

## WATER USE ESTIMATION-California Northstate University-Sacramento

|            |          |
|------------|----------|
| WATER TYPE | RECYCLED |
| SITE ETO=  | 52.1     |

6/12/2019

| REGULAR LANDSCAPE AREAS |                    |                      |                   |                   |                       |              |                    |                  |                  |                 |                 |                         |
|-------------------------|--------------------|----------------------|-------------------|-------------------|-----------------------|--------------|--------------------|------------------|------------------|-----------------|-----------------|-------------------------|
| HYDROZONE #             | HYDROZONE NAME     | PLANT WATER USE TYPE | PLANT FACTOR (PF) | IRRIGATION METHOD | IRRIGATION EFFICIENCY | ETAF (PF/IE) | AREA (SQ. FT) (HA) | ETAF X AREA (HA) | ETWU (GAL/YR)    | ACRE FEET/ YEAR | HCF/ YEAR       | PERCENTAGE OF LANDSCAPE |
| <b>C-1</b>              | SHRUBS/GROUNDCOVER | LOW                  | 0.3               | DRIP              | 0.81                  | 0.370        | 170,000            | <b>62,963</b>    | 2,033,830        | 6.24            | 2,719.02        | 77%                     |
| <b>C-2</b>              | TURF               | HIGH                 | 0.8               | SPRAY             | 0.75                  | 1.067        | 50,000             | <b>53,333</b>    | 1,722,773        | 5.29            | 2,303.17        | 23%                     |
| <b>TOTALS</b>           |                    |                      |                   |                   |                       |              | <b>220,000</b>     | <b>116,296</b>   | <b>3,756,603</b> | <b>11.53</b>    | <b>5,022.20</b> | <b>100%</b>             |

| SPECIAL LANDSCAPE AREAS |                  |  |  |  |               |  |  |         |  |  |  |             |
|-------------------------|------------------|--|--|--|---------------|--|--|---------|--|--|--|-------------|
| HYDROZONE #             | HYDROZONE NAME   |  |  |  |               |  |  |         |  |  |  |             |
| <b>all zones</b>        | <b>all zones</b> |  |  |  |               |  |  |         |  |  |  |             |
|                         |                  |  |  |  | 1             |  |  | 220,000 |  |  |  | 100%        |
|                         |                  |  |  |  | <b>TOTALS</b> |  |  |         |  |  |  | <b>100%</b> |

|             |              |           |
|-------------|--------------|-----------|
| <b>MAWA</b> | GALLONS/YR   | 7,106,440 |
|             | ACRE FEET/YR | 21.81     |
|             | HCF/YR       | 9,500.59  |

|             |              |           |
|-------------|--------------|-----------|
| <b>ETWU</b> | GALLONS/YR   | 3,756,603 |
|             | ACRE FEET/YR | 11.53     |
|             | HCF/YR       | 5,022.20  |

|                            |                   |                |
|----------------------------|-------------------|----------------|
| SITE IRRIGATION EFFICIENCY | SITE PLANT FACTOR | MAWA COMPLIANT |
| 79.6%                      | 0.41              | YES            |

| MAWA FORMULA  |
|---|
| MAXIMUM APPLIED WATER ALLOWANCE (MAWA)<br>GALLONS PER YEAR  |
| $MAWA = (ET_o)(0.62)[(LA \times 0.45) + (0.55 \times SLA)]$ |

ET<sub>o</sub> = REFERENCE EVAPOTRANSPIRATION

0.55= ET ADJUSTMENT FACTOR

LA=LANDSCAPED AREA (SQUARE FEET)

0.62 = CONVERSION FACTOR (GALLONS/SQ.FT/YR)

| ETWU FORMULA                                      |
|---|
| ESTIMATED TOTAL WATER USE (ETWU) GALLONS PER YEAR |
| $ETWU = ((ET_o)(.62)(ETAF \times LA))$            |

ET<sub>o</sub> = REFERENCE EVAPOTRANSPIRATION

PF = PLANT FACTOR FOR HYDROZONES

HA = HYDROZONE AREA (SQ.FT)

0.62 = CONVERSION FACTOR (GALLONS/SQ.FT/YR)

IE = IRRIGATION EFFICIENCY (0.81)-BUBBLER/DRIP

IE = IRRIGATION EFFICIENCY (0.75)-ROTORS/SPRAY

| ETAF Calculations              |         |
|--------------------------------|---------|
| <b>REGULAR LANDSCAPE AREAS</b> |         |
| TOTAL ETAF x AREA              | 116,296 |
| TOTAL AREA                     | 220,000 |
| AVG. ETAF                      | 52.86%  |