

**Multi-Agency Co-located Accommodation**

**Water Harvesting Opportunity and Consumption**

Ten (10) Year Average = 2006-2015

		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Totals
		Summer	Summer	Autumn	Autumn	Autumn	Winter	Winter	Winter	Spring	Spring	Spring	Summer	
<b>Catchment Calculation (reflective of coefficient factor)</b>		<b>118,004</b>	<b>187,502</b>	<b>156,959</b>	<b>248,126</b>	<b>116,899</b>	<b>281,734</b>	<b>140,564</b>	<b>114,476</b>	<b>102,501</b>	<b>96,549</b>	<b>152,610</b>	<b>136,679</b>	<b>1,852,603</b>
Roof Surface Area Less Coefficient factor	90.0%	131,116	208,336	174,398	275,695	129,888	313,038	156,182	127,195	113,890	107,276	169,567	151,866	
Rainfall (mm)		66.22	105.22	88.08	139.24	65.6	158.1	78.88	64.24	57.52	54.18	85.64	76.7	1,040
Catchment Area		1,980	1,980	1,980	1,980	1,980	1,980	1,980	1,980	1,980	1,980	1,980	1,980	
<b>Harvesting Tank</b>		<b>744,000</b>	<b>672,000</b>	<b>744,000</b>	<b>720,000</b>	<b>744,000</b>	<b>720,000</b>	<b>744,000</b>	<b>744,000</b>	<b>720,000</b>	<b>744,000</b>	<b>720,000</b>	<b>744,000</b>	
Tank Storage Capability (actual volume)	60,000	60,000	60,000	60,000	60,000	60,000	60,000	60,000	60,000	60,000	60,000	60,000	60,000	60,000
Recycle Factor (has been emptied & able to refill)	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%
Days within Period		31	28	31	30	31	30	31	31	30	31	30	31	
Tank Storage Capability (total tank volume/adjust effective)		24,000	24,000	24,000	24,000	24,000	24,000	24,000	24,000	24,000	24,000	24,000	24,000	24,000
<b>Consumption - Opportunity For Harvested Water</b>		<b>637,332</b>	<b>637,332</b>	<b>451,865</b>	<b>451,865</b>	<b>451,865</b>	<b>226,099</b>	<b>226,099</b>	<b>226,099</b>	<b>228,265</b>	<b>228,265</b>	<b>228,265</b>	<b>637,332</b>	<b>4,630,684</b>
Kennel Building - Daily Service & Washout	68,985	68,985	68,985	68,985	68,985	68,985	68,985	68,985	68,985	68,985	68,985	68,985	68,985	827,820
Kennel Building - Disposal of Dog Faeces	8,943													-
Day Run Irrigation														-
Day Runs - Summer	491,400	491,400	491,400										491,400	1,474,200
Day Runs - Autumn	327,600			327,600	327,600	327,600								982,800
Day Runs - Winter	117,000						117,000	117,000	117,000					351,000
Day Runs - Spring	117,000									117,000	117,000	117,000		351,000
General Garden Irrigation														-
General - Summer	39,000	39,000	39,000										39,000	117,000
General - Autumn	17,333			17,333	17,333	17,333								52,000
General - Winter	2,167						2,167	2,167	2,167					6,500
General - Spring	4,333									4,333	4,333	4,333		13,000
General use - Vehicle Wash														-
Car Wash	2,980	2,980	2,980	2,980	2,980	2,980	2,980	2,980	2,980	2,980	2,980	2,980	2,980	35,760
Office Facilities														-
Showers	6,570	6,570	6,570	6,570	6,570	6,570	6,570	6,570	6,570	6,570	6,570	6,570	6,570	78,840
Toilets - Male	4,599	4,599	4,599	4,599	4,599	4,599	4,599	4,599	4,599	4,599	4,599	4,599	4,599	55,188
Toilets - Female	3,723	3,723	3,723	3,723	3,723	3,723	3,723	3,723	3,723	3,723	3,723	3,723	3,723	44,676
Basins - Toilets	3,650	3,650	3,650	3,650	3,650	3,650	3,650	3,650	3,650	3,650	3,650	3,650	3,650	43,800
Basins - Hand Washing	5,475	5,475	5,475	5,475	5,475	5,475	5,475	5,475	5,475	5,475	5,475	5,475	5,475	65,700
Laundry	10,950	10,950	10,950	10,950	10,950	10,950	10,950	10,950	10,950	10,950	10,950	10,950	10,950	131,400

**Summary Analysis**

<b>Harvested Rainwater</b>		<b>118,004</b>	<b>187,502</b>	<b>156,959</b>	<b>248,126</b>	<b>116,899</b>	<b>281,734</b>	<b>196,200</b>	<b>114,476</b>	<b>102,501</b>	<b>96,549</b>	<b>152,610</b>	<b>136,679</b>	<b>1,908,238</b>
Modelled Rainfall - Ten (10) Year Historic Data		118,004	187,502	156,959	248,126	116,899	281,734	140,564	114,476	102,501	96,549	152,610	136,679	
Surplus Harvested Rainwater from the Previous Month			0	0	0	0	0	55,636	0	0	0	0	0	
<b>Projected Harvested Rainwater Use - Based on Assumptions</b>		<b>637,332</b>	<b>637,332</b>	<b>451,865</b>	<b>451,865</b>	<b>451,865</b>	<b>226,099</b>	<b>226,099</b>	<b>226,099</b>	<b>228,265</b>	<b>228,265</b>	<b>228,265</b>	<b>637,332</b>	<b>4,630,684</b>
Harvested Rainwater Available For Tank Retention		118,004	187,502	156,959	248,126	116,899	281,734	140,564	114,476	102,501	96,549	152,610	136,679	
Harvested Rainwater Remaining In Tank @ Period End		-	-	-	-	-	55,636	-	-	-	-	-	-	
<b>Surplus Harvested Rainwater Discharged to Stormwater</b>		<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>
Additional Capacity Available In Rainwater Harvesting Tank		60,000	60,000	60,000	60,000	60,000	4,364	60,000	60,000	60,000	60,000	60,000	60,000	
Rainwater Harvesting Tank Status @ End of Period														
		Capacity In Tank	Capacity In Tank	Capacity In Tank	Capacity In Tank	Capacity In Tank	Capacity In Tank	Capacity In Tank	Capacity In Tank	Capacity In Tank	Capacity In Tank	Capacity In Tank	Capacity In Tank	
<b>Potable Towns Water Required</b>		<b>519,328</b>	<b>449,830</b>	<b>294,907</b>	<b>203,740</b>	<b>334,966</b>	<b>55,636</b>	<b>29,899</b>	<b>111,623</b>	<b>125,765</b>	<b>131,717</b>	<b>75,655</b>	<b>500,653</b>	<b>2,722,446</b>

## Multi-Agency Co-located Accommodation

### Water Consumption Assumptions

#### Kennel Building - Daily Service & Washout

Location	Washes Per Day (qty)	Period of Water Running (mins)	Water Output (ltrs/min)	Water Consumption (ltrs/wash)	Total Water Consumption	Total Water Consumption
					Per Month (ltrs)	Per Year (ltrs)
Kennel Block-1	1	18	18	324	9,855	118,260
Kennel Block-2	1	18	18	324	9,855	118,260
Kennel Block-3	1	18	18	324	9,855	118,260
Kennel Block-4	1	18	18	324	9,855	118,260
Kennel Block-5	1	18	18	324	9,855	118,260
Kennel Block-6	1	18	18	324	9,855	118,260
Kennel Block-7	1	18	18	324	9,855	118,260
Total Water Use					<b>68,985</b>	<b>827,820</b>

#### Kennel Building - Disposal of Dog Faeces

Location	Disposal Per Day (qty)	Water Consumption (ltrs)	Total Water Consumption	Total Water Consumption
			Per Month (ltrs)	Per Year (ltrs)
Kennel Block-1	6	7	1277.5	2,184
Kennel Block-2	6	7	1277.5	2,184
Kennel Block-3	6	7	1277.5	2,184
Kennel Block-4	6	7	1277.5	2,184
Kennel Block-5	6	7	1277.5	2,184
Kennel Block-6	6	7	1277.5	2,184
Kennel Block-7	6	7	1277.5	2,184
Total Water Use			<b>8,943</b>	<b>15,288</b>

#### Day Run Irrigation

Location	Area	Depth of Watering (mm)	Water Requirement (ltrs)	Watering Periods (wk)	Seasons (wks)	Total Water Consumption	Total Water Consumption	Water Use
						Per Month (ltrs)	Per Year (ltrs)	Per m2 (ltrs)
Day Runs - Summer	5,400	7	37,800	3	13	491,400	1,474,200	273
Day Runs - Autumn	5,400	7	37,800	2	13	327,600	982,800	182
Day Runs - Winter	5,400	5	27,000	1	13	117,000	351,000	65
Day Runs - Spring	5,400	5	27,000	1	13	117,000	351,000	65
Total Water Use						<b>1,053,000</b>	<b>3,159,000</b>	<b>585</b>

#### General Garden Irrigation

Location	Area	Depth of Watering (mm)	Water Requirement (ltrs)	Watering Periods (wk)	Seasons (wks)	Total Water Consumption	Total Water Consumption	Water Use
						Per Month (ltrs)	Per Year (ltrs)	Per m2 (ltrs)
General - Summer	1000	3	3,000	3	13	39,000	117,000	117
General - Autumn	1000	2	2,000	2	13	17,333	52,000	52
General - Winter	1000	1	1,000	0.5	13	2,167	6,500	7
General - Spring	1000	1	1,000	1	13	4,333	13,000	13
Total Water Use						<b>62,833</b>	<b>188,500</b>	<b>189</b>

#### General use - Vehicle Wash

Location	Washes Per Month (qty)	Period of Water Running (mins)	Water Output (ltrs/min)	Total Water Consumption	Total Water Consumption
				Per Month (ltrs)	Per Year (ltrs)
Car Wash	20		149	2,980	35,760
Total Water Use				<b>2,980</b>	<b>35,760</b>

#### Office Facilities

Location	Staff Numbers (qty)	Uses Per Day (qty)	Total Uses Per Day (qty)	Water Consumption (ltrs)	Total Water Consumption	Total Water Consumption
					Per Month (ltrs)	Per Year (ltrs)
Showers	20	0.3	6	36	6,570	78,840
Toilets - Male	12	3	36	4.2	4,599	55,188
Toilets - Female	8	3	24	5.1	3,723	44,676
Basins - Toilets	60	2	60	2	3,650	43,800
Basins - Hand Washing	20	3	60	3	5,475	65,700
Laundry			6	60	10,950	131,400
Total Water Use					<b>34,967</b>	<b>419,604</b>

## Multi-Agency Co-located Accommodation

### Water Consumption Assumptions

### Rainfall Data Obtained from

BOM Station No: 66037

Location: Sydney Airport AMO NSW 5.0km away

### Water Output

Water Output in Kennel Block (ltrs/min) 18

### Vehicle Washing

Activity	min	ltrs	total
Pre-wash	3	20	60
Bucket		9	9
Post Wash	4	20	80
<b>Total</b>			<b>149</b>

### Human Occupation

Staff Number	Actual	Assumption	Male	Female
Workstations	7	7		
Hot Desks	14	7		
Casual Staff		6	60%	40%
Total Staffing per Day		<b>20</b>	<b>12</b>	<b>8</b>

### Water Utilisation

Components	time (mins)	consumption (ltrs)	Split of Use (toilet flush)	total litres used (ltrs)
Shower	6	6		36
Male				
Toilet - half flush		3	60.0%	4.2
Toilet - full flush		6	40.0%	
Female				
Toilet - half flush		3	30.0%	5.1
Toilet - full flush		6	70.0%	
Animal				
Kennel Building		7		7
Hand Basin - Toilet	0.4	5		2
Hand Basin - Hand wash	0.6	5		3

## Multi-Agency Co-located Accommodation

### Facility Area Calculations

	Area	Qty	Total Area	Pervious Surface	Impervious Surface	Stormwater Discharge Area
				Pervious Surface	Water Harvesting Area (m2)	(m2)
Kennel block (area/qty)	250	7	1,750			1,750
Day Runs (area/qty)	100	42	4,200	4,200		
Agility Yard (area/qty)	1,200	1	1,200	1,200		
Office (area/qty)	1,200	1	1,200		1,200	
Car Parking (area/qty)	900	1	900			900
Car Parking - Covered (area/qty)	780	1	780		780	
Roadways (area/qty)	2,456	1	2,456			2,456
Right of Way Access	1,300	1	1,300			1,300
Landscaping			8,714	8,714		
<b>MACA - Total Land Area</b>			<b>22,500</b>	<b>14,114</b>	<b>1,980</b>	<b>6,406</b>
				<b>63%</b>	<b>9%</b>	<b>28%</b>