameters in accordance with Table 6 and record the result of all such monitoring.

Table 6: Ambient soil monitoring

Sample type	Soil sampling location	Soil profile	Parameter	Units	Sampling frequency
Composite near surface soil sample consisting of at	Within L2	0-10cm	pH	-	Every 3 years in March, starting in March 2026.[2]
			Electrical conductivity	dS/m	
			Total nitrogen	mg/kg	

Sample type	Soil sampling location	Soil profile	Parameter	Units	Sampling frequency
least 20 sub-samples. [1]			Nitrate – Nitrogen		
			Total Phosphorus		
			Phosphorus (Colwell)		
			Exchangeable sodium percentage	%	
			Phosphorus sorption capacity	kg/ha	
			Zinc[3]	mg/kg	
			Saturated hydraulic conductivity	mm/hr	
Composite soil sample, consisting of at least 5 sub samples of each major soil horizon to 100cm[1]		10 cm – 100 cm	pH	-	
			Electrical conductivity	dS/cm	
			Total nitrogen	mg/kg	
			Nitrate – Nitrogen		
			Total Phosphorus		
			Phosphorus (Colwell)		
			Exchangeable sodium percentage	%	
			Phosphorus sorption capacity	kg/ha	

Note 1: Samples are to be collected from across the irrigation area in a uniform pattern to accurately represent the entire area.
Note 2: Soil sampling required only when wastewater irrigation has occurred in the previous 3 years.
Note 3: Zinc to be sampled every 5 years, starting in March 2026.

Monitoring of groundwater

16. The licence holder must undertake monitoring in Table 7 according to the specifications in that table.

Table 7: Groundwater monitoring

Monitoring Points	Parameter	Units	Frequency
MB1, MB2, MB3, MB4 as shown in Schedule 1, Figure 1.	Standing Water Level	mbgl	Quarterly: March June (July if no water is present in June) September December
	pH	-	
	Electrical conductivity	dS/m	
	BOD	mg/L	
	TDS		
	TN		
	TP		
Soak as shown in Schedule 1, Figure 1.	pH	-	Monthly, when discharging to the soak.
	Electrical conductivity	dS/m	
	BOD	mg/L	
	TDS		
	TN		
	TP		

Records and reporting

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

a) the calculation of fees payable in respect of this licence;
b) any maintenance of infrastructure that is performed in the course of complying with this licence;
c) monitoring programmes undertaken in accordance with condition 14, 15 and 16 of this licence; and
d) complaints received under condition 19 of this licence.

18. The books specified under condition 17 must:

a) be legible;
b) if amended, be amended in such a way that the original and any subsequent amendments remain legible or are capable of retrieval;
c) be retained by the licence holder for the duration of the licence; and
d) be available to be produced to an inspector or the CEO as required.

19. The licence holder must implement a complaints management system that as a minimum record the number and details of complaints received concerning the environmental impact of the activities undertaken at the premises and any action taken in response to the complaint.

20. The licence holder must:

a) undertake an audit of their compliance with the conditions of this licence during the preceding annual period; and
b) prepare and submit to the CEO by no later than 30 November after the end of each annual period an Annual Audit Compliance Report (AACR) in the approved form.

21. The licence holder must submit to the CEO an Annual Environmental Report by no later than 30 November after the end of each annual period. The report must contain the information listed in Table 8 in accordance with the corresponding requirement set out in that table.

Table 8: Annual Environmental Report

Condition or table	Parameter
Condition 1	a) The tonnages of grapes crushed at the premises per annual period. b) The volumes of grape juice accepted by third parties for processing per annual period. c) The volume of wine produced or processed per annual period.
Condition 8	a) Monthly photographs of flow meter (FM1 and FM3) readings b) Amount (tonnes) of sludge removed from the wastewater treatment system for off-site disposal.
Condition 9	a) Tabulated loadings of nitrogen, phosphorus and BOD applied to L2 using the provided nutrient loading rate spreadsheet in Schedule 3. b) An assessment and interpretation of the data including comparison to historical trends and loading limits
Condition 14	a) Monthly volumes of wastewater sent individually to the soak and to L2. b) Summary of total water input into the soak (production bore (PB1) and wastewater) compared to the total volume extracted from the soak. c) Wastewater monitoring data in tabulated and graphical formats including the sampling date and including at least the last 5 years (once available) of data for comparison. d) An assessment and interpretation of the data including comparison to historical trends.

Condition 15	a) Soil monitoring data in tabulated and graphical formats including the sampling date. b) Name of the person who collected soil samples. c) Locations of samples taken. d) An assessment and interpretation of the data including comparison to historical trends.
Condition 16	a) Groundwater monitoring data in tabulated and graphical formats including the sampling date and including at least the last 5 years (once available) of data for comparison. b) An assessment and interpretation of the data including comparison to historical trends.
Condition 19	Complaints summary.
-	Summary of any failure of malfunction of any pollution control equipment and any environmental incidents that have occurred during the annual period and any action taken.

Definitions

In this licence, the terms in Table 9 have the meanings defined.

Table 9: Definitions

Term	Definition
Annual Audit Compliance Report (AACR)	means a report submitted in a format approved by the CEO (relevant guidelines and templates may be available on the Department's website)
annual period	means the 12 month period commencing from 1 October until 30 September of the immediately following year
AS/NZS 5667.1	means the Australian Standard AS/NZS 5667.1 *Water Quality – Sampling – Guidance of the design of sampling programs, sampling techniques and the preservation and handling of samples*
AS/NZS 5667.10	means the Australian Standard AS/NZS 5667.10 *Water Quality – Sampling – Guidance on sampling of waste waters*
averaging period	means the time over which a limit is measured or a monitoring result is obtained
BOD	biochemical oxygen demand
books	has the same meaning given to that term under the EP Act.
CEO	means Chief Executive Officer of the Department. "submit to / notify the CEO" (or similar), means either: Director General Department administering the *Environmental Protection Act 1986* Locked Bag 10 JOONDALUP DC WA 6919 or: info@dwer.wa.gov.au
Department	means the department established under section 35 of the *Public Sector Management Act 1994* (WA) and designated as responsible for the administration of the EP Act, which includes Part V Division 3
discharge	has the same meaning given to that term under the EP Act
emission	has the same meaning given to that term under the EP Act

Term	Definition
EP Act	*Environmental Protection Act 1986* (WA)
hardstand	means a surface with a permeability of 1 x 10^{-9} metres/second or less
leachate	means liquid released by or water that has percolated through waste and which contains some of its constituents
licence	means this document, which evidences the grant of a licence by the CEO under section 57 of the EP Act, subject to the specified conditions contained within
licence holder	refers to the occupier of the premises, being the person specified on the front of the licence as the person to whom this licence has been granted
malfunction	means a piece of equipment or machinery which fails to function normally. This can include but is not limited to flow meters failing to record, over topping of tanks, blocked sprinklers or pipes bursting.
marc	means grape material (mainly skin, pulp and seeds) which is left over after grape crushing and pressing
mbgl	Meters Below Ground Level
NATA	means the (Australian) National Association of Testing Authorities
NATA accredited	means in relation to the analysis of a sample that the laboratory is NATA accredited for the specified analysis at the time of the analysis
pollution	Has the same meaning to that term under the EP Act
premises	means the premises to which this licence applies, as specified at the front of this licence and as shown on the premises map Figure 1 in Schedule 1 to this licence
prescribed premises	has the same meaning given to that term under the EP Act
spot sample	means a discrete sample representative at the time and place at which the sample is taken
stormwater	means rainwater that is not contaminated with waste or leachate
Viable/viability	for the purposes of condition 6 and 7 means must not alter to the detriment of the environment and to environmental values.
waste	has the same meaning given to that term under the EP Act

END OF CONDITIONS

Schedule 1

Premises map

The boundary of the prescribed premises is shown in the map below in red. The approved wastewater irrigation areas are shaded yellow. The Monitoring Bore locations are a blue dot.

Figure 1: Map of the boundary of the prescribed premises, irrigation areasand groundwater monitoring bores

Infrastructure layout:

The infrastructure layout of the site is depicted in Figure 2.

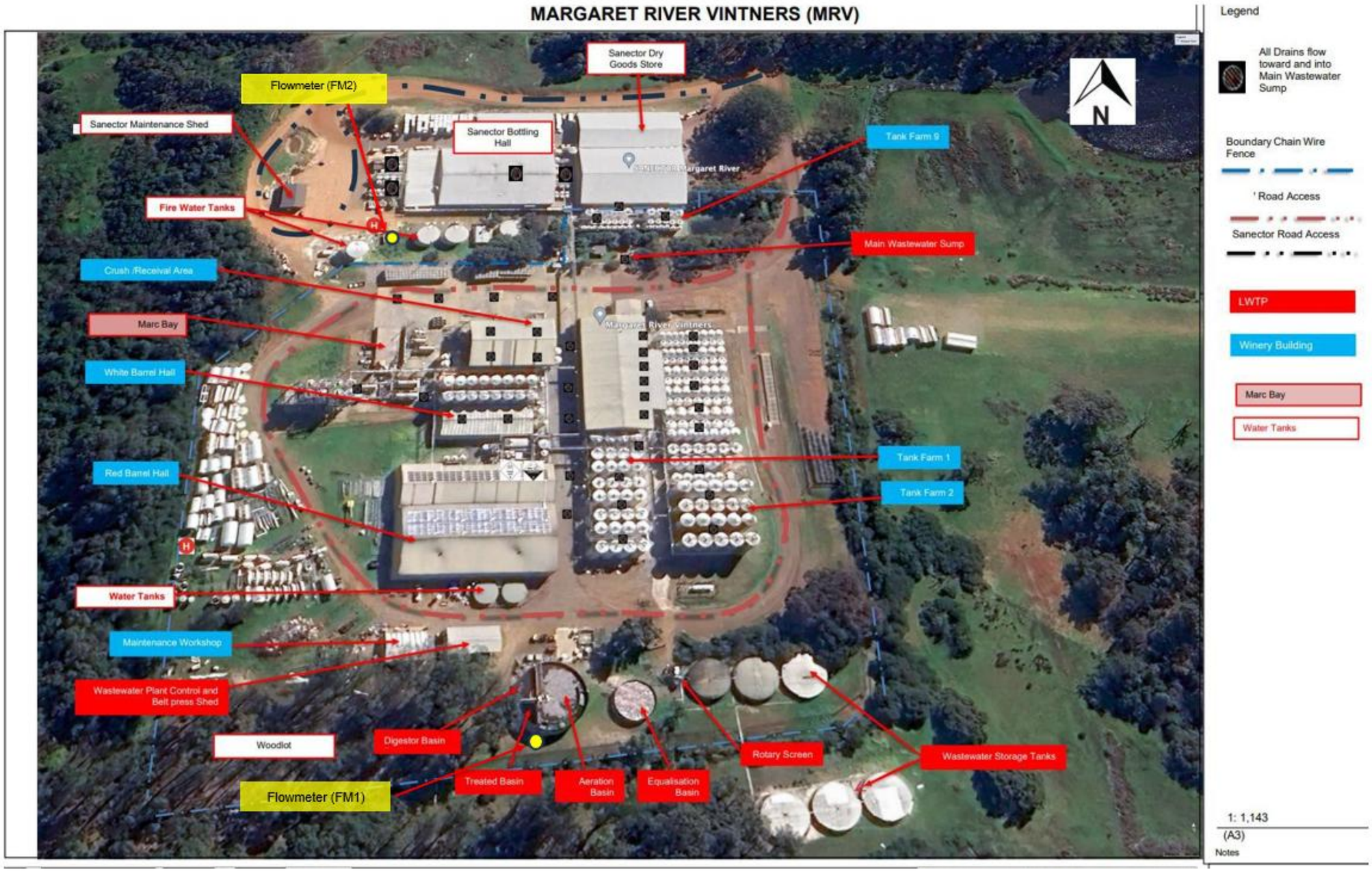

Figure 2: Site infrastrucutre layout

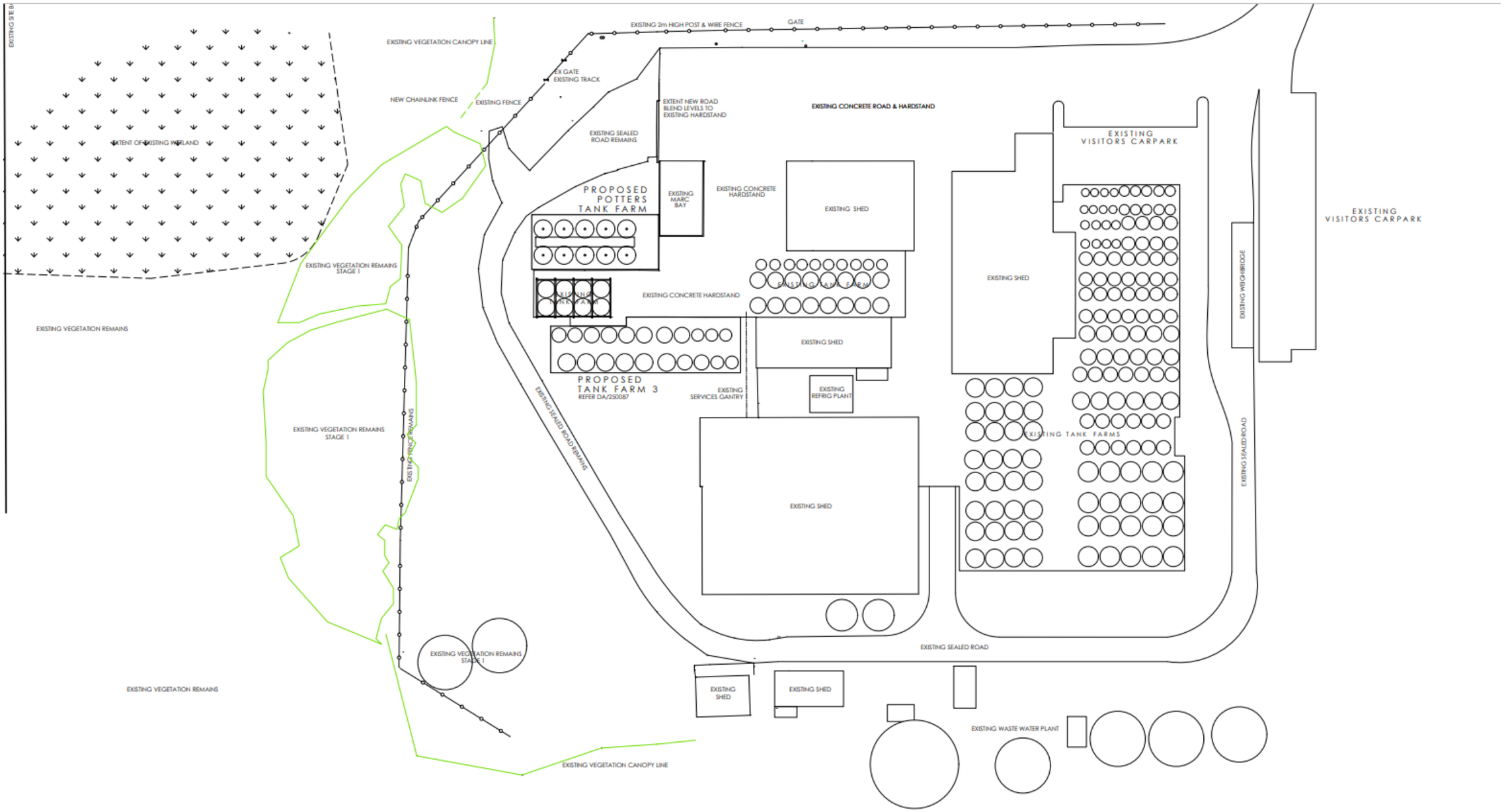

Figure 33: Works plan

Schedule 2: SAR:EC Soil Structure

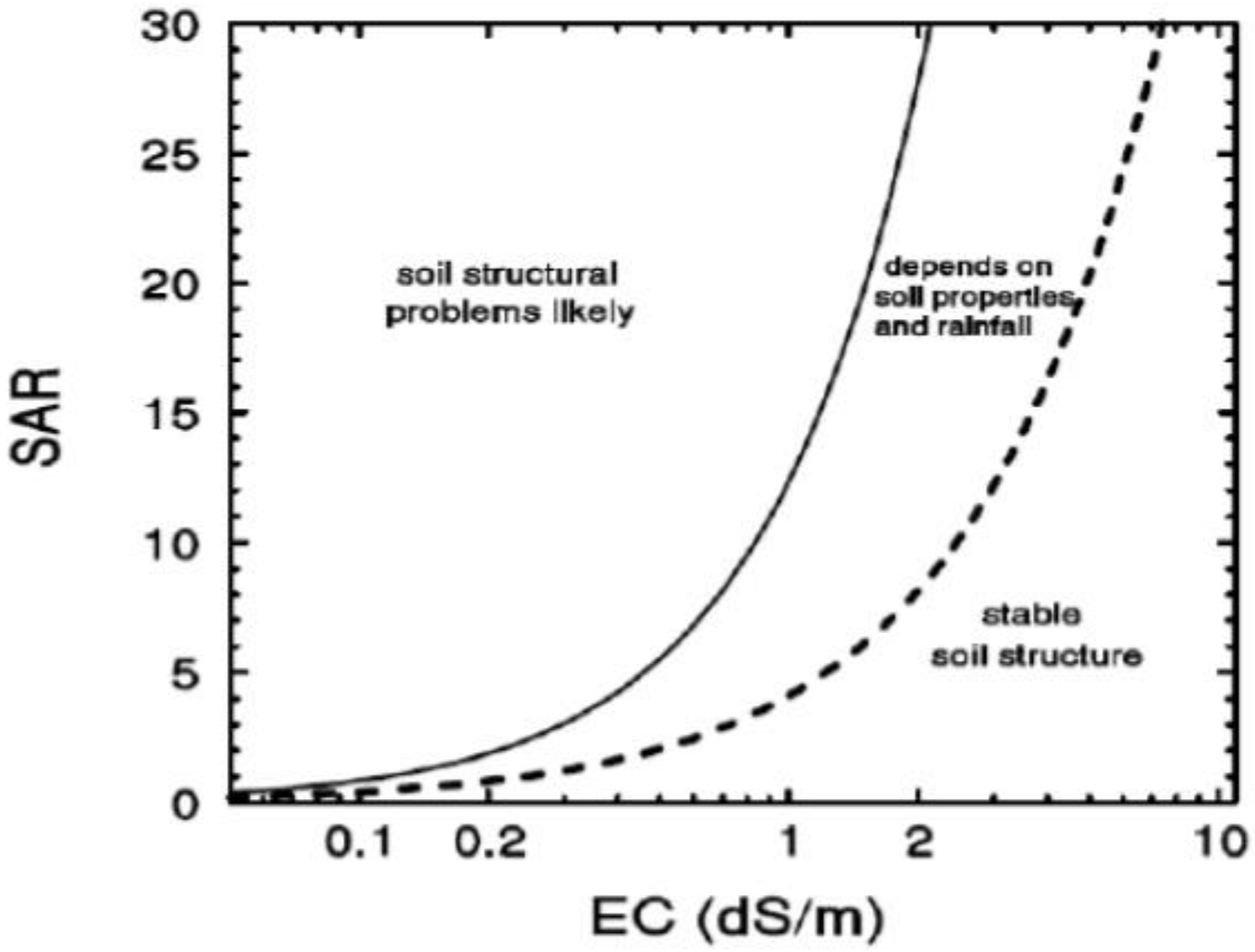

Figure 44: SAR:EC soil structure graph

Schedule 3: Nutrient loading rate spreadsheet

Nutrient loading spreadsheet - electronic

Irrigation areas[1]: size, volume irrigated, irrigation days				**Annual period (as defined by your licence)[2]**												**Volume irrigated during annual period (kL)[3]**
	Size (ha)			**January**	**February**	**March**	**April**	**May**	**June**	**July**	**August**	**September**	**October**	**November**	**December**	
EXAMPLE irrigation area:	*25*	*volume irrigated*	*kL*	*20,000*	*20,000*	*18,000*	*15,000*	*0*	*0*	*0*	*0*	*15,000*	*18,000*	*20,000*	*25,000*	*151,000*
		days of irrigation	*days/month*	*29*	*28*	*30*	*25*	*0*	*0*	*0*	*0*	*20*	*25*	*30*	*27*	
Irrigation Area 1:	4.5	volume irrigated	kL													
		days of irrigation	days/month													
Irrigation Area 2:		volume irrigated	kL													
		days of irrigation	days/month													
Irrigation Area 3:		volume irrigated	kL													
		days of irrigation	days/month													
Wastewater quality[4]	*EXAMPLE sampling date:*			*20/01/2022*	*15/02/2022*	*17/03/2022*	*19/04/2022*	*12/05/2022*	*12/06/2022*	*9/07/2022*	*15/08/2022*	*12/09/2022*	*15/10/2022*	*13/11/2022*	*7/12/2022*	
	EXAMPLE total nitrogen	*mg/L*		*13.2*	*21.3*	*17.6*	*19.2*	*42.4*	*25.1*	*30.4*	*40.3*	*34.8*	*38.7*	*44.6*	*47.3*	
	EXAMPLE BOD	*mg/L*		*4.8*	*12.1*	*6.1*	*4.9*	*4.8*	*4.1*	*3.3*	*5.2*	*4.4*	*5.2*	*5.1*	*7.5*	
	Sampling date:															
	For wineries to indicate sampling period:[5]															
	Total nitrogen	mg/L														
	Total phosphorus	mg/L														
	Biochemical oxygen demand	mg/L														

Nutrient and BOD loadings[6]			**January**	**February**	**March**	**April**	**May**	**June**	**July**	**August**	**September**	**October**	**November**	**December**	**kg/ha/annual period[7]**
EXAMPLE total nitrogen loadings			*10.6*	*17.0*	*12.7*	*11.5*					*20.9*	*27.9*	*35.7*	*47.3*	*183.5*
EXAMPLE BOD loadings		*kg/ha/month*	*3.8*	*9.7*	*4.4*	*2.9*					*2.6*	*3.7*	*4.1*	*7.5*	*38.8*
		kg/ha/day	*0.13*	*0.35*	*0.15*	*0.12*					*0.13*	*0.15*	*0.14*	*0.28*	
Irrigation Area 1	Total nitrogen	kg/ha/month													
	Total phosphorus	kg/ha/month													
	Biochemical oxygen demand	kg/ha/month													
		kg/ha/day													
Irrigation Area 2	Total nitrogen	kg/ha/month													
	Total phosphorus	kg/ha/month													
	Biochemical oxygen demand	kg/ha/month													
		kg/ha/day													
Irrigation Area 3	Total nitrogen	kg/ha/month													
	Total phosphorus	kg/ha/month													
	Biochemical oxygen demand	kg/ha/month													
		kg/ha/day													

Explanatory notes and calculations:

White cells should be filled in where applicable.
NOTE 1 - Where there is irrigation to more than 3 areas, additional copies of this sheet should be completed.
NOTE 2 - This sheet should be completed for your annual period as defined by your licence. *E.g. If your annual period is from 1 October to the 30 September in the following year, for the 2022-2023 annual period, you should include data from January - September 2023, and October - December 2022.*
NOTE 3 - Volume irrigated during the annual period (kL), for each irrigation area is the sum of the monthly volumes irrigated to that area. *E.g. For the example shown: Volume irrigated during annual period = 20,000 (Jan) + 20,000 (Feb) + 18,000 (Mar) + 15,000 (Apr) + 15,000 (Sep) + 18,000 (Oct) + 20,000 (Nov) + 25,000 (Dec) = 151,000 kL. Noting that for the example there was no irrigation during the months of May, June, July or August.*
NOTE 4 - The sampling and analysis of your wastewater quality should be undertaken in accordance with your licence conditions. For sampling less often than monthly, i.e. quarterly, 6-monthly, or annually: for months where no sampling is required, wastewater quality should be taken to be equivalent to the most recent sample taken. *E.g. Quarterly sampling during Feb, May, Aug and Nov - total nitrogen concentrations were analysed to be 7, 11, 8 and 13 mg/L respectively in the wastewater. For March and April, as February was the most recent sample taken, total nitrogen concentration is estimated to be 7 mg/L. Similarly, for June and July, as May was the most recent sample, total nitrogen concentration is estimated to be 11 mg/L. There will be no sampling date associated with non-sampling months.* If your licence requires you to monitor loading rates for additional parameters (e.g. inorganic nitrogen, reactive phosphorus etc.) additional copies of this sheet should be completed for the additional parameters.
NOTE 5 - For wineries to indicate sampling period - this row is only required to be completed if your licence condition specifies a sampling period e.g. pre-vinatge, peak vintage, late vintage, post vintage, non-vintage. Indicate which sampling date corresponds with which period.
NOTE 6 - Parameter loading (TN, TP or BOD) each month per hectare for each irrigation area (kg/ha/month): $\frac{\text{monthly concentration of parameter (TN, TP or BOD) in mg/L} * \text{monthly volume of wastewater irrigated to irrigation area (kL)} \div 1000}{\text{size of irrigation area}}$ *E.g. Using the example shown, for total nitrogen for January: 13.2 mg/L * 20,000 kL / 1,000 = 264 kg/month. 264 / 25 ha = 10.6 kg/ha/month (for January).* Loading of parameter (BOD) each day per hectare for each irrigation area (kg/ha/day): BOD loading (kg/ha/month) ÷ number of days of irrigation during that month. *E.g. Using the example shown, for BOD for October: 3.7 kg/ha/month / 25 days of irrigation during October = 0.15 kg/ha/day (for October)*
NOTE 7 - To calculate annual loading of parameter (TN, TP or BOD) per hectare (kg/ha/annual period): sum of monthly loadings (kg/ha/month). You should calculate an annual loading (kg/ha/annual period) for each parameter for each irrigation area. *E.g. Using the example shown, for total nitrogen: 10.6 (Jan) + 17 (Feb) + 12.7 (Mar) + 11.5 (Apr) + 20.9 (Sep) + 27.9 (Oct) + 35.7 (Nov) + 47.3 (Dec) kg/ha/month = 183.5 kg/ha/annual period*

* To request an electronic copy of this spreadsheet please contact info@dwer.wa.gov.au