Irrigation Design Australia
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IRRIGATION WATER USAGE, CATCHMENT & IRRIGATION STRATEGY

SOLAIS 20.05.26

Please see below the Irrigation Design / Strategy Information. We have provided the report based on the information provided. The methods of calculating water usage, and irrigation sustainability we have provided are based on this information. Calculations have been carried out based on landscaped areas supplied to IDA. **Irrigation applications will be by sub surface Drip.**

We have calculated water usage uing a mathematical method of multiplying the landscaped area by the nominated required volumes of water.

Method used is as per average Industry standard applications rates these are:

Summer 25mm per week, Autumn 15mm per week, Winter 10mm per week, Spring 20mm per week.

Seasonal Calculations have been based on 13 weeks.

PROVIDED DATA

Containerised Planting Area – 1,830m2, *Catchment Area – 690m2*

IRRIGATION WATER USAGE – Industry Standards

Application rates based on industry averages x area.

SUMMER 25mm per week = 45,750Litres per week. - Season requirement 594,750Litres

AUTUMN 15mm per week = 27,450Litres per week. – Season requirement 356,850Litres

WINTER 10mm per week = 18,300Litres per week. – Season requirement 237,900Litres

SPRING 20mm per week = 36,600Litres per week. – Season requirement 475,800Litres

Total Annual Water Usage 1,665,300 Litres

RAINFALL AND CATCHMENT CALCULATIONS SEASONAL:

BRISBANE AVERAGE ANNUAL RAINFALL 1200mm (Adjusted by 24mm annually 1176mm)

1176mm per Year x a Catchment area of 690m2 equals a catchment volume of **811,440 Litres.**

TANK SIZING (WATER STORAGE):

Tank sizing requires consideration of potential harvest volumes as well as irrigation water requirements. The highest average rainfall in Brisbane is 37.6mm a week, therefore the **highest volume** of water that can potentially be harvested over the project catchment is **25,944 Litres** in a week.

The Client has indicated that there will be 50,000 Litres of storage.

50,000 Litre Storage would hold enough water for:

Approximately 1.09 average weekly applications of irrigation for the Summer requirements **25mm**

Approximately 1.82 average weekly applications of irrigation for the Autumn requirements **20mm**

Approximately 2.73 average weekly applications of irrigation for the Winter requirements **15mm**

Approximately 1.37 average weekly applications of irrigation for the Spring requirements **10mm**

Approximately 1.56 average weekly applications of irrigation for the Average requirements **18mm**

ALTERNATE WATER SUPPLY

In periods of low rainfall or when tank levels are below requirements an alternative water supply may be required. The discrepancy between potential harvested catchment and water requirements will be met by alternative water when required. To service irrigation requirements the Tank may require multiple top ups, this should be considered when locating the Tanks as refill from Tanker at Ground Level may be an issue if the Water Tanker pumps do not have sufficient pressure to pump to high level Tank storage. The locating of the tanks in an accessible location on the property will assist with access for Tanker fill. Alternatively, a fill line could be installed with an external connection point for a tanker to fill with.

Potable back up could be utilized (if required) at a 10-25% Tank level. This would safeguard the system should there be an issue with the alternative supply or nil rainfall in periods of demand.

Data Summary

Based on the calculations the Storage allowance of 50KL will provide the following:

Summer weekly requirement – 45,750 Litres Storage provides 109%.

Autumn weekly requirement – 27,450 Litres Storage provides 182%.

Winter weekly requirement – 18,300 Litres Storage provides 273%.

Spring weekly requirement – 36,600 Litres Storage provides 137%.

Average weekly requirement – 32,025 Litres Storage provides 156%

The Irrigation requirements based on industry standards can be addressed by plant selection and or additional irrigation requiring external Tank fill to cover any shortfall. All planters will require free draining soil and very good drainage, if possible, this should be drained back to the storage Tank. Should plant demand be less than the applied volumes this would ensure water is not wasted.

We trust this information, calculations and stated strategy meets requirements and assists with planning for the required project.

Regards

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IRRIGATION WATER USAGE - STORAGE

Planting Landscape Area (m2): 1830 **Catchment** **Adjusted Catchment** 690

Tank Size 50,000

WATER USAGE METHOD - INDUSTRY STANDARD APPLICATIONS (25,20,15,10mm)	Weekly Irrigation Application	Weekly Irrigation Requirements	Weeks in Season	Seasonal Irrigation Requirements
SUMMER	25	45,750	13	594,750
AUTUMN	15	27,450	13	356,850
WINTER	10	18,300	13	237,900
SPRING	20	36,600	13	475,800
Average	18	32,025		1,665,300

CATCHMENT CALCULATION METHOD - BOM DATA ANNUAL RAINFALL

	AREA	Annual Rainfall	Cunliffe	Adjusted Annual	Catchment
	m2	mm	mm	m2	litres
ROOF CATCHMENT AREA	690	1200	24	1,176	811,440
ANNUAL CATCHMENT					811,440

	mm	One Weeks Harvest (L)
Highest Average Weekly Rainfall (BOM Data Brisbane)	37.60	25,944

	SUMMER 25	AUTUMN 15	WINTER 10	SPRING 20	AVERAGE 18
IRRIGATION REQUIREMENT WEEKLY	45,750	27,450	18,300	36,600	32,025
STORAGE CAPACITY	50,000	50,000	50,000	50,000	50,000
% provide by Rainfall	109%	182%	273%	137%	156%
DIFFERENCE	4,250	22,550	31,700	13,400	17,975

Tank Sizing		Average Weekly Application	TANK SIZE	TANK SIZE	TANK SIZE	TANK SIZE
STORAGE			5,000	20,000	25,000	50,000
Applications of Industry Standard - Summer	25	45,750	0.11	0.44	0.55	1.09
Applications of Industry Standard - Autumn	20	27,450	0.18	0.73	0.91	1.82
Applications of Industry Standard - Winter	10	18,300	0.27	1.09	1.37	2.73
Applications of Industry Standard - Spring	15	36,600	0.14	0.55	0.68	1.37
Applications of Industry Standard Average	18	32,025	0.16	0.62	0.78	1.56
Tank holds mm over total area of 211.5m2			mm 2.7	10.9	13.7	27.3
mm OF RAIN TO FILL TANK			mm 7.2	29.0	36.2	72.5