

Victorian Land Capability Assessment Framework																
Please read the attached notes before using this spreadsheet																
Irrigation area sizing using Nominated Area Water Balance & Storage Calculations																
Site Address: Lot 585 Bundalagwah Road, Maffra																
Date: Assessor:																
INPUT DATA																
Design Wastewater Flow	Q	750	L/day	Based on maximum potential occupancy and derived from Table 4 in the EPA Code of Practice (2013)												
Design Irrigation Rate	DIR	3.5	mm/day	Based on soil texture class/permeability and derived from Table 9 in the EPA Code of Practice (2013)												
Nominated Land Application Area	L	267	m ²	1												
Crop Factor	C	0.6-0.8	unitless	Estimates evapotranspiration as a fraction of pan evaporation; varies with season and crop type ²												
Rainfall Runoff Factor	RF	1	unitless	Proportion of rainfall that remains onsite and infiltrates, allowing for any runoff												
Mean Monthly Rainfall Data	East Sale Airport (085072)			BoM Station and number												
Mean Monthly Pan Evaporation Data	East Sale Airport (085072)			BoM Station and number												
Parameter	Symbol	Formula	Units	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Days in month	D		days	31	28	31	30	31	30	31	31	30	31	30	31	365
Rainfall	R		mm/month	45.4	42.5	48.9	48.2	51.7	45.7	41.4	46	51.7	58.1	63.8	54.3	597.7
Evaporation	E		mm/month	198.4	162.4	136.4	87	52.7	42	46.5	65.1	93	124	153	186	1346.5
Crop Factor	C		unitless	0.80	0.80	0.70	0.70	0.60	0.60	0.60	0.60	0.70	0.80	0.80	0.80	0.80
OUTPUTS																
Evapotranspiration	ET		mm/month	159	130	95	61	32	25	28	39	65	99	122	149	1004.3
Percolation	B		mm/month	108.5	98	108.5	105.0	108.5	105.0	108.5	108.5	105.0	108.5	105.0	108.5	1277.5
Outputs			mm/month	267.2	227.92	204.0	165.9	140.1	130.2	136.4	147.6	170.1	207.7	227.4	257.3	2281.8
INPUTS																
Retained Rainfall	RR	RxRF	mm/month	45.4	42.5	48.9	48.2	51.7	45.7	41.4	46	51.7	58.1	63.8	54.3	597.7
Applied Effluent	W	(QxR)/L	mm/month	87.1	78.7	87.1	84.3	87.1	84.3	87.1	87.1	84.3	87.1	84.3	87.1	1025.3
Inputs			mm/month	132.5	121.2	136.0	132.5	138.8	130.0	128.5	133.1	136.0	145.2	148.1	141.4	1623.0
STORAGE CALCULATION																
Storage remaining from previous month			mm/month	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Storage for the month	S	(RR+W)-(ET+B)	mm/month	-134.7	-106.8	-68.0	-33.4	-1.3	-0.2	-7.9	-14.5	-34.1	-62.5	-79.3	-115.9	-115.9
Cumulative Storage	M		mm	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Maximum Storage for Nominated Area	N		mm	0.00												
V		NxL	L	0												
LAND AREA REQUIRED FOR ZERO STORAGE			m ²	105	113	150	191	263	266	245	229	190	155	138	115	
MINIMUM AREA REQUIRED FOR ZERO STORAGE: 267.0 m ²																
CELLS																
Please enter data in blue cells																
Red cells are automatically populated by the spreadsheet																
Data in yellow cells is calculated by the spreadsheet, DO NOT ALTER THESE CELLS																
NOTES																
¹ This value should be the largest of the following: land application area required based on the most limiting nutrient balance or minimum area required for zero storage																
² Values selected are suitable for pasture grass in Victoria																

Victorian Land Capability Assessment Framework

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Nutrient Balance

Site Address: **Lot 585 Bundalaguah Road, Maffra**

SUMMARY - LAND APPLICATION AREA REQUIRED BASED ON MOST LIMITING NUTRIENT BALANCE **249** m²

INPUT DATA¹

Wastewater Loading			Nutrient Crop Uptake	
	L/day	Crop N Uptake	kg/ha/yr	which equals
Hydraulic Load	750		220	mg/m ² /day
Effluent N Concentration	25			
% N Lost to Soil Processes (Geary & Gardner 1996)	0.2			
Total N Loss to Soil	3750			
Remaining N Load after soil loss	15000			

NUTRIENT BALANCE BASED ON ANNUAL CROP UPTAKE RATES

Minimum Area required with zero buffer

Determination of Buffer Zone Size for a Nominated Land Application Area (LAA)	
Nitrogen	249 m ²
	Nominated LAA Size
	267 m ²
	Predicted N Export from LAA
	-0.40 kg/year
	Minimum Buffer Required for excess nutrient
	0 m ²

CELLS

	Please enter data in blue cells
	Red cells are automatically populated by the spreadsheet
	XX
	XX
	Data in yellow cells is calculated by the spreadsheet, DO NOT ALTER THESE CELLS

NOTES

¹ Model sensitivity to input parameters will affect the accuracy of the result obtained. Where possible site specific data should be used. Otherwise data should be obtained from a reliable source such as:

- EPA Guidelines for Effluent Irrigation
- Appropriate Peer Reviewed Papers
- Environment and Health Protection Guidelines: Onsite Sewage Management for Single Households
- USEPA Onsite Systems Manual