



A Tradition of Stewardship  
A Commitment to Service

January 19, 2010

Mr. Simon Eching  
California Department of Water Resource  
Water Use and Efficiency Branch  
Post Office Box 942836  
Sacramento, California 94236-0001

Conservation, Development and Planning

1195 Third Street, Suite 210  
Napa, CA 94559  
[www.co.napa.ca.us](http://www.co.napa.ca.us)

Main: (707) 253-4417  
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**Hillary Gitelman**  
Director

RE: Napa County's Implementation of the State's Model WELO (AB 1881)

Dear Mr. Eching:

Napa County has implemented the State's Model Water Efficient Landscaping Ordinance (WELO) as of January 1, 2010. Enclosed you will find the County's WELO Application & Submittal packet, as well as an educational brochure, both of which assist the County in implementing the new State regulations. Information about the new WELO requirements is available via our public counter and County website.

Should you have any additional questions about Napa County's implementation of the Model WELO, or about our water conservation programs in general, please contact Jeff Sharp, Principle Planner, (707-259-5936, [jeff.sharp@countyofnapa.org](mailto:jeff.sharp@countyofnapa.org)) or Patrick Lowe, Deputy Planning Director (707-259-5937, [Patrick.lowe@countyofnapa.org](mailto:Patrick.lowe@countyofnapa.org)) on my staff.

Sincerely,

A handwritten signature in black ink, appearing to read "Hillary Gitelman".

Hillary Gitelman  
Conservation, Development and Planning Director

encl. Napa County Applicability, Application & Submittal Guidance packet  
Napa County WELO Brochure

cc. Nancy Watt, Chief Executive Officer  
Laura Anderson, County Council's Office



# **WATER EFFICIENT LANDSCAPE ORDINANCE**

## **Applicability, Application & Submittal Guidance**

**Applicability, Application and Checklist**

**Water Efficient Landscape Worksheets**

**Soil Management Report**

**Landscape Design Plan**

**Irrigation Design Plan**

**Grading Design Plan**

**Certificate of Completion**

**Certificate of Installation**

**Irrigation Scheduling**

**Landscape and Irrigation Maintenance Schedule**

**Landscape Irrigation Audit, Irrigation Survey and Irrigation Water Use Analysis**



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12/30/09



**SECTION A: APPLICABILITY, APPLICATION AND CHECKLIST**

Section A1. Applicability

Use the table below to determine if the Water Efficient Landscape Ordinance (WELo) applies to your project. Answer the questions in the left-hand column and use the yes or no answers to the right to guide your assessment. If you have any questions about your assessment, please review your project with County building and planning staff.

Question	YES	NO
1. Does the project require a building permit from the County?	Answer question #2	Does not apply
2. Is new or rehabilitated landscaping either provided and/or required as part of the building plans or conditions of approval for the project?	Answer question #3 or #4, whichever applies	Does not apply
3. Is this a public agency, private development, or developer installed project with 2,500 square feet of landscape area? <sup>1</sup>	Applies <i>(Include a Landscape Documentation Package with your plans)</i>	Does not apply
4. Is this a homeowner-provided and/or homeowner-hired project with 5,000 square feet of landscape area? <sup>1</sup>	Applies <i>(Include a Landscape Documentation Package with your plans)</i>	Does not apply
5. Is the project a new or rehabilitated cemetery?	Special conditions apply	

Exempt projects include:

- registered local, state or federal historical sites;
- ecological restoration projects that do not require a permanent irrigation system;
- mined-land reclamation projects that do not require a permanent irrigation system; or
- plant collections, as part of botanical gardens and arboretums open to the public.

**NOTE:** If, based upon your answers to the questions above, the Water Efficient Landscaping Ordinance (WELo) applies to your project; you must submit a Landscape Documentation Package to the Conservation, Development and Planning Dept.

<sup>1</sup> "Landscape area" means all the planting areas, turf areas, and water features in a landscape design plan subject to the Maximum Applied Water Allowance calculation. The landscape area does not include footprints of buildings or structures, sidewalks, driveways, parking lots, decks, patios, gravel or stone walks, other pervious or non-pervious hardscapes, and other non-irrigated areas designated for non-development (e.g., open spaces and existing native vegetation).

**Water Efficient Landscaping**

**Application and Guidance – SECTION A**

Napa County  
Conservation, Development and  
Planning Department



Section A2. Application – WELO Landscape Documentation Package Review

APPLICATION FORM: Water Efficient Landscaping Ordinance (WELO) FILE #P\_\_\_\_\_-\_\_\_\_\_  
Landscape Documentation Package

FOR OFFICE USE ONLY	
ZONING DISTRICT: _____	Date Submitted: / /
TYPE OF APPLICATION: <u>WELO – Landscape Documentation Package</u>	
REQUEST: _____	Date Published: / /
_____	Date Complete: / /

TO BE COMPLETED BY APPLICANT

PROJECT NAME: \_\_\_\_\_

Assessor's Parcel #: \_\_\_\_\_ - \_\_\_\_\_ - \_\_\_\_\_ Parcel Size: \_\_\_\_\_ Ac. / Sq.Ft.

Landscaped Area: \_\_\_\_\_  
(Proposed Project – sq.ft.) (Existing – sq.ft.) (Total – sq.ft.)

Project Type (check all that apply):

- New
- Rehabilitated
- Public
- Private
- Cemetery
- Homeowner-installed

Water Supply Source (potable, recycled, well): \_\_\_\_\_

Name of Water Supplier (if not served by private well): \_\_\_\_\_

Site Address/Location: \_\_\_\_\_  
No. Street City Zip

Property Owner's Name: \_\_\_\_\_

Mailing Address: \_\_\_\_\_  
No. Street Apt./Suite  
City State Zip

Telephone #: (\_\_\_\_\_) \_\_\_\_\_ - \_\_\_\_\_ Fax #: (\_\_\_\_\_) \_\_\_\_\_ - \_\_\_\_\_

E-Mail: \_\_\_\_\_

Applicant's Name: \_\_\_\_\_

Mailing Address: \_\_\_\_\_  
No. Street Apt./Suite  
City State Zip

**Water Efficient Landscaping**

Napa County  
Conservation, Development and  
Planning Department



**Application and Guidance – SECTION A**

Applicant Information Cont.:

Telephone #: (\_\_\_\_) \_\_\_\_\_ - \_\_\_\_\_ Fax #: (\_\_\_\_) \_\_\_\_\_ - \_\_\_\_\_

E-Mail: \_\_\_\_\_

Status of Applicant's Interest in Property: \_\_\_\_\_

Representative Name: \_\_\_\_\_

Mailing Address: \_\_\_\_\_

No. Street Apt./Suite

City State Zip

Telephone #: (\_\_\_\_) \_\_\_\_\_ - \_\_\_\_\_ Fax #: (\_\_\_\_) \_\_\_\_\_ - \_\_\_\_\_

E-Mail: \_\_\_\_\_

I agree to comply with the requirements of the Water Efficient Landscaping Ordinance (WELO) and submit a complete Landscape Documentation Package. I certify that all the information contained in this application, including but not limited to the information contained in the Landscape Documentation Package (see items in checklist – section A3) is complete and accurate to the best of my knowledge. I hereby authorize such investigations including access to County Assessor's Records as are deemed necessary by the County Planning Division for preparation of reports related to this application, including the right of access to the property involved.

\_\_\_\_\_  
Signature of Property Owner

\_\_\_\_\_/\_\_\_\_\_/\_\_\_\_\_  
Date

\_\_\_\_\_  
Print Property Owner Name

\_\_\_\_\_  
Signature of Applicant

\_\_\_\_\_/\_\_\_\_\_/\_\_\_\_\_  
Date

\_\_\_\_\_  
Print Applicant Name

TO BE COMPLETED BY CONSERVATION, DEVELOPMENT AND PLANNING DEPARTMENT

\*Total Estimated Fees: \$ \_\_\_\_\_ Receipt No. \_\_\_\_\_

Received by: \_\_\_\_\_ Date: \_\_\_\_/\_\_\_\_/\_\_\_\_

\*Actual Fees pertaining to this and related applications are based the approved Fee Schedule



Section A3. Checklist – Landscape Documentation Package Contents

Use the checklist below to prepare a Landscape Documentation Package for submittal with your permit application. If you have any questions about the content of the Landscape Documentation Package, please contact County building and planning staff for assistance.

<u>Item</u>	<u>Description</u>	<u>Section</u>
<input type="checkbox"/> 1.	COMPLETED APPLICATION FORM	A2
<input type="checkbox"/> 2.	WATER EFFICIENT LANDSCAPE WORKSHEETS	B
	Hydrozone Information Table	B1
	Maximum Applied Water Allowance (MAWA)	B2
	Estimated Total Applied Water Use (ETWU)	B3
<input type="checkbox"/> 3.	SOIL MANAGEMENT REPORT	C
<input type="checkbox"/> 4.	LANDSCAPE DESIGN PLAN	D
<input type="checkbox"/> 5.	IRRIGATION DESIGN PLAN	E
<input type="checkbox"/> 6.	GRADING DESIGN PLAN	F
<input type="checkbox"/> 5.	CERTIFICATE OF COMPLETION	G
<input type="checkbox"/> 6.	CERTIFICATION OF INSTALLATION	H
<input type="checkbox"/> 7.	IRRIGATION SCHEDULING	I
<input type="checkbox"/> 8.	LANDSCAPE AND IRRIGATION MAINTENANCE SCHEDULE	J
<input type="checkbox"/> 9.	LANDSCAPE IRRIGATION AUDIT IRRIGATION SURVEY AND IRRIGATION WATER USE ANALYSIS	K



**SECTION B: WATER EFFICIENT LANDSCAPE WORKSHEETS**

Section B1. Hydrozone Information Table

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

Hydrozone*	Zone or Valve	Irrigation Method**	Area (Sq. Ft.)	% of Total Landscape Area
<b>Total (Sq. Ft.):</b>				<b>100%</b>

Summary Hydrozone Table		
Hydrozone*	Area (Sq. Ft.)	% of Total Landscape Area
High Water Use		
Moderate Water Use		
Low Water Use		
<b>Total:</b>		<b>100%</b>

**\* Hydrozone**  
 HW = High Water Use Plants  
 MW = Moderate Water Use Plants  
 LW = Low Water Use Plants

**\*\*Irrigation Method**  
 MS = Micro-spray  
 S = Spray  
 R = Rotor  
 B = Bubbler  
 D = Drip



Section B2. Maximum Applied Water Allowance (MAWA)

The project's Maximum Applied Water Allowance shall be calculated using this equation:

$$MAWA = (ET_o) (0.62) [(0.7 \times LA) + (0.3 \times SLA)]$$

where:

- MAWA = Maximum Applied Water Allowance (gallons per year)
- ET<sub>o</sub> = Reference Evapotranspiration from *Appendix A* (inches per year)
- 0.7 = ET Adjustment Factor (ETAF)
- LA = Landscaped Area includes Special Landscape Area (square feet)
- 0.62 = Conversion factor (to gallons per square foot)
- SLA = Portion of the landscape area identified as Special Landscape Area (square feet)
- 0.3 = the additional ET Adjustment Factor for Special Landscape Area (1.0 - 0.7 = 0.3)

**Maximum Applied Water Allowance = \_\_\_\_\_ gallons per year**

Show calculations.

**Effective Precipitation (Eppt)**

If considering Effective Precipitation, use 25% (0.25) of annual precipitation. Use the following equation to calculate the Maximum Applied Water Allowance (see Appendix B for rainfall map):

$$MAWA = (ET_o - Eppt) (0.62) [(0.7 \times LA) + (0.3 \times SLA)]$$

**Maximum Applied Water Allowance = \_\_\_\_\_ gallons per year**

Show calculations.



Section B3. Estimated Total Water Use (ETWU)

The project's Estimated Total Water Use is calculated using the following formula:

$$ETWU = (ET_o)(0.62) \left( \frac{PF \times HA}{IE} + SLA \right)$$

where:

- ETWU = Estimated total water use per year (gallons per year)
- ET<sub>o</sub> = Reference Evapotranspiration (inches per year)
- PF = Plant Factor from WUCOLS<sup>2</sup> (*Water Use Classification of Landscape Species, UCCE 2000*)
- HA = Hydrozone Area [high, medium, and low water use areas] (square feet)
- SLA = Special Landscape Area (square feet)
- 0.62 = Conversion Factor (to gallons per square foot)
- IE = Irrigation Efficiency (minimum 0.71)

**Hydrozone Table for Calculating ETWU**

Please complete the hydrozone table(s). Use as many tables as necessary.

Hydrozone	Plant Water Use Type(s)	Plant Factor (PF)	Area (HA) (square feet)	PF x HA (square feet)
			Sum	
	SLA			

Estimated Total Water Use = \_\_\_\_\_ gallons

Show calculations.

<sup>2</sup> To obtain plant factors from WUCOLS, see <http://www.water.ca.gov/wateruseefficiency/docs/wucols00.pdf> - *Water Use Classification of Landscape Species, UCCE 2000.*



**SECTION C: SOIL MANAGEMENT REPORT (per State ordinance Section 492.5)**

(a) In order to reduce runoff and encourage healthy plant growth, a soil management report shall be completed by the project applicant, or his/her designee, as follows:

(1) Submit soil samples to a laboratory for analysis and recommendations.

(A) Soil sampling shall be conducted in accordance with laboratory protocol, including protocols regarding adequate sampling depth for the intended plants.

(B) The soil analysis may include:

1. soil texture;
2. infiltration rate determined by laboratory test or soil texture infiltration rate table;
3. pH;
4. total soluble salts;
5. sodium;
6. percent organic matter; and
7. recommendations.

(2) The project applicant, or his/her designee, shall comply with one of the following:

(A) If significant mass grading is not planned, the soil analysis report shall be submitted to the local agency as part of the Landscape Documentation Package; or

(B) If significant mass grading is planned, the soil analysis report shall be submitted to the local agency as part of the Certificate of Completion.

(3) The soil analysis report shall be made available, in a timely manner, to the professionals preparing the landscape design plans and irrigation design plans to make any necessary adjustments to the design plans.

(4) The project applicant, or his/her designee, shall submit documentation verifying implementation of soil analysis report recommendations to the local agency with Certificate of Completion.

Note: Authority Cited: Section 65595, Government Code. Reference: Section 65596, Government Code.



**SECTION D: LANDSCAPE DESIGN PLAN (per State ordinance Section 492.6)**

(a) For the efficient use of water, a landscape shall be carefully designed and planned for the intended function of the project. A landscape design plan meeting the following design criteria shall be submitted as part of the Landscape Documentation Package.

**(1) Plant Material**

(A) Any plant may be selected for the landscape, providing the Estimated Total Water Use in the landscape area does not exceed the Maximum Applied Water Allowance. To encourage the efficient use of water, the following is highly recommended:

1. protection and preservation of native species and natural vegetation;
2. selection of water-conserving plant and turf species;
3. selection of plants based on disease and pest resistance;
4. selection of trees based on applicable local tree ordinances or tree shading guidelines; and
5. selection of plants from local and regional landscape program plant lists.

(B) Each hydrozone shall have plant materials with similar water use, with the exception of hydrozones with plants of mixed water use, as specified in the State Ordinance Section 492.7(a)(2)(D) (see Section E of this document provided below).

(C) Plants shall be selected and planted appropriately based upon their adaptability to the climatic, geologic, and topographical conditions of the project site. To encourage the efficient use of water, the following is highly recommended:

1. use the Sunset Western Climate Zone System which takes into account temperature, humidity, elevation, terrain, latitude, and varying degrees of continental and marine influence on local climate;
2. recognize the horticultural attributes of plants (i.e., mature plant size, invasive surface roots) to minimize damage to property or infrastructure [e.g., buildings, sidewalks, power lines]; and
3. consider the solar orientation for plant placement to maximize summer shade and winter solar gain.

(D) Turf is not allowed on slopes greater than 25% where the toe of the slope is adjacent to an impermeable hardscape and where 25% means 1 foot of vertical elevation change for every 4 feet of horizontal length (rise divided by run x 100 = slope percent).

(E) A landscape design plan for projects in fire-prone areas shall address fire safety and prevention. A defensible space or zone around a building or structure is required per Public Resources Code Section 4291(a) and (b). Avoid fire-prone plant materials and highly flammable mulches.

(F) The use of invasive and/or noxious plant species is strongly discouraged.

(G) The architectural guidelines of a common interest development, which include community apartment projects, condominiums, planned developments, and stock cooperatives, shall not prohibit or include conditions that have the effect of prohibiting the use of low-water use plants as a group.



(2) Water Features

- (A) Recirculating water systems shall be used for water features.
- (B) Where available, recycled water shall be used as a source for decorative water features.
- (C) Surface area of a water feature shall be included in the high water use hydrozone area of the water budget calculation.
- (D) Pool and spa covers are highly recommended.

(3) Mulch and Amendments

- (A) A minimum two inch (2") layer of mulch shall be applied on all exposed soil surfaces of planting areas except in turf areas, creeping or rooting groundcovers, or direct seeding applications where mulch is contraindicated.
- (B) Stabilizing mulching products shall be used on slopes.
- (C) The mulching portion of the seed/mulch slurry in hydro-seeded applications shall meet the mulching requirement.
- (D) Soil amendments shall be incorporated according to recommendations of the soil report and what is appropriate for the plants selected (see State Ordinance Section 492.5 or Section C in this document provided above).

The landscape design plan, at a minimum, shall:

- (1) delineate and label each hydrozone by number, letter, or other method;
- (2) identify each hydrozone as low, moderate, high water, or mixed water use. Temporarily irrigated areas of the landscape shall be included in the low water use hydrozone for the water budget calculation;
- (3) identify recreational areas;
- (4) identify areas permanently and solely dedicated to edible plants;
- (5) identify areas irrigated with recycled water;
- (6) identify type of mulch and application depth;
- (7) identify soil amendments, type, and quantity;
- (8) identify type and surface area of water features;
- (9) identify hardscapes (pervious and non-pervious);
- (10) identify location and installation details of any applicable stormwater best management practices that encourage on-site retention and infiltration of stormwater. Stormwater best management practices are encouraged in the landscape design plan and examples include, but are not limited to:
  - (A) infiltration beds, swales, and basins that allow water to collect and soak into the ground;
  - (B) constructed wetlands and retention ponds that retain water, handle excess flow, and filter pollutants; and
  - (C) pervious or porous surfaces (e.g., permeable pavers or blocks, pervious or porous concrete, etc.) that minimize runoff.
- (11) identify any applicable rain harvesting or catchment technologies (e.g., rain gardens, cisterns, etc.);



- (12) contain the following statement: "I have complied with the criteria of the ordinance and applied them for the efficient use of water in the landscape design plan"; and
- (13) bear the signature of a licensed landscape architect, licensed landscape contractor, or any other person authorized to design a landscape. (See Sections 5500.1, 5615, 5641, 5641.1, 5641.2, 5641.3, 5641.4, 5641.5, 5641.6, 6701, 7027.5 of the Business and Professions Code, Section 832.27 of Title 16 of the California Code of Regulations, and Section 6721 of the Food and Agriculture Code.)

Note: Authority Cited: Section 65595, Government Code. Reference: Section 65596, Government Code and Section 1351, Civil Code.



**SECTION E: IRRIGATION DESIGN PLAN (per State ordinance Section 492.7)**

(a) For the efficient use of water, an irrigation system shall meet all the requirements listed in this section and the manufacturers' recommendations. The irrigation system and its related components shall be planned and designed to allow for proper installation, management, and maintenance. An irrigation design plan meeting the following design criteria shall be submitted as part of the Landscape Documentation Package.

**(1) System**

(A) Dedicated landscape water meters are highly recommended on landscape areas smaller than 5,000 square feet to facilitate water management.

(B) Automatic irrigation controllers utilizing either evapotranspiration or soil moisture sensor data shall be required for irrigation scheduling in all irrigation systems.

(C) The irrigation system shall be designed to ensure that the dynamic pressure at each emission device is within the manufacturer's recommended pressure range for optimal performance.

1. If the static pressure is above or below the required dynamic pressure of the irrigation system, pressure-regulating devices such as inline pressure regulators, booster pumps, or other devices shall be installed to meet the required dynamic pressure of the irrigation system.

2. Static water pressure, dynamic or operating pressure, and flow reading of the water supply shall be measured at the point of connection. These pressure and flow measurements shall be conducted at the design stage. If the measurements are not available at the design stage, the measurements shall be conducted at installation.

(D) Sensors (rain, freeze, wind, etc.), either integral or auxiliary, that suspend or alter irrigation operation during unfavorable weather conditions shall be required on all irrigation systems, as appropriate for local climatic conditions. Irrigation should be avoided during windy or freezing weather or during rain.

(E) Manual shut-off valves (such as a gate valve, ball valve, or butterfly valve) shall be required, as close as possible to the point of connection of the water supply, to minimize water loss in case of an emergency (such as a main line break) or routine repair.

(F) Backflow prevention devices shall be required to protect the water supply from contamination by the irrigation system. A project applicant shall refer to the applicable local agency code (i.e., public health) for additional backflow prevention requirements.

(G) High flow sensors that detect and report high flow conditions created by system damage or malfunction are recommended.

(H) The irrigation system shall be designed to prevent runoff, low head drainage, overspray, or other similar conditions where irrigation water flows onto non-targeted areas, such as adjacent property, non-irrigated areas, hardscapes, roadways, or structures.

(I) Relevant information from the soil management plan, such as soil type and infiltration rate, shall be utilized when designing irrigation systems.

(J) The design of the irrigation system shall conform to the hydrozones of the landscape design plan.



(K) The irrigation system must be designed and installed to meet, at a minimum, the irrigation efficiency criteria as described in the State Ordinance Section 492.4 (or see Section B2 in this document provided above) regarding the Maximum Applied Water Allowance.

(L) It is highly recommended that the project applicant or local agency inquire with the local water purveyor about peak water operating demands (on the water supply system) or water restrictions that may impact the effectiveness of the irrigation system.

(M) In mulched planting areas, the use of low volume irrigation is required to maximize water infiltration into the root zone.

(N) Sprinkler heads and other emission devices shall have matched precipitation rates, unless otherwise directed by the manufacturer's recommendations.

(O) Head to head coverage is recommended. However, sprinkler spacing shall be designed to achieve the highest possible distribution uniformity using the manufacturer's recommendations.

(P) Swing joints or other riser-protection components are required on all risers subject to damage that are adjacent to high traffic areas.

(Q) Check valves or anti-drain valves are required for all irrigation systems.

(R) Narrow or irregularly shaped areas, including turf, less than eight (8) feet in width in any direction shall be irrigated with subsurface irrigation or low volume irrigation system.

(S) Overhead irrigation shall not be permitted within 24 inches of any non-permeable surface. Allowable irrigation within the setback from non-permeable surfaces may include drip, drip line, or other low flow non-spray technology. The setback area may be planted or unplanted. The surfacing of the setback may be mulch, gravel, or other porous material. These restrictions may be modified if:

1. the landscape area is adjacent to permeable surfacing and no runoff occurs; or
2. the adjacent non-permeable surfaces are designed and constructed to drain entirely to landscaping; or
3. the irrigation designer specifies an alternative design or technology, as part of the Landscape Documentation Package and clearly demonstrates strict adherence to irrigation system design criteria in Section 492.7 (a)(1)(H) (see Section E in this document provided above). Prevention of overspray and runoff must be confirmed during the irrigation audit.

(T) Slopes greater than 25% shall not be irrigated with an irrigation system with a precipitation rate exceeding 0.75 inches per hour. This restriction may be modified if the landscape designer specifies an alternative design or technology, as part of the Landscape Documentation Package, and clearly demonstrates no runoff or erosion will occur. Prevention of runoff and erosion must be confirmed during the irrigation audit.

## (2) Hydrozone

(A) Each valve shall irrigate a hydrozone with similar site, slope, sun exposure, soil conditions, and plant materials with similar water use.

(B) Sprinkler heads and other emission devices shall be selected based on what is appropriate for the plant type within that hydrozone.



(C) Where feasible, trees shall be placed on separate valves from shrubs, groundcovers, and turf.

(D) Individual hydrozones that mix plants of moderate and low water use, or moderate and high water use, may be allowed if:

1. plant factor calculation is based on the proportions of the respective plant water uses and their plant factor; or
2. the plant factor of the higher water using plant is used for calculations.

(E) Individual hydrozones that mix high and low water use plants shall not be permitted.

(F) On the landscape design plan and irrigation design plan, hydrozone areas shall be designated by number, letter, or other designation. On the irrigation design plan, designate the areas irrigated by each valve, and assign a number to each valve. Use this valve number in the Hydrozone Information Table (see Section B1 in this document provided above). This table can also assist with the irrigation audit and programming the controller.

The irrigation design plan, at a minimum, shall contain:

- (1) location and size of separate water meters for landscape;
- (2) location, type and size of all components of the irrigation system, including controllers, main and lateral lines, valves, sprinkler heads, moisture sensing devices, rain switches, quick couplers, pressure regulators, and backflow prevention devices;
- (3) static water pressure at the point of connection to the public water supply;
- (4) flow rate (gallons per minute), application rate (inches per hour), and design operating pressure (pressure per square inch) for each station;
- (5) recycled water irrigation systems as specified in the State Ordinance Section 492.14<sup>3</sup>;
- (6) the following statement: "I have complied with the criteria of the ordinance and applied them accordingly for the efficient use of water in the irrigation design plan"; and
- (7) the signature of a licensed landscape architect, certified irrigation designer, licensed landscape contractor, or any other person authorized to design an irrigation system. (See Sections 5500.1, 5615, 5641, 5641.1, 5641.2, 5641.3, 5641.4, 5641.5, 5641.6, 6701, 7027.5 of the Business and Professions Code, Section 832.27 of Title 16 of the California Code of Regulations, and Section 6721 of the Food and Agricultural Code.)

Note: Authority Cited: Section 65595, Government Code. Reference: Section 65596, Government Code.

<sup>3</sup> § 492.14 *Recycled Water*. - (a) The installation of recycled water irrigation systems shall allow for the current and future use of recycled water, unless a written exemption has been granted as described in Section 492.14(b).

(b) Irrigation systems and decorative water features shall use recycled water unless a written exemption has been granted by the local water purveyor stating that recycled water meeting all public health codes and standards is not available and will not be available for the foreseeable future.

(c) All recycled water irrigation systems shall be designed and operated in accordance with all applicable local and State laws.

(d) Landscapes using recycled water are considered Special Landscape Areas. The ET Adjustment Factor for Special Landscape Areas shall not exceed 1.0.

Note: Authority Cited: Section 65595, Government Code. Reference: Section 65596, Government Code



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**SECTION F: GRADING DESIGN PLAN (per State ordinance Section 492.8)**

(a) For the efficient use of water, grading of a project site shall be designed to minimize soil erosion, runoff, and water waste. A grading plan shall be submitted as part of the Landscape Documentation Package. A comprehensive grading plan prepared by a civil engineer for other local agency permits satisfies this requirement.

(1) The project applicant shall submit a landscape grading plan that indicates finished configurations and elevations of the landscape area including:

- (A) height of graded slopes;
- (B) drainage patterns;
- (C) pad elevations;
- (D) finish grade; and
- (E) stormwater retention improvements, if applicable.

(2) To prevent excessive erosion and runoff, it is highly recommended that project applicants:

- (A) grade so that all irrigation and normal rainfall remains within property lines and does not drain on to non-permeable hardscapes;
- (B) avoid disruption of natural drainage patterns and undisturbed soil; and
- (C) avoid soil compaction in landscape areas.

(3) The grading design plan shall contain the following statement: "I have complied with the criteria of the ordinance and applied them accordingly for the efficient use of water in the grading design plan" and shall bear the signature of a licensed professional as authorized by law.

Note: Authority Cited: Section 65595, Government Code. Reference: Section 65596, Government Code.





**SECTION H: CERTIFICATION OF INSTALLATION**

"I/we certify that based upon periodic site observations, the work has been substantially completed in accordance with the ordinance and that the landscape planting and irrigation installation conform with the criteria and specifications of the approved Landscape Documentation Package."

Signature*	Date ___/___/___	
Name (print)	Telephone No.	
	Fax No.	
Title	Email Address	
License No. or Certification No.		
Company	Street Address	
City	State	Zip Code

\*Signer of the landscape design plan, signer of the irrigation plan, or a licensed landscape contractor.



**SECTION I: IRRIGATION SCHEDULING (per State ordinance Section 492.10)**

(a) For the efficient use of water, all irrigation schedules shall be developed, managed, and evaluated to utilize the minimum amount of water required to maintain plant health. Irrigation schedules shall meet the following criteria:

- (1) Irrigation scheduling shall be regulated by automatic irrigation controllers.
- (2) Overhead irrigation shall be scheduled between 8:00 p.m. and 10:00 a.m. unless weather conditions prevent it. If allowable hours of irrigation differ from the local water purveyor, the stricter of the two shall apply. Operation of the irrigation system outside the normal watering window is allowed for auditing and system maintenance.
- (3) For implementation of the irrigation schedule, particular attention must be paid to irrigation run times, emission device, flow rate, and current reference evapotranspiration, so that applied water meets the Estimated Total Water Use. Total annual applied water shall be less than or equal to Maximum Applied Water Allowance (MAWA). Actual irrigation schedules shall be regulated by automatic irrigation controllers using current reference evapotranspiration data (e.g., CIMIS) or soil moisture sensor data.
- (4) Parameters used to set the automatic controller shall be developed and submitted for each of the following:
  - (A) the plant establishment period;
  - (B) the established landscape; and
  - (C) temporarily irrigated areas.
- (5) Each irrigation schedule shall consider for each station all of the following that apply:
  - (A) irrigation interval (days between irrigation);
  - (B) irrigation run times (hours or minutes per irrigation event to avoid runoff);
  - (C) number of cycle starts required for each irrigation event to avoid runoff;
  - (D) amount of applied water scheduled to be applied on a monthly basis;
  - (E) application rate setting;
  - (F) root depth setting;
  - (G) plant type setting;
  - (H) soil type;
  - (I) slope factor setting;
  - (J) shade factor setting; and
  - (K) irrigation uniformity or efficiency setting.

Note: Authority Cited: Section 65595, Government Code. Reference: Section 65596, Government Code.



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**SECTION J: LANDSCAPE AND IRRIGATION MAINTENANCE SCHEDULE (per State ordinance Section 492.11)**

- (a) Landscapes shall be maintained to ensure water use efficiency. A regular maintenance schedule shall be submitted with the Certificate of Completion.
  
- (b) A regular maintenance schedule shall include, but not be limited to, routine inspection; adjustment and repair of the irrigation system and its components; aerating and dethatching turf areas; replenishing mulch; fertilizing; pruning; weeding in all landscape areas, and removing and obstruction to emission devices. Operation of the irrigation system outside the normal watering window is allowed for auditing and system maintenance.
  
- (c) Repair of all irrigation equipment shall be done with the originally installed components or their equivalents.
  
- (d) A project applicant is encouraged to implement sustainable or environmentally-friendly practices for overall landscape maintenance.

Note: Authority Cited: Section 65595, Government Code. Reference: Section 65596, Government Code.



**SECTION K: LANDSCAPE IRRIGATION AUDIT IRRIGATION SURVEY AND IRRIGATION WATER USE ANALYSIS (per State ordinance Section 492.12)**

(a) All landscape irrigation audits shall be conducted by a certified landscape irrigation auditor.

(b) For new construction and rehabilitated landscape projects installed after January 1, 2010, as described in the State Ordinance Section 490.1 (also see Section A1 – Applicability in this document provided above):

- (1) the project applicant shall submit an irrigation audit report with the Certificate of Completion to the local agency that may include, but is not limited to: inspection, system tune-up, system test with distribution uniformity, reporting overspray or run off that causes overland flow, and preparation of an irrigation schedule;
- (2) the local agency shall administer programs that may include, but not be limited to, irrigation water use analysis, irrigation audits, and irrigation surveys for compliance with the Maximum Applied Water Allowance.

Note: Authority Cited: Section 65595, Government Code. Reference: Section 65596, Government Code.



**APPENDIX A: NAPA COUNTY REFERENCE EVAPOTRANSPIRATION (ETO) TABLE\***

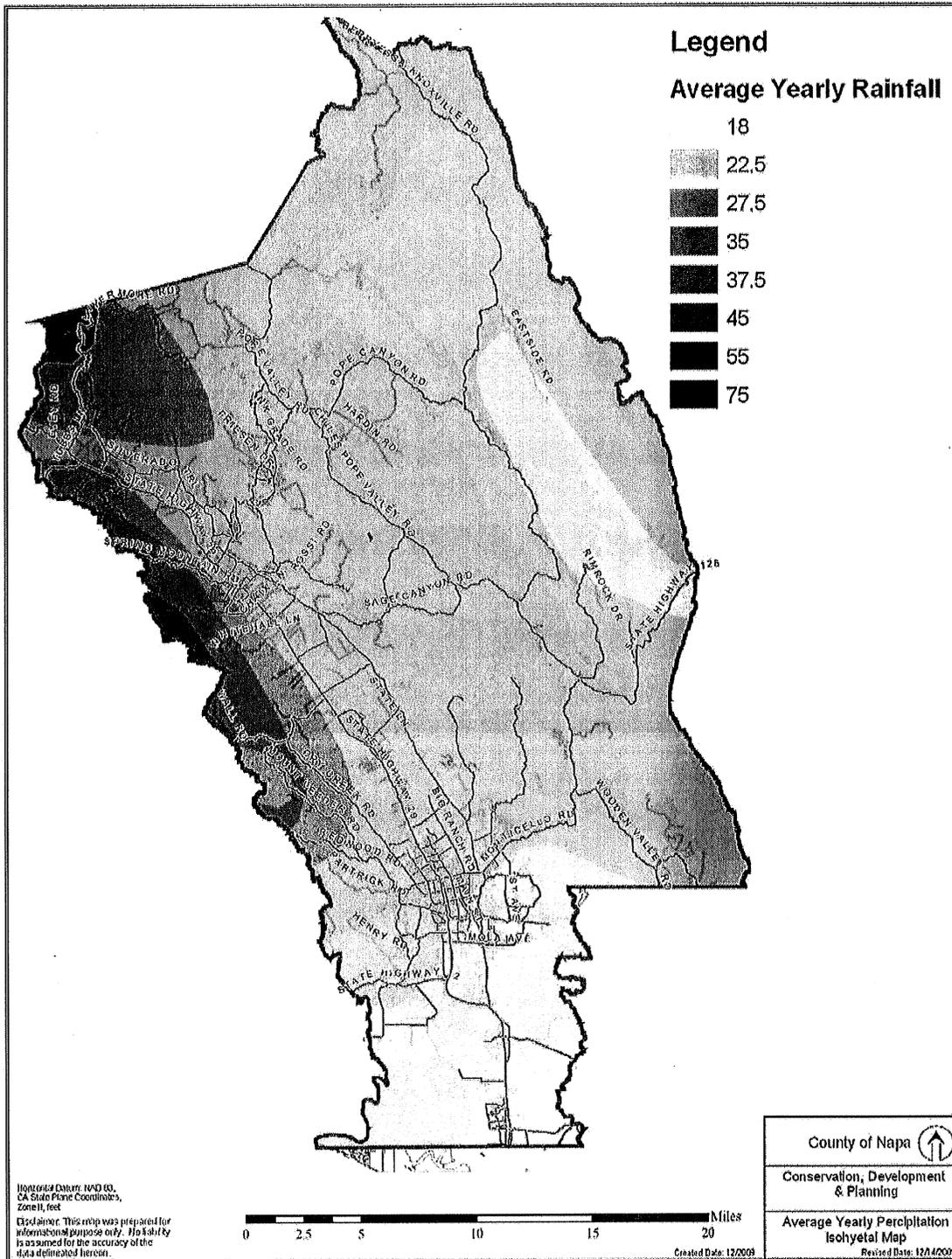
The following table can be used to determine the Reference Evapotranspiration (ETo) in inches per year for various locations in Napa County. Select the reference location nearest your project or interpolate between two sites as appropriate to determine the Annual ETo for your particular project. Projects located in the eastern portion of the County will most likely use the highest of the five values (54.9) due to the hot dry summer climate in those areas. Annual ETo is used to calculate your project’s Maximum Applied Water Allowance (MAWA) (see Section C1).

<b>Nearest Reference Location</b>	<i>Jan</i>	<i>Feb</i>	<i>Mar</i>	<i>Apr</i>	<i>May</i>	<i>Jun</i>	<i>Jul</i>	<i>Aug</i>	<i>Sep</i>	<i>Oct</i>	<i>Nov</i>	<i>Dec</i>	<b>Annual ETo (in/yr)</b>
Angwin	1.8	1.9	3.2	4.7	5.8	7.3	8.1	7.1	5.5	4.5	2.9	2.1	<b>54.9</b>
Carneros	0.8	1.5	3.1	4.6	5.5	6.6	6.9	6.2	4.7	3.5	1.4	1.0	<b>45.8</b>
Oakville	1.0	1.5	2.9	4.7	5.8	6.9	7.2	6.4	4.9	3.5	1.6	1.2	<b>47.7</b>
St Helena	1.2	1.5	2.8	3.9	5.1	6.1	7.0	6.2	4.8	3.1	1.4	0.9	<b>44.1</b>
Yountville	1.3	1.7	2.8	3.9	5.1	6.0	7.1	6.1	4.8	3.1	1.5	0.9	<b>44.3</b>

\* Table excerpted from *Appendix A – Reference Evapotranspiration Table, California Code of Regulations, Title 23. Waters, Division 2. Department of Water Resources, Chapter 2.7 - Model Water Efficient Landscape Ordinance (09/10/09)*. The values in this table were derived from: 1) California Irrigation Management Information System (CIMIS); 2) Reference EvapoTranspiration Zones Map, UC Dept. of Land, Air & Water Resources and California Dept of Water Resources 1999; and 3) Reference Evapotranspiration for California, University of California, Department of Agriculture and Natural Resources (1987) Bulletin 1922, 4) Determining Daily Reference Evapotranspiration, Cooperative Extension UC Division of Agriculture and Natural Resources (1987), Publication Leaflet 21426



**APPENDIX B: AVERAGE YEARLY RAINFALL MAP<sup>4</sup>**



<sup>4</sup> Napa County Baseline Data Report, 2005, Map Data 3-2 developed from County GIS 12/14/2009



## State Law

As required by State law, Napa County adopted a water efficient landscaping ordinance in 1992. Assembly Bill 1881 (2006) requires the County to implement more stringent water efficient landscape regulations than those required back in 1992. To comply with AB 1881, the County can either implement the State's Model Ordinance, or adopt an equally effective ordinance by January 2010. At this time, Napa County is planning to implement the State's Model Ordinance as allowed under AB 1881.

## State Ordinance Provisions

- Minimize overspray and runoff
- Develop suitable water budgets
- Group similar plant types
- Automate irrigation
- Assess soil and its management
- Include maintenance practices
- Capture and retention of storm water onsite
- Encourage use of recycled water
- Encourage economic incentives
- Education of water users

## Landscapes in Napa County

Landscapes are essential to the quality of life in Napa County. Our landscaped areas provide for recreation, environmental enhancement, clean air and water, prevent erosion, offer fire protection and replace ecosystems lost due to development.

## **Additional Resources & Information:**

California Department of Water Resources:

- <http://www.water.ca.gov/wateruseefficiency/landscapeordinance>
- <http://www.water.ca.gov/wateruseefficiency/publications/>

Napa County Conservation, Development and Planning:

- <http://www.co.napa.ca.us/cddp/projects>

City of Napa Water Conservation Program:

- <http://www.cityofnapa.org/water>

US EPA, benefits of water-efficient, low-impact landscaping:

- <http://www.epa.gov/npdes/pubs/waterefficiency.pdf>



A Tradition of Stewardship  
A Commitment to Service

## *Water Efficient Landscapes In Napa County*

Napa County Conservation, Development  
Planning Department  
1195 Third St., Suite 210  
Napa, CA 94559

Phone: 707-253-4417  
Fax: 707-253-4336  
E-mail: [planning@countyofnapa.org](mailto:planning@countyofnapa.org)

*Water Efficient Landscapes  
In Napa County*

# Updated Water Efficient Landscape Regulations



*Water waste in Napa County—Sprinkler Overspray*

## **New State Regulations**

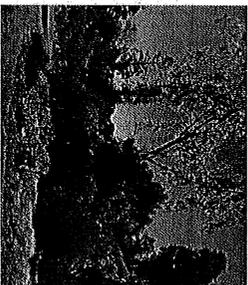
8008

*What you need  
to know!*

# Purpose

Adoption of a Water Efficient Landscaping Ordinance is State law. To comply with the law, Napa County is implementing the State's Model Ordinance.

Napa County's economic prosperity and environmental quality are dependant on an adequate supply of water. About half of urban water use is used for landscape irrigation. Ensuring efficient landscapes in new and rehabilitated developments and reducing water waste in existing landscapes are the most cost-effective ways to stretch limited water supplies and ensure that Napa County continues to have sufficient water to prosper.



## Goals for Water Efficient Landscapes

- Establish a means to design, install, maintain and manage water efficient landscapes.
- Reduce water use to the lowest practical amount and set upper limits allowed usage.
- Establish water management practices and waste prevention for established landscapes.
- Promote the values and benefits of landscapes, recognizing the need to use water and resources efficiently.

# Applicability

## Does this apply to me?

The 2010 State regulations apply to most new and rehabilitated landscaped areas that require a building permit and contain:

2500 sq. ft. or more (landscaped area) for public agency (parks, schools, city properties), private development (retail, industrial, commercial properties) and developer-installed single family and multi-family developments, and

5000sq.ft. or more (landscaped area) homeowner-provided (DIY or contractor) single-family and multi-family projects.

Exemptions exist for historical sites, environmental restoration projects, mine-land reclamation and public botanical collections.

# Submittal/Permit Requirements

## What do I need to comply?

Upon permit application, submittal of a signed Landscape

**Documentation Package** which includes:

1. Project Information,
2. Water Efficient Landscape Worksheet & Water Budget,
3. Soil Management Report,
4. Landscape Design Plan,
5. Irrigation Design Plan, and
6. Grading Design Plan



A **Certificate of Completion** must also be provided after installation that includes:

1. Certification of Installation,
2. Final Soils Information,
3. Irrigation Scheduling Parameters,
4. Maintenance Schedules, and
5. Irrigation Audit Report.

A final certificate of occupancy can not be granted until a Certificate of Completion has been submitted and reviewed.

## Existing landscaped areas

State law now requires the County to conduct surveys/audits of all existing landscaped areas over 1 acre and provide recommendations to owners on how to prevent water waste. Those areas that are metered will be provided further recommendations on how not to exceed the **Maximum Applied Water Allowance** for existing landscapes (1992 standards). All audits shall be conducted by a certified landscape auditor.

# Guidance & Help

The County is required to provide educational information about water efficient landscaping to owners of new single-family homes. The County has also developed an application packet to assist those needing to comply with the State's Model Ordinance. The application packet is available online (see link on other side) and at the Conservation, Development and Planning Department counter. Online links to other useful resources are also provided in this brochure.