Questionnaire for Irrigation Design for Horticultural Projects

Environmental, Engineering and Hydraulic Irrigation Data

Company name	
Mailing Address	
Telephone No.	
Fax No.	
Email	
Contact Person	
Mobile Phone No.	

Project Name	
Physical Address	
DOLA Map. Lot No.	

General Outline	Yes / No	Comment
Business Type – Nursery, Woodlot, Industrial		
Soil Survey – physical properties		
Soil Analysis – nutrients		
Topographic Survey – DOLA or other		
Water Source – bore, creek, dam		
Water Quantity Available		
Full Chemical Water Analysis of water supplies		
Meteorological data – Daily Rainfall and Evaporation for the year.		
Total Irrigated Area – Hectares		
Total Catchment Area - Hectares		
Average sized Field / Zone – Block - Hectares		
Total No. of irrigated shifts / valves		
Minimum Designed Precipitation Per day - mm		

Existing Infrastructure Information	Yes / No	Comment
Pump Type – End Suction, Multi stage		
Pump Starter type – Soft Start / Variable speed		
System design – Irrigation Hours per day		
Cost of Power-Off peak / peak (cents per kW/ hr)		
Primary Filter type – Gravel Filter, Disc, Screen		
Back Flush Water –to Sump or back to dam etc		
Field Filters – Check Filter – 80 / 120 mesh		
Water Meter – with electric pulse or not		
Minimum Designed Precipitation Per day - in mm		

Any Other Comments

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Telephone: (08) 9258 7372 Facsimile: (08) 9358 3084 E-mail: info@earthandwater.com.au

Environmental and Costs Information	Yes / No	Comment
EPA Criteria and Conditions		
Local Council Bye Laws		
Define the quality of Water you require		
Cost of all water resources		
Cost of Filtration and Treatment of Supply Water Including capital and running costs		
Cost of Recycling Run Off Water –Capital and Running costs		
Cost of Storage and Civils for Recycled Water		

Calculations: For example as per a "model" only.

In general you will need up to 14mm per day replacement water in the nursery to grow optimum plants, in summer with up to 12mm pan evaporation per day in a hot week. Some growers will compromise this figure and only design around 8mm to 10mm per day as this will reduce the cost of the irrigation system by approx 20 %.

Table to Show Water Replacement Lost due to Evapo-Transpiration
Estimator Spread Sheet.
(You can change the figures in the calculator spread sheet)

14mm per day over 1 hectare requires 140,000 litres irrigated over the 1 Ha

Per Hectare costs

If you have less than 1 hectare please divide all the figures by the same proportion.

	Jan	Feb	Mar	Apr	May	June	July	Aug	Sep	Oct	Nov	Dec	Annual Total
Daily Evaporation -mm	10	10	8	6	4	2	2	1	4	6	8	10	
Monthly Evaporation -mm	300	300	240	180	120	60	60	30	120	180	240	300	2130
Monthly Rainfall -mm	20				100	100	150	150	100	50		20	690
Balance -mm	280	300	240	180	20	-40	-90	-120	20	130	240	280	1440
Daily Irrigation + 20 % - mm	11.67	12.5	10	7.5	0.833	-1.667	-3.75	-5	0.833	5.417	10	11.67	
Monthly Deficit - 1000 litres	350	375	300	225	25	-50	-112.5	-150	25	162.5	300	350	1,800,000
Water Harvest - 1000 litres	-280	-300	-240	-180	-20	40	90	120	-20	-130	-240	-280	250000
Irrigation Excess - 1000 litres	35	37.5	30	22.5	2.5	-5	-11.25	-15	2.5	16.25	30	35	180,000
Total Annual Recycled Water for Storage - Litres													430,000
Total Annual Water Top Up - By Scheme or Bore - Litres													1,370,000

Note: All figures to be verified for each individual case, the above is model only.

Please contact Earth & Water for more information
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