Landscape Water Budgets

Current form No. RD-001 dated 05/31/2012 is the most current one. Starting at left of the form the Civil Engineer or Architect in formation and stamp should be provided. On the upper right the developer should provide their information.

Just below that is a Box for Phase No. that can be left blank or it can have the phase number.

To the right of that is a box for the Tract No. a tract number must be provided.

The boxes in yellow are locked and are to be filled out by EMWD only. When we receive the forms back we fill out the information, the code to unlock the form is 820. The first box is for the date received. Right below that is a box for the ET zone this information can be attained from ArcGIS. Plan Check/WO No. is left blank for residential tracts. SO numbers or on the SO summary sheets. The next column over is the AMAWB the formula to calculate this is already in the sheet, the formula is (ET x Conservation Factor x Irrigated area in sq. ft. x 0.62)/748) this number should be equal to or greater than the column labeled "Estimated Annual Water Budget". Below are some more definitions and formulas used. The most common question and error is in calculating the "Irrigation Efficiency Adjustment Factor".

ETo is the Reference Evapotranspiration. For EMWD's service are 57.33 inches is used.

PF is the Plant Factor

DE is the irrigation Distribution Efficiency

IEA is the **Irrigation Efficiency Adjustment Factor**.

$$\mathbf{IEA} = \frac{PF}{DE}$$

Estimated Annual Water Budget is the sum of estimated annual water use for each hydro zone in the proposed landscape.

Estimated Annual Water Use (EAWU) is the estimate of water required

$$\mathbf{EAWU} = \frac{ETo \times IEA \times Area}{748}$$

Area is all of the planting area, turf areas and water features. A separate area should be provided for each hydrozone. Landscape area does not include footprints of buildings or structures, sidewalks, driveways, parking lots, decks, patios, gravel or stone walk, other pervious or non pervious hardscapes and other non-irrigated areas designated for non-development (e.g., open spaces and existing native vegetation)

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PF is the **Plant Factor,** a factor when multiplied by ETo, estimates the amount of water used by plants. Table 1 below gives a range of plant factors.

Table 1 Plant Factor Ranges

Type of Plant	Plant Factor Range
Very Low	<0.1
Low	0.1 to 0.3
Moderate	0.4 to 0.6
High	0.7 to 1.0

DE is the **Distribution Efficiency** expressed as a decimal. Table 2 gives typical irrigation system distribution efficiency.

Table 2 Typical Irrigation System Distribution Efficiency

Type of Irrigation	Typical Distribution Efficiency
Spray Heads	0.60
Gear driven, impact or ball-driven rotors	0.85
Bubbler heads	0.85
Drip Irrigation Systems	0.90
MP Rotators	0.80

Future Landscape Area is the portion of the lot or site that could be irrigated in the future. Future landscape area does not include footprints of buildings or structures, sidewalks, driveways, parking lots, decks, patios, gravel or stone walk, other pervious or non-pervious hardscapes and other non-irrigated areas designated for non-development (e.g., open spaces and existing native vegetation).

Total Landscape Area is the sum of the proposed landscape area and the future landscape area/