APPENDIX F

WATER CONSERVATION FORMS

WATER CONSERVATION FORMS

- ☐ Worksheet A – Landscape Documentation Package Checklist
- ☐ Worksheet B – Water Efficient Landscape
- ☐ Worksheet C – ET Profile
- ☐ Worksheet C – Plant Factors
- ☐ Worksheet D – Calculations/Estimated Total Water Use (by Hydrozone)
- ☐ Worksheet D – Sample Calculations
- ☐ Worksheet E – Sample Certification of Completion
- ☐ Worksheet F – Recycled Water Checklist

WORKSHEET A

Landscape Documentation Package Checklist

Project Site:_____ Tract or Parcel Number:_____

Project Assessor's Parcel Number (APN):_____

Project Location:_____

Landscape Architect/Irrigation Designer/Contractor and Name and Contact Information:_____

_____

Included in this Landscape Documentation Package are: (Check to indicate completion)

☐ 1.	Water Efficient Landscape Worksheet (Appendix B) WATER BUDGET CALCULATIONS (Worksheet D)
☐ 2.	Maximum Applied Water Allowance (MAWA) Conventional Landscape: _____ 100 cubic feet/year + Recreational Turf grass Landscape: ☐ 100 cubic feet/year (if applicable) Maximum Applied Water Allowance: _____ 100 cubic feet/year
☐ 3.	Estimated Total Water Use by Hydrozone: Turf grass Hydrozones: _____ 100 cubic feet/year Recreational Turf grass Hydrozones: _____ 100 cubic feet/year Low Plant Hydrozones: _____ 100 cubic feet/year Medium Plant Hydrozones: _____ 100 cubic feet/year High Plant Hydrozones: _____ 100 cubic feet/year Water Features: _____ 100 cubic feet/year Other : _____ 100 cubic feet/year Estimated Total Water Use: 100 cubic feet/year
☐ 4.	ETWU < MAWA PLAN SETS
☐ 5.	Landscape Design Plan
☐ 6.	Irrigation Design Plan
☐ 7.	Grading Design Plan
☐ 8.	Soil Management Report

I agree to comply with the requirements of the water efficient landscape ordinance and submit a complete Landscape Documentation Package.

Date: _____ Applicant: _____

WORKSHEET B

Water Efficient Landscape

This worksheet is filled out by the project applicant and is a required element of the Landscape Documentation Package.

PROJECT INFORMATION

Project Name		
Name of Project Applicant	Telephone No.	
	Fax No.	
Title	Email Address	
Company	Street Address	
City	State	Zip Code

SECTION A. HYDROZONE INFORMATION TABLE

Please complete the hydrozone table(s) for each irrigation point of connection. Use as many tables as necessary to provide the square footage of landscape area per valve.

Irrigation Point of Connection (P.O.C.) No.					
Controller No.	Value Circuit No.	Plant Type(s)*	Irrigation Method**	Area (Sq. Ft.)	% of Landscape Area
Total					100%

*Plant Type
Cst = Cool Season Turf
WST = Warm Season Turf
HW = High Water Use Plants
MW = Moderate Water Use Plants
LW = Low Water Use Plants

**Irrigation Method
MS = Microspray
S = Spray
R = Rotor
B = Bubbler
D = Drip
O = Other

WORKSHEET C

ET Profile

Monthly ETo (inches)	Jan>	<Feb	Mar	Apr>	<May	June	July	Aug	Sep>	<Oct	Nov	Dec	Totals (Inches)	Totals (Feet)
Zone No. 1 – Coves	1.71	2.84	4.00	5.70	6.84	7.98	7.98	6.27	5.70	4.00	2.28	1.71	57.01	4.75
Zone No. 2 – COD	2.00	3.36	4.68	6.68	8.02	9.35	9.35	7.35	6.68	4.68	2.67	2.00	66.82	5.57
Zone No. 3 – EMC	2.25	3.75	5.25	7.50	9.00	10.50	10.50	8.25	7.50	5.25	3.00	2.25	75.00	6.25
Zone No. 4 – TH	2.64	4.40	6.16	8.80	10.56	12.32	12.32	9.68	8.80	6.16	3.52	2.64	88.00	7.33
Zone No. 5 – I10	2.82	4.68	6.57	9.39	11.27	13.15	13.15	10.33	9.39	6.57	3.76	2.82	93.90	7.83
% Annual ETo per Month	3	5	7	10	12	14	14	11	10	7	4	3		

Zone No. 1 = Most protected cove areas with minimum wind, longest mountain shadows, higher rainfall, Palm Can. to La Q. Cove

Zone No. 2 = Lower cove areas, light wind, long afternoon shadows from mountains, typ. Hwy 111 from Cathedral City to La Quinta

Zone No. 3, 4 = Moderate winds, minimum mountain shadows, some blowing sand and dust;
3) Upper valley predominate wind from northwest
4) Lower valley has lower elevations and more summer southeast wind

Zone No. 5 = Frequent strong northwest winds, heavy blowing sand and dust, typical of I-10 corridor to Washington St.

Maximum Applied Water Allowance (CCF) = $(ETo(in\ inches\ for\ seasons))\ x\ (.50)\ x\ (Area\ (in\ sq.ft.))\ x\ (.62/748)$

ET Adjustment Factor = .45

.62 = gallons per square foot per inch deep

CCF = 100 Cubic Feet = 1 billing unit = 748 gallons

Estimated Total Water Use (CCF) = $\frac{(ETo\ (in\ inches\ for\ season))\ x\ (Plant\ factor)\ x\ (Area\ (in\ square\ feet))\ x\ (.62/748)}{Irrigation\ Sysytem\ Efficiency}$

Target Irrigation Efficiency = .80 Turf Rotor

= .75 Spray heads

= .90 Drip / Micro / PC Bubbler

Emitters per Plant Estimate = $\frac{(Area\ of\ plants\ in\ square\ feet)\ x\ (\%\ of\ area\ to\ be\ wet)}{Square\ feet\ wet\ per\ emitter}$

Soil Type	(inches water holding capacity per inch of depth)		Emitter wetted area sq. ft. each	Emitter spacing
Very Coarse Sand	0.05	Typical of high on an alluvial fan	.75 to 1.75	10”
Blow Sand	0.07	Typical of mid valley ridge area	1.75 to 3	18”
Fine Sand	0.10	Typical of low on alluvial fans from Rancho Mirage to Indian Wells	3 to 5	3’
Very Fine Silty Sand	0.15	Typical of lowest alluvial fans from La Quinta, Indio, and Coachella	5 to 10	4’
Silt Loam	0.17	Typical of lower valley agricultural areas located below sea level	10 to 28	4.5’

WORKSHEET C

Plant Factors

Plant Factor (Kc)	Jan	Feb	Mar	Apr	May	June	July	Aug	Sep	Oct	Nov	Dec	Avg
Cool Turf 100% **	1.00	1.00	1.00	NR	NR	NR	NR	NR	NR	1.00	1.00	1.00	1.00
Warm Turf 100% **	NR	NR	NR	0.80	0.80	0.80	0.80	0.80	0.80	NR	NR	NR	0.80
Cool Turf 80% *	0.80	0.80	0.80	0.70	NR	NR	NR	NR	NR	0.80	0.80	0.80	0.79
Warm Turf 60% *	NR	NR	NR	0.60	0.60	0.60	0.60	0.60	0.60	0.60	NR	NR	0.60
Combined TurfSav *	0.80	0.80	0.80	0.70	0.60	0.60	0.60	0.60	0.60	0.70	0.80	0.80	0.70
Tree/Shrub/GC L *	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20
Tree/Shrub/GC L **	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40
Tree/Shrub/GC M *	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
Tree/Shrub/GC M **	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70
Tree/Shrub/GC H *	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
Tree/Shrub/GC H **	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Open Water Factor	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10

(Approximate evaporation from a still water surface, higher factor (1.2) with falls and fountains) Reference; WUCOLS III

***** = Normal irrigation level to maintain established planting

****** = Normal irrigation level during plant establishment

Combined TurfSav = Combination of cool and warm season turf according to normal management in the Coachella Valley

GC = Groundcover

L = Low water use *Kc .1 to .3*

M = Moderate water use *Kc .4 to .6*

H = High water use *Kc .7 to .9*

NR = Not recommended

WORKSHEET D

Sample Calculations/Estimated Total Water Use (by Hydrozone)

Using the following formula from Worksheet C:

ETWU = (ETo) x (PF) x (LA) x (.62)] / (748) / (IE)
ETWU = Estimated Water Use (hundred cubic feet)
ETo = Reference Evapotranspiration (inches) [for period of estimate]
PF = Plant Factor (Kc)
LA = Landscaped Area (in square feet)
.62 = Conversion Factor (to gallons per square foot)
748 = Conversion Factor (to hundred cubic feet)
IE = Irrigation System Efficiency

See Worksheet C for formula factors. ETo is totaled for season. Turf grass plant factors are the average for the season and tree/shrub/groundcover plant factors are considered constant annually.

Plant Factors

ETWU = [(ETo) x (PF) x (LA) x (.62) / (748)] / (IE) = CCF

Over seeded Turf Grass: Season = 75.0 x .7 x 12,000 x .62 / 748 /.80 = 653 CCF Seasonal Turf ETWU = 653 CCF

“Low” Native Plants: Annual = 75.0 x .2 x 32,700 x .62 / 748 / .90 = 451 CCF “Low” Native ETWU = 451 CCF

“Moderate” Shrubs and Ground Cover: Annual = 75.0 x .5 x 15,300 x .62 / 748 / .90 = 528 CCF “Moderate” ETWU = 528 CCF Project Total ETWU = 1,632 CCF

WORKSHEET D

Sample Calculation

Maximum Applied Water Allowance (MAWA)

Using the following formula:

MAWA	= [(ETo) x (0.45) x (LA) x (0.62)] / (748)
MAWA	= Maximum Applied Water Allowance (CCF or hundred cubic feet)
ETo	= Reference Evapotranspiration (inches per year)
0.45	= ET adjustment factor
LA	= Landscaped Area (square feet)
0.62	= Conversion Factor (to gallons per square foot)
748	= Conversion Factor (to hundred cubic feet)

MAWA = 75.0 (ETo) x (0.45) x (LA) x (0.62) / (748) = [75.0(.45) (60,000) (0.62)] / (748)
MAWA = 1,678 CCF
ETWU total of 1,632 CCF is < the MAWA of 1,678 CCF