# CITY OF EL MONTE

# *Water Efficient Landscape Ordinance Documentation Package*


## *Chapter 17.11 – Water Efficiency Ordinance El Monte Municipal Code (EMMC)*

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# Water Efficient Landscape Ordinance Documentation Package

## Contents

# Purpose and Applicability

## Purpose

**(A)** The primary purpose of these Guidelines is to provide procedural and design guidance for *project applicants* proposing landscape installation or rehabilitation projects that are subject to the requirements of the *Water Efficient Landscape Ordinance*. This document is also intended for use and reference by *City* staff in reviewing and approving designs and verifying compliance with the *Water Efficient* Landscape *Ordinance*. The general purpose of the *Water Efficient Landscape Ordinance* is to promote the design, installation, and maintenance of landscaping in a manner that conserves regional water resources by ensuring that landscaping projects are not unduly water-needy and that irrigation systems are appropriately designed and installed to minimize water waste.

**(B)** Other regulations affecting landscape design and maintenance practices are potentially applicable and should be consulted for additional requirements. These regulations include but may not be limited to:

1. State of California Assembly Bill 1881
2. National Pollutant Discharge Elimination Permit for the Municipal Separate Storm Sewer System;
3. Los Angeles County Fire Authority Regulations for Fuel Modification in the Landscape;
4. Water Conservation and Drought Response Regulations of the Local Water Purveyor;
5. Zoning Code;
6. Building Code;
7. Specific Plans, Master Plans, General Plan, or similar land use and planning documents; and
8. Conditions of approval for a specific project.

## Applicability

**(A)** Pursuant to the State Water Conservation in Landscaping Act (AB1881), and El Monte Municipal Code, the following projects shall comply with the Water Efficient Landscape Application requirements:

1. New construction projects that include 500 square feet or more of building construction.
2. Rehabilitated landscape projects with an aggregate landscape area equal to or larger than 2,500 square feet in area requiring a building permit.
3. Any project with and aggregate landscape area of 2,500 square feet or less may comply with the performance requirements of this ordinance or conform to the prescriptive measures contained in Appendix A.
4. Any lot or parcel that meets its water requirement using treated or untreated graywater or rainwater captured on site and meets the site's landscape water requirement (Estimated Total Water Use) shall be subject only to irrigation systems requirements of the prescriptive compliance measures of the State Model Water Efficient Landscape Ordinance (Appendix A Section (5)).

**(B)** The requirements of the Guidelines may be partially or wholly waived, at the discretion of the *City* or its designee, for landscape rehabilitation projects that are limited to replacement plantings with equal or lower water needs and where the irrigation system is found to be designed, operable and programmed consistent with minimizing water waste in accordance with local water purveyor regulations.

**(C)** The State Water Conservation in Landscaping Act (AB1881) does not apply to:

1. Registered local, state or federal historical sites;
2. Ecological restoration projects that do not require a permanent irrigation system;
3. Mined-land reclamation projects that do not require a permanent irrigation system or;
4. Plant collections, as part of botanical gardens and arboretums open to the public.

## Landscape Documentation Package Checklist

### Two (2) sets of the following information

☐ **Part 1 - Water Efficient Landscape & Irrigation Application** (pg. 6)
  ☐ Certificate of Landscape Design (Appendix B) (pg. 29)

☐ **Part 2 - Water Efficient Landscape Worksheet** (Appendix F) (pg. 34-35)
  ☐ Hydrozone Information Table
  ☐ Water budget calculations

Maximum Applied Water Allowance (MAWA) _____

Estimated Total Water Use (ETWU) _____

☐ **Part 3 – Soil Management Report** (pg. 9)

☐ **Part 4 – Landscape Design Plan** (pg. 10)

☐ **Part 5 – Irrigation Design Plan** (pg. 15)

☐ **Part 6 – Grading Design Plan** (pg. 20)

Estimated proposed grading (square feet) _____

☐ **Part 7 – Drainage Plan** (pg. 20)
If no grading is proposed, a landscape design plan or drainage plan shall be provided showing elevations at 2-foot contour intervals and direction of drainage flow.

## Water Efficient Landscape & Irrigation Application

Project

Project Address | Plan Check No.

Project Type (e.g., new construction, rehabilitated landscape area, existing landscape area) | Total Landscape Area (square feet)

Water Purveyor | Water Supply Type (e.g. potable, recycled, well)

Applicant

Title (e.g. property owner, contractor, architect)

Address | Phone Number

Email

Applicant Signature and Agreement

"I agree to comply with the requirements of the water efficient landscape ordinance and apply the criteria for the efficient use of water in the landscape design plan."

*Signature* | *Date*

Property Owner(s) Please Print

Address | Phone Number

## Water Efficient Landscape Worksheet

**(A)** The project applicant shall provide the calculated Maximum Applied Water Allowance (MAWA) and Estimated Total Water Use (ETWU) for the landscaped area as part of the Landscape Documentation Package submittal to the City. The MAWA and ETWU shall be calculated based on completing the Water Efficient Landscape Worksheet in Appendix F. The Worksheet contains information on the plant factor, irrigation method, irrigation efficiency, and area associated with each hydrozone. The evapotranspiration adjustment factor (ETAF) for the landscape project shall not exceed a factor of 0.55 for residential areas and 0.45 for non-residential areas, exclusive of Special Landscape Areas. The ETAF for a landscape project and ETWU are based on the plant factors and irrigation methods selected for the landscape design. The MAWA is calculated based on the maximum ETAF allowed and expressed as annual gallons required. The ETWU allowable for the landscaped area may not exceed the MAWA. The calculation of the MAWA and ETWU shall use the following ETo values for the City of El Monte:

| **Reference Evapotranspiration (ETo) Table** | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Jan. | Feb. | Mar. | Apr. | May | Jun. | Jul. | Aug. | Sept. | Oct. | Nov. | Dec. | Annual ETo |
| **Monrovia** | 2.2 | 2.3 | 3.8 | 4.3 | 5.5 | 5.9 | 6.9 | 6.4 | 5.1 | 3.2 | 2.5 | 2.0 | **50.2** |

**(B)** Water budget calculations shall adhere to the following requirements:

1. The MAWA and ETWU shall be calculated using the Water Efficient Landscape Worksheets and equation presented in Appendix F. A calculation example is provided to demonstrate proper use of the equation.
2. For the calculation of the ETWU, the plant factor used shall be from Water Use Efficiency of Landscape Species (WUCOLS) Species Evaluation List or from horticultural researchers with academic institutions or professional associations as approved by the California Department of Water Resources (DWR). The plant factor ranges from 0 to 0.1 for very low water using plants,
   0.1 to 0.3 for low water use plants, from 0.4 to 0.6 for moderate water use plants, and from 0.7 to 1.0 for high water use plants.

3. All water features shall be included in the high water use hydrozone and temporarily irrigated areas shall be included in the low water use hydrozone.
4. For calculating the ETWU, the plant water use factor shall be determined for each valve hydrozone based on the highest-water-use plant species within the zone. The plant factor for each hydrozone may be required to be further refined as a "landscape coefficient," according to protocols defined in detail in the WUCOLS document, to reflect planting density and microclimate effects on water need at the option of the applicant or the City.
5. The ETAF for new and existing (non-rehabilitated) Special Landscape Areas is set at 1.0. All Special Landscape Areas shall be identified and their water use calculated as shown in Appendix F. For calculation of the ETWU, the ETAF for SLA shall be calculated as the SLA plant factor divided by the SLA irrigation efficiency factor.

## Soil Management Report

Attach soil management report, if not previously submitted with the Landscape Documentation Package. Attach documentation verifying implementation of recommendations from soil sample analysis report.

**Soil Management Report requirements:**

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:

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

1. Soil sampling shall be conducted in accordance with laboratory protocol, including protocols regarding adequate sampling depth for the intended plants.
2. The soil sample analysis shall include:
   a. soil texture;
   b. infiltration rate determined by laboratory test or soil texture infiltration rate table;
   c. pH;
   d. total soluble salts;
   e. sodium;
   f. any soil leaching needed to remove salinity from the root zones; and
   g. Recommendations
3. In projects with multiple landscape installations (i.e. production home developments) a soil sampling rate of 1 in 7 lots or approximately 15% will satisfy this requirement. Large landscape projects shall sample at a rate equivalent to 1 in 7 lots.

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

1. If significant mass grading is not planned, the soil management report shall be submitted to the local agency as part of the Landscape Documentation Package; or
2. If significant mass grading is planned, the soil management report shall be submitted to the City as part of the Certificate of Completion.

**(C)** The soil management 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.

**(D)** The project applicant, or his/her designee, shall submit documentation verifying implementation of soil management report recommendations to the City with Certificate of Completion.

## Landscape Design Plan Checklist

For the efficient use of water, pursuant to the Water Efficient Landscape and Irrigation Ordinance, 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.

The landscape design plan, at a minimum shall:

- ☐ delineate and label each hydrozone by number, letter, or other method;
- ☐ 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;
- ☐ provide a plant identification list for each hydrozone and species evaluation and Plant Factor rating from WUCOLS III for each plant;
- ☐ identify recreational areas;
- ☐ identify areas permanently and solely dedicated to edible plants;
- ☐ identify areas irrigated with recycled water;
- ☐ identify type of mulch and application depth;
- ☐ identify soil amendments, type, and quantity;
- ☐ identify type and surface area of water features;
- ☐ identify hardscapes (pervious and no-pervious);
- ☐ identify location, installation details, and 24-hour retention or infiltration capacity of any applicable stormwater best management practices that encourage on-site stormwater retention and infiltration. Project applicants shall refer to the local agency or regional Water Quality Control Board for information on any applicable stormwater technical requirements.
  Stormwater best management practices are encouraged in the landscape design plan:
- ☐ identify any applicable rain harvesting or catchment technologies as discussed in the Stormwater Management and Rainwater Retention Section and their 24-hour retention or infiltration capacity;
- ☐ identify any applicable graywater discharge piping, system components and area(s) of distribution;
- ☐ Drainage Plan (see Section 7)
- ☐ contain the following statement: “I have complied with the criteria of the Water Efficient Landscape Ordinance and applied them for the efficient use of water in the landscape design plan; and
- ☐ bear the signature of a licensed landscape architect, licensed landscape contractor or any other person authorized by law to design the landscape and irrigation plans.

## Guidelines and Requirements

### (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. Methods to achieve water efficiency shall include one or more of the following:

1. protection and preservation of native species and natural vegetation;
2. selection of water-conserving plant, tree and turf species, especially local native plants;
3. selection of plants based local climate suitability, disease and pest resistance;
4. selection of trees based on applicable local tree ordinances or tree shading guidelines and size at maturity as appropriate for the planting area;
5. selection of plants from local and regional landscape program lists; and
6. selection of plants from local Fuel Modification Plan Guidelines.

**(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 Hydrozone Section of this document.

**(C)** Provide a list of all plants identified by species and common name for each hydrozone along with the WUCOLS Plant water use evaluation and WUCOLS plant factor. (i.e. Ceanothus spp, California Liliac, Low, 0.2);

**(D)** Plants shall be selected and planted appropriately based upon their adaptability to the climatic, geologic, and topographical conditions of the project site. Methods to achieve water efficiency shall include one or more of the following:

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.

**(E)** 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).

**(F)** High water use plants, characterized by a plant factor of 0.7 to 1.0, are prohibited in street medians.

### Plant Material continued

**(G)** 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 429 (a) and (b). Avoid fire-prone plant materials and highly flammable mulches. Refer to the local Fuel Modification Plan guidelines

**(H)** The use of invasive plant species, such as those listed by the California Invasive Plant Council, is discouraged.

**(I)** 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 such as swimming pools, fountains, ponds, etc. shall be calculated at the WUCOLS highest plant factor range number for the hydrozone area in the water budget calculation.

**(D)** Pool and spa covers are highly recommended.

(Section 3 *Soil Preparation, Mulch and Amendments* continued on next page)

## (3) Soil Preparation, Mulch and Amendments

**(A)** Prior to the planting of any materials, compacted soils shall be transformed to a friable condition. On engineered slopes, only amended planting holes need meet this requirement.

**(B)** Soil amendments shall be incorporated according to recommendations of the soil report and what is appropriate for the plants selected.

**(C)** For landscape installations, compost at a rate of a minimum of four cubic yards per 1,000 square feet of permeable area shall be incorporated to a depth of six inches into the soil. Soils with greater than 6% organic matter in the top 6 inches of soil are exempt from adding compost and tilling.

**(D)** A minimum three inch (3") 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. To provide habitat for beneficial insects and other wildlife, up to 5 % of the landscape area may be left without mulch. Designated insect habitat must be included in the landscape design plan as such.

**(E)** Stabilizing mulching products shall be used on slopes that meet current engineering standards.

**(F)** The mulching portion of the seed/mulch slurry in hydro-seeded applications shall meet the mulching requirement.

**(G)** Organic mulch materials made from recycled or post-consumer shall take precedence over inorganic materials or virgin forest products unless the recycled post-consumer organic products are not locally available. Organic mulches are not required where prohibited by local Fuel Modification Plan Guidelines or other applicable local ordinances.

(Section 4 Stormwater Management and Rainwater Retention continued on next page)

## (4) Stormwater Management and Rainwater Retention

**(A)** Stormwater management practices minimize runoff and increase infiltration which recharges groundwater and improves water quality. Implementing stormwater best management practices into the landscape and grading design plans to minimize runoff and to increase on-site rainwater retention and infiltration are encouraged.

**(B)** Project applicants shall refer to the local agency or Regional Water Quality Control Board for information on any applicable stormwater technical requirements.

**(C)** All planted landscape areas are required to have friable soil to maximize water retention and infiltration.

**(D)** All new residential construction, new roof installations, patio covers and additions or when the building permit valuation for remodeling meets or exceeds twenty-five thousand dollars, a minimum of two fifty-gallon rain barrels shall be installed to capture roof rainwater runoff.

**(E)** It is strongly recommended that landscape areas be designed for capture and infiltration capacity that is sufficient to prevent runoff from impervious surfaces (i.e. roof and paved areas) from either: the one inch, 24-hour rain event or (2) the 85th percentile, 24-hour rain event, and/or additional capacity as required by any applicable local, regional, state or federal regulation.

**(F)** It is recommended that storm water projects incorporate the following elements to improve on-site storm water and dry weather runoff capture and use:

- Grade impervious surfaces, such as driveways, during construction to drain to vegetated areas.
- Minimize the area of impervious surfaces such as paved areas, etc.
- Incorporate pervious or porous surfaces (e.g., gravel, permeable pavers or blocks, pervious or porous concrete) that minimize runoff.
- Direct runoff from paved surfaces and roof areas into planting beds or landscaped areas to maximize site water capture and reuse.
- Incorporate rain gardens, cisterns, and other rain harvesting or catchment systems.
- Incorporate infiltration beds, swales, basins and drywells to capture storm water and dry weather runoff and increase percolation into the soil.
- Consider constructed wetlands and ponds that retain water, equalize excess flow, and filter pollutants.

## Irrigation Design Plan Checklist

This section applies to landscaped areas requiring permanent irrigation, not areas that require temporary irrigation solely for the plant establishment period. For the efficient use of water, pursuant to the Water Efficient Landscape and Irrigation Ordinance, an irrigation system shall meet all the requirements listed in this section. 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.

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

- ☐ location and size of separate water meters for landscape;
- ☐ 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;
- ☐ static water pressure at the point of connection to the public water supply;
- ☐ flow rate (gallons per minute), application rate (inches per hour) and design operating pressure (pressure per square inch) for each station;
- ☐ recycled water irrigation systems, if proposed, as specified in the El Monte Municipal Code;
- ☐ the following statement: "I have complied with the criteria of the Water Efficient Landscape Ordinance and applied them accordingly for the efficient use of water in the irrigation design plan;" and
- ☐ the signature of a licensed landscape architect, licensed landscape contractor or any other person authorized by law to design a landscape and irrigation plan for the project.

## Guidelines and Requirements

### (1) System

(A) Landscape water meters, defined as either a dedicated water service meter or private submeter, shall be installed for all non-residential irrigated landscapes of 1,000 sq. ft. but not more than 5,000 sq. ft. (the level at which *Water Code* 535 applies) and residential irrigated landscapes of 5,000 sq. ft. or greater. A landscape water meter may be either:

1. a customer service meter dedicated to landscape use provided by the local water purveyor; or
2. a privately owned meter or submeter.

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

(C) If the water pressure is below or exceeds the recommended pressure of the specified irrigation devices, the installation of a pressure regulating device is required 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 state, 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) Master shut-off valves are required on all projects except landscapes that make use of technologies that allow for the individual control of sprinklers that are individually pressurized in a system equipped with low pressure shut down features.

(F) 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.

(G) Backflow prevention devices shall be required to protect the water supply from contamination by the irrigation system. A project applicant shall refer to the City Water Division for additional backflow prevention requirements.

(H) Flow sensors that detect high flow conditions created by system damage or malfunction are required for all on non-residential landscapes and residential landscapes of 5000 sq. ft. or larger.

(I) 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.

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

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

(L) The irrigation system must be designed and installed to meet irrigation efficiency criteria as described in Chapter 17.11.080 - Water Efficient Landscape Worksheet of the El Monte Municipal Code, regarding the Maximum Applied Water Allowance.

(M) All irrigation emission devices must meet the requirements set in the American National Standards Institute (ANSI) standard, American Society of Agricultural and Biological Engineers'/International Code Council's (ASABE/ICC) 802-2014 "Landscape Irrigation Sprinkler and Emitter Standard, all sprinkler heads installed in the landscape must document a distribution uniformity low quarter of 0.65 or higher using the protocol defined in ASABE/ICC 802-2014.

(N) It is highly recommended that the project applicant 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.

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

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

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

(R) Swing joints or other riser-protections components are required on all risers subject to damage that are adjacent to hardscapes or in high traffic areas of turfgrass.

(S) Check valves or anti-drain valves are required an all sprinkler heads where low point drainage could occur.

(T) Areas less than ten (10) feet in width in any direction shall be irrigated with subsurface irrigation or other means that produces no runoff or overspray.

(U) 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 overspray or runoff occurs; or
2. The adjacent non-permeable surfaces are designed and constructed to drain entirely into 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 Chapter 17.11.110 Irrigation Design Plan of the El Monte Municipal Code. Prevention of overspray and runoff must be confirmed during irrigation audit.

(V) Slopes greater than 25% shall not be irrigated with an irrigation system with an application 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 irrigation audit.

(Section 2 *Hydrozone* continued on next page)

## (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 to facilitate the appropriate irrigation of trees. The mature size and extent of the root zone shall be considered when designing irrigation for the tree.

(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, designate the areas irrigated by each valve, and assign a number to each valve. Use this valve number in the Hydrozone Information Table in this application. This table can also assist with pre-inspection and final inspection of the irrigation system, and programming the controller.

## Grading Design Plan

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 a grading permit to grade over 50 cubic yards satisfies this requirement.

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

1. Height of graded slopes
2. Drainage patterns
3. Pad elevations
4. Finish grade; and
5. Stormwater retention improvements, if applicable.

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

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

(C) The grading design plan shall contain the following statement: "I have complied with the criteria of the State 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.

## Drainage Plan

If no grading is proposed, applicant shall include information showing elevations at two (2) foot contour intervals and direction of drainage flow through the site either on the landscape plan or on a separate drainage plan.

## Certificate of Completion – Submittal Checklist _____

**2 sets of the following items:**

- ☐ **Part 1 Certificate of Completion signed by property owner or designee (Appendix E)** (pg. 32-33)

- ☐ **Part 2 Certification of Installation signed by licensed contractor or landscape architect (Appendix C)** (pg. 30)
  - ☐ As-built drawings if there have been significant changes in the field
  - ☐ A diagram of the irrigation plan showing hydrozones shall be kept with the irrigation controller for subsequent management purposes

- ☐ **Part 3 Irrigation Scheduling parameters** (pg. 22-23)

- ☐ **Part 4 Landscape and Irrigation Maintenance Schedule** (pg. 25)

- ☐ **Part 5 Irrigation Audit Report – Certificate of Irrigation Audit (Appendix D)** (pg. 31)

- ☐ **Part 6 Soil Analysis and Management Report** (pg. 26)

## Irrigation Scheduling

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:

(A) Irrigation scheduling shall be consistent with the City of El Monte Water Conservation Measures. Contact Public Works Engineering Department for the most current information.

(B) Irrigation scheduling shall use automatic irrigation systems and evapotranspiration data such as those from the California Irrigation Management Information System (CIMIS).

(C) Irrigation shall be scheduled between 5:00 p.m. and 9:00 a.m. Operation of the irrigation system outside the normal watering window is allowed for auditing and system maintenance.

(D) For implementation of the irrigation schedule, attention must be paid to 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 based on current time reference evapotranspiration data or soil moisture sensor.

(E) Parameters used to set the controller shall be developed and submitted for each of the following:

1. the plant establishment period;
2. the established landscape; and
3. temporarily irrigated areas.

(F) Each irrigation schedule shall consider the following for each station:

1. irrigation interval (days between irrigation);
2. irrigation run times (hours or minutes per irrigation event to avoid runoff);
3. number of cycle starts required for each irrigation event to avoid runoff;
4. amount of applied water scheduled to be applied on a monthly basis;
5. application rate setting;
6. root depth setting;
7. plant type setting;
8. soil type;
9. slope factor setting;
10. shade factor setting; and
11. irrigation uniformity or efficiency setting.

## *Irrigation Schedule*

*Attach sheets as needed. Provide separate sheets for Establishment Period and Mature Planting schedules. For example, if irrigation time is increased during summer months, provide a summer schedule; if irrigation time is reduced during winter months, provide a winter schedule.*

Water Pressure at meter or at pressure reducer _____

Irrigation Controller Brand _____

Indicate Summer Schedule or Winter Schedule (circle one). *Provide separate sheets for each season if necessary.*

Indicate Establishment Period or Established-Mature Planting (circle one) *Provide separate schedules for each category.*

| Valve No. | Hydrozone type- high, med., low | Irrigation type (drip, low flow, etc.) | Mfr rated flow GPH | Application time period (minutes/day) | Total gallons =(GPH) x (1hr/60min) x (#minutes) | Days per week |
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| Valve No. | Hydrozone type- high, med., low | Irrigation type (drip, low flow, etc.) | Mfr rated flow GPH | Application time period (minutes/day) | Total gallons =(GPH) x (1hr/60min) x (#minutes) | Days per week |
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## Schedule of Landscape and Irrigation Maintenance

**A Landscape and Irrigation Maintenance Schedule is required.**

(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; auditing, adjustment and repair of the irrigation system and its components; aerating and dethatching turf areas; topdressing with compost, replenishing mulch; fertilizing; pruning; weeding in all landscape areas and removing obstructions to emission devices.

(C) Repair of all irrigation equipment should be done with the originally installed components or their equivalents or with components with greater efficiency.

(D) A project applicant is encouraged to implement established landscape industry sustainable best practices for all landscape maintenance activities.

## Irrigation Audit, Survey, and Water Use Analysis Report

(A) All landscape irrigation audits shall be conducted by a local agency landscape irrigation auditor or a third party certified landscape irrigation auditor. Landscape audits shall not be conducted by the person who designed the landscape or installed the landscape.

(B) In large projects or projects with multiple landscape installations (i.e. production home developments) an auditing rate of 1 in 7 lots or approximately 15% will satisfy this requirement.

(C) For new construction and rehabilitated landscape projects, the project applicant shall submit an irrigation audit report with the Certificate of Completion to the City that shall include but not be limited to: Inspection, system tune-up, system test with distribution uniformity, reporting overspray or run off that causes overland flow, verification of compliance with Maximum Applied Water Allowance and Estimated Total Water Use calculations, and preparation of an irrigation schedule including configuring irrigation controllers with application rate, soil types, plant factors, slope, exposure and any other factors necessary for accurate programming.

## Soil Analysis and Management Report

Attach soil management report, if not previously submitted with the Landscape Documentation Package. Attach documentation verifying implementation of recommendations from soil sample analysis report.

**Soil Management Report requirements:**

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:

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

1. Soil sampling shall be conducted in accordance with laboratory protocol, including protocols regarding adequate sampling depth for the intended plants.
2. The soil sample analysis may include:
   a. soil texture;
   b. infiltration rate determined by laboratory test or soil texture infiltration rate table;
   c. pH;
   d. total soluble salts;
   e. sodium;
   f. any soil leaching needed to remove salinity from the root zones; and
   g. recommendations

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

1. If significant mass grading is not planned, the soil management report shall be submitted to the local agency as part of the Landscape Documentation Package; or
2. If significant mass grading is planned, the soil management report shall be submitted to the City as part of the Certificate of Completion.

(C) The soil management 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.

(D) The project applicant, or his/her designee, shall submit documentation verifying implementation of soil management report recommendations to the City with Certificate of Completion.

## APPENDIX A – Prescriptive Compliance Option

(A) This appendix contains prescriptive requirements which may be used as a compliance option to the Model Water Efficient Landscape Ordinance.

(B) Compliance with the following items is mandatory and must be documented on a landscape plan in order to use the prescriptive compliance option:

1. Submit a Landscape Documentation Package which includes the following elements:
   (a) Date
   (b) project applicant
   (c) project address (if available, parcel and/or lot number(s))
   (d) total landscape area (square feet), including a breakdown of turf and plant material
   (e) project type (e.g., new, rehabilitated, public, private, cemetery, homeowner-installed)
   (f) water supply type (e.g., potable, recycled, well) and identify the local retail water purveyor if the applicant is not served by a private well
   (g) contact information for the project applicant and property owner
   (h) applicant signature and date with statement, "I agree to comply with the requirements of the prescriptive compliance option to the MWELO".
2. Incorporate compost at a rate of at least four cubic yards per 1,000 square feet to a depth of six inches into landscape area (unless contra-indicated by a soil test);
3. Plant material shall comply with all of the following;
   (a) For residential areas, *install climate adapted plants* that require occasional, little or no summer water (average WUCOLS plant factor 0.3 designated as 'L' - Low or 'VL' –Very Low Water Use on Attachment E) *for 75% of the plant area* excluding edibles and areas using recycled water; For non-residential areas, install climate adapted plants that require occasional, little or no summer water (average WUCOLS plant factor 0.3) for 100% of the plant area excluding edibles and areas using recycled water;
   (b) A minimum three inch (3″) 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.

4. Turf shall comply with all of the following:
   (a) Turf shall not exceed 25% of the landscape area in residential areas, and there shall be no turf in non-residential areas;
   (b) Turf shall not be planted on sloped areas which exceed a slope of 1 foot vertical elevation change for every 4 feet of horizontal length;
   (c) Turf is prohibited in parkways less than 10 feet wide, unless the parkway is adjacent to a parking strip and used to enter and exit vehicles. Any turf in parkways must be irrigated by sub-surface irrigation or by other technology that creates no overspray or runoff.

5. Irrigation systems shall comply with the following:
   (a) Automatic irrigation controllers are required and must use evaportranspiration or soil mouisture sensor data and utilize a rain sensor.
   (b) Irrigation controllers shall be of a type which does not lose programming data in the event the primary power source is interrupted.
   (c) Pressure regulators shall be installed on the irrigation system to ensure the dynamic pressure of the system is within the manufacturers recommended pressure range.
   (d) Manual shut-off valves (such as a gate valve, ball valve, or butterfly valve) shall be installed as close as possible to the point of connection of the water supply.
   (e) All irrigation emission devices must meet the requirements set in the ANSI standard, ASABE/ICC 802-2014. "Landscape Irrigation Sprinkler and Emitter Standard," All sprinkler heads installed in the landscape must document a distribution uniformity low quarter of 0.65 or higher using the protocol defined in ASABE/ICC 802-2014.
   (f) Areas less than ten (10) feet in width in any direction shall be irrigated with subsurface irrigation or other means that produces no runoff or overspray.
6. For non-residential projects with landscape areas of 1,000 sq. ft. or more, a private submeter(s) to measure landscape water use shall be installed.

(C) At the time of final inspection, the permit applicant must provide the owner of the property with a certificate of completion, certificate of installation, irrigation schedule and a schedule of landscape and irrigation maintenance.

**(End of Appendix A)**

## APPENDIX B – CERTIFICATION OF LANDSCAPE DESIGN

Project

Project address

Permit No.

I hereby certify that:

(1) I am a professional appropriately licensed in the State of California to provide professional landscape design services.

(2) The landscape design and water use calculations for the property located at _____ were prepared by me or under my supervision. (provide street address or parcel number(s))

(3) The landscape design and water use calculations for the identified property comply with the requirements of the City of El Monte Water Efficient Landscape Ordinance (Chapter 17.11 Water Efficiency of the El Monte Municipal Code) and the Landscape Documentation Package for Implementation of the City of El Monte Water Efficiency Ordinance .

(4) The information I have provided is true and correct and is hereby submitted in compliance with the Landscape Documentation Package for implementation of the City of the City of El Monte Water Efficiency Ordinance.

*Signature*

*Date*

*Print name*

*License Number*

Landscape Design Professional's Stamp

## APPENDIX C – CERTIFICATION OF INSTALLATION

Project

Project address

Permit No.

I hereby certify that:

(1) I am a professional appropriately licensed in the State of California to provide landscape services.

(2) The landscaping for the identified property have been installed by me or under my supervision in substantial conformance with the approved Water Efficient Landscape Documentation Application Package
   a. Plants installed as specified, including proper staking and root control boxes.
   b. Soils amended as noted in soils report.
   c. Irrigation system installed as designed and adjusted to site conditions with a distribution uniformity of at least 70% based on a field test.
   d. Reduced as-built plans in the controller(s).

(3) The information I have provided is true and correct and is hereby submitted in compliance with the Landscape Documentation Package for Implementation of the City of El Monte Water Efficiency Ordinance.

*Signature*

*Date*

*Print name*

*License Number*

Landscape Design Professional's Stamp (if appropriate)

## APPENDIX D – CERTIFICATION OF LANDSCAPE IRRIGATION AUDIT

Project

Project address

Permit No.

I hereby certify that:

(1) I am a professional appropriately licensed in the State of California to provide landscape irrigation auditing services.

(2) The landscaping and irrigation methods for the identified property have been installed per the landscape and irrigation design plans.

a. Plant material is installed as specified, with substitutes being of equivalent water need.

b. Irrigation system is adjusted to site conditions with a distribution uniformity of at least 70% based on a field test.

c. Irrigation system has no runoff, low head drainage, and over spray.

d. Dynamic water pressure at emission devices is

e. The irrigation system complies with the MAWA and ETWU calculations.

f. The irrigation controller program is consistent with the irrigation schedule.

(3) The information I have provided is true and correct and is hereby submitted in compliance with the Landscape Documentation Package for Implementation of the City of El Monte Water Efficiency Ordinance.

*Signature*

*Date*

*Print name*

*License Number*

Certified Auditor's Professional's Stamp (if appropriate)

# APPENDIX E – Certificate of Completion

**This certificate is filled out by the project applicant upon completion of the landscape project.**

## PART 1. PROJECT INFORMATION SHEET

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

### Project Address and Location:

| | | |
|---|---|---|
| Street Address | | Parcel, tract or lot number, if available. |
| City | | Latitude/Longitude (optional) |
| State | Zip Code | |

### Property Owner or his/her designee:

| | | |
|---|---|---|
| Name | Telephone No. | |
| | Fax No. | |
| Title | Email Address | |
| Company | Street Address | |
| City | State | Zip Code |

### Property Owner

"I/we certify that I/we have received copies of all the documents within the Landscape Documentation Package and the Certificate of Completion and that it is our responsibility to see that the project is maintained in accordance with the Landscape and Irrigation Maintenance Schedule."

_____

Property Owner Signature Date

**Please answer the questions below:**

1. Date the Landscape Documentation Package was submitted to the local agency_____
2. Date the Landscape Documentation Package was approved by the local agency_____
3. Date that a copy of the Water Efficient Landscape Worksheet (including the Water Budget Calculation) was submitted to the local water purveyor_____

## PART 2. CERTIFICATION OF INSTALLATION ACCORDING TO THE LANDSCAPE DOCUMENTATION PACKAGE

"I/we certify that based upon periodic site observations, the work has been 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.

## PART 3. IRRIGATION SCHEDULING

Attach parameters for setting the irrigation schedule on controller per ordinance Section 492.10.

## PART 4. SCHEDULE OF LANDSCAPE AND IRRIGATION MAINTENANCE

Attach schedule of Landscape and Irrigation Maintenance per ordinance Section 492.11.

## PART 5. LANDSCAPE IRRIGATION AUDIT REPORT

Attach Landscape Irrigation Audit Report per ordinance Section 492.12.

## PART 6. SOIL MANAGEMENT REPORT

Attach soil analysis report, if not previously submitted with the Landscape Documentation Package per ordinance Section 492.6.

Attach documentation verifying implementation of recommendations from soil analysis report per ordinance Section 492.6.

# Appendix F – Water Efficient Landscape Worksheet

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

## Reference Evapotranspiration (ETo) 50.2

| Hydrozone # /Planting Description[a] | Plant Factor (PF) | Irrigation Method[b] | Irrigation Efficiency (IE)[c] | ETAF (PF/IE) | Landscape Area (sq, ft,) | ETAF x Area | Estimated Total Water Use (ETWU)[d] |
|---|---|---|---|---|---|---|---|
| **Regular Landscape Areas** | | | | | | | |
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| | | | | Totals | (A) | (B) | |
| **Special Landscape Areas** | | | | | | | |
| | [redacted] | | | 1 | | | |
| | | | | 1 | | | |
| | | | | 1 | | | |
| | | | | 1 | | | |
| | | | | 1 | | | |
| | | | | Totals | (C) | (D) | |
| | | | | | | **ETWU Total** | |
| | | | | | | **Maximum Allowed Water Allowance (MAWA)[e]** | |

[a] ***Hydrozone #/Planting Description*** *E.g*
*1.) front lawn*
*2.) low water use plantings*
*3.) medium water use plantings*

[b] ***Irrigation Method***
*overhead spray or drip*

[c] ***Irrigation Efficiency***
*0.75 for spray head*
*0.81 for drip*

[d] ***ETWU*** **(Annual Gallons Required) =** *Eto x 0.62 x ETAF x Area*
where 0.62 is a conversion factor that converts acre-inches per acre per year to gallons per square foot per year.

[e] ***MAWA (Annual Gallons Allowed) =*** *(Eto) ( 0.62) [ (ETAF x LA) + ((1-ETAF) x SLA)]*
where 0.62 is a conversion factor that converts acre-inches per acre per year to gallons per square foot per year, LA is the total landscape area in square feet, SLA is the total special landscape area in square feet, and ETAF is .55 for residential areas and 0.45 for non-residential areas.

**ETAF Calculations on page 35**

# Water Efficient Landscape Worksheet (continued)

## Reference Evapotranspiration (ETo) 50.2

| Hydrozone # /Planting Description[a] | Plant Factor (PF) | Irrigation Method[b] | Irrigation Efficiency (IE)[c] | ETAF (PF/IE) | Landscape Area (sq, ft,) | ETAF x Area | Estimated Total Water Use (ETWU)[d] |
|---|---|---|---|---|---|---|---|
| **Regular Landscape Areas** | | | | | | | |
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| | | | | Totals | (A) | (B) | |
| **Special Landscape Areas** | | | | | | | |
| | [redacted] | | | 1 | | | |
| | | | | 1 | | | |
| | | | | 1 | | | |
| | | | | 1 | | | |
| | | | | 1 | | | |
| | | | | Totals | (C) | (D) | |
| | | | | | | **ETWU Total** | |
| | | | | | | **Maximum Allowed Water Allowance (MAWA)[e]** | |

**ETAF Calculations**

Regular Landscape Areas

| | |
|---|---|
| Total ETAF x Area | (B) |
| Total Area | (A) |
| **Average ETAF** | **B ÷ A** |

All Landscape Areas

| | |
|---|---|
| Total ETAF x Area | (B+D) |
| Total Area | (A+C) |
| **Sitewide ETAF** | **(B+D) ÷ (A+C)** |

**Average ETAF for Regular Landscape Areas must be 0.55 or below for residential areas, and 0.45 or below for non-residential areas.**

# Appendix G – Definitions

"applied water" means the portion of water supplied by the irrigation system to the landscape.

"automatic irrigation controller" means a timing device used to remotely control valves that operate an irrigation system. Automatic irrigation controllers are able to self-adjust and schedule irrigation events using either evapotranspiration (weather-based) or soil moisture data.

"backflow prevention device" means a safety device used to prevent pollution or contamination of the water supply due to the reverse flow of water from the irrigation system.

"Certificate of Completion" means the document required under Section 492.9.

"certified irrigation designer" means a person certified to design irrigation systems by an accredited academic institution, a professional trade organization or other program such as the US Environmental Protection Agency's WaterSense irrigation designer certification program and Irrigation Association's Certified Irrigation Designer program.

"certified landscape irrigation auditor" means a person certified to perform landscape irrigation audits by an accredited academic institution, a professional trade organization or other program such as the US Environmental Protection Agency's WaterSense irrigation auditor certification program and Irrigation Association's Certified Landscape Irrigation Auditor program.

"check valve" or "anti-drain valve" means a valve located under a sprinkler head, or other location in the irrigation system, to hold water in the system to prevent drainage from sprinkler heads when the sprinkler is off.

"common interest developments" means community apartment projects, condominium projects, planned developments, and stock cooperatives per Civil Code Section 1351.

"compost" means the safe and stable product of controlled biologic decomposition of organic materials that is beneficial to plant growth.

"conversion factor (0.62)" means the number that converts acre-inches per acre per year to gallons per square foot per year.

"distribution uniformity" means the measure of the uniformity of irrigation water over a defined area.

"drip irrigation" means any non-spray low volume irrigation system utilizing emission devices with a flow rate measured in gallons per hour. Low volume irrigation systems are specifically designed to apply small volumes of water slowly at or near the root zone of plants.

"ecological restoration project" means a project where the site is intentionally altered to establish a defined, indigenous, historic ecosystem

"effective precipitation" or "usable rainfall" (Eppt) means the portion of total precipitation which becomes available for plant growth.

"emitter" means a drip irrigation emission device that delivers water slowly from the system to the soil.

"established landscape" means the point at which plants in the landscape have developed significant root growth into the soil. Typically, most plants are established after one or two years of growth.

"establishment period of the plants" means the first year after installing the plant in the landscape or the first two years if irrigation will be terminated after establishment. Typically, most plants are established after one or two years of growth. Native habitat mitigation areas and trees may need three to five years for establishment.

"Estimated Total Water Use" (ETWU) means the total water used for the landscape as described in Section 492.4.

"Evapotranspiration adjustment factor" (ETAF) means a factor of 0.55 for residential areas and 0.45 for non-residential areas, that, when applied to reference evapotranspiration, adjusts for plant factors and irrigation efficiency, two major influences upon the amount of water that needs to be applied to the landscape. The ETAF for new and existing (non-rehabilitated) Special Landscape Areas shall not exceed 1.0. The ETAF for existing non-rehabilitated landscapes is 0.8.

"evapotranspiration rate" means the quantity of water evaporated from adjacent soil and other surfaces and transpired by plants during a specified time.

"flow rate" means the rate at which water flows through pipes, valves and emission devices, measured in gallons per minute, gallons per hour, or cubic feet per second.

"flow sensor" means an inline device installed at the supply point of the irrigation system that produces a repeatable signal proportional to flow rate. Flow sensors must be connected to an automatic irrigation controller, or flow monitor capable of receiving flow signals and operating master valves. This combination flow sensor/controller may also function as a landscape water meter or submeter.

"friable" means a soil condition that is easily crumbled or loosely compacted down to a minimum depth per planting material requirements, whereby the root structure of newly planted material will be allowed to spread unimpeded.

"Fuel Modification Plan Guideline" means guidelines from a local fire authority to assist residents and businesses that are developing land or building structures in a fire hazard severity zone.

"graywater" means untreated wastewater that has not been contaminated by any toilet discharge, has not been affected by infectious, contaminated, or unhealthy bodily wastes, and does not present a threat from contamination by unhealthful processing, manufacturing, or operating wastes. "Graywater" includes, but is not limited to, wastewater from bathtubs, showers, bathroom washbasins, clothes washing machines, and laundry tubs, but does not include wastewater from kitchen sinks or dishwashers. Health and Safety Code Section 17922.12.

"hardscapes" means any durable material (pervious and non-pervious).

"hydrozone" means a portion of the landscaped area **having** plants with similar water needs and rooting depth. A hydrozone may be irrigated or non-irrigated.

"infiltration rate" means the rate of water entry into the soil expressed as a depth of water per unit of time (e.g., inches per hour).

"invasive plant species" means species of plants not historically found in California that spread outside cultivated areas and can damage environmental or economic resources. Invasive species may be regulated by county agricultural agencies as noxious species. Lists of invasive plants are maintained at the California Invasive Plant Inventory and USDA invasive and noxious weeds database.

"irrigation audit" means an in-depth evaluation of the performance of an irrigation system conducted by a Certified Landscape Irrigation Auditor. An irrigation audit includes, but is not limited to: inspection, system tune-up, system test with distribution uniformity or emission uniformity, reporting overspray or runoff that causes overland flow, and preparation of an irrigation schedule. The audit must be conducted in a manner consistent with the Irrigation Association's Landscape Irrigation Auditor Certification program or other U.S. Environmental Protection Agency "Watersense" labeled auditing program.

"irrigation efficiency" (IE) means the measurement of the amount of water beneficially used divided by the amount of water applied. Irrigation efficiency is derived from measurements and estimates of irrigation system characteristics and management practices. The irrigation efficiency for purposes of this ordinance are 0.75 for overhead spray devices and 0.81 for drip systems.

"irrigation survey" means an evaluation of an irrigation system that is less detailed than an irrigation audit. An irrigation survey includes, but is not limited to: inspection, system test, and written recommendations to improve performance of the irrigation system.

"irrigation water use analysis" means an analysis of water use data based on meter readings and billing data.

"landscape architect" means a person who holds a license to practice landscape architecture in the state of California Business and Professions Code, Section 5615.

"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).

"landscape contractor" means a person licensed by the state of California to construct, maintain, repair, install, or subcontract the development of landscape systems.

"Landscape Documentation Package" means the documents required under Section 492.3.

"landscape project" means total area of landscape in a project as defined in "landscape area" for the purposes of this ordinance, meeting requirements under Section 490.1.

"landscape water meter" means an inline device installed at the irrigation supply point that measures the flow of water into the irrigation system and is connected to a totalizer to record water use.

"lateral line" means the water delivery pipeline that supplies water to the emitters or sprinklers from the valve.

"local agency" means a city or county, including a charter city or charter county, that is responsible for adopting and implementing the ordinance. The local agency is also responsible for the enforcement of this ordinance, including but not limited to, approval of a permit and plan check or design review of a project.

"local water purveyor" means any entity, including a public agency, city, county, or private water company that provides retail water service.

"low volume irrigation" means the application of irrigation water at low pressure through a system of tubing or lateral lines and low-volume emitters such as drip, drip lines, and bubblers. Low volume irrigation systems are specifically designed to apply small volumes of water slowly at or near the root zone of plants.

"main line" means the pressurized pipeline that delivers water from the water source to the valve or outlet.

"master shut-off valve" is an automatic valve installed at the irrigation supply point which controls water flow into the irrigation system. When this valve is closed water will not be supplied to the irrigation system. A master valve will greatly reduce any water loss due to a leaky station valve.

"Maximum Applied Water Allowance" (MAWA) means the upper limit of annual applied water for the established landscaped area as specified in Section 492.4. It is based upon the area's reference evapotranspiration, the ET Adjustment Factor, and the size of the landscape area. The Estimated Total Water Use shall not exceed the Maximum Applied Water Allowance. Special Landscape Areas, including recreation areas, areas permanently and solely dedicated to edible plants such as orchards and vegetable gardens, and areas irrigated with recycled water are subject to the MAWA with an ETAF not to exceed 1.0. MAWA=(ETo)(0.62)[(ETAF x LA)+((1-ETAF) x SLA)]

"median" is an area between opposing lanes of traffic that may be unplanted or planted with trees, shrubs, perennials, and ornamental grasses.

"microclimate" means the climate of a small, specific area that may contrast with the climate of the overall landscape area due to factors such as wind, sun exposure, plant density, or proximity to reflective surfaces.

"mined-land reclamation projects" means any surface mining operation with a reclamation plan approved in accordance with the Surface Mining and Reclamation Act of 1975.

"mulch" means any organic material such as leaves, bark, straw, compost, or inorganic mineral materials such as rocks, gravel, and or decomposed granite left loose and applied to the soil surface for the beneficial purposes of reducing evaporation, suppressing weeds, moderating soil temperature, and preventing soil erosion.

"new construction" means, for the purposes of this ordinance, a new building with a landscape or other new landscape, such as a park, playground, or greenbelt without an associated building.

"non-residential landscape" means landscapes in commercial, institutional, industrial and public settings that may have areas designated for recreation or public assembly. It also includes portions of common areas of common interest developments with designated recreational areas.

"operating pressure" means the pressure at which the parts of an irrigation system are designed by the manufacturer to operate.

"overhead sprinkler irrigation systems" or "overhead spray irrigation systems" means systems that deliver water through the air (e.g., spray heads and rotors).

"overspray" means the irrigation water which is delivered beyond the target area.

"parkway" means the area between a sidewalk and the curb or traffic lane. It may be planted or unplanted, and with or without pedestrian egress.

"permit" means an authorizing document issued by local agencies for new construction or rehabilitated landscapes.

"pervious" means any surface or material that allows the passage of water through the material and into the underlying soil.

"plant factor" or "plant water use factor" is a factor, when multiplied by ETo, estimates the amount of water needed by plants. For purposes of this ordinance, the plant factor range for very low water use plants is 0 to 0.1, the plant factor range for low water use plants is 00.1 to 0.3, the plant factor range for moderate water use plants is 0.4 to 0.6, and the plant factor range for high water use plants is 0.7 to 1.0. Plant factors cited in this ordinance are derived from the publication "Water Use Classification of Landscape Species". Plant factors may also be obtained from horticultural researchers from academic institutions or professional associations as approved by the California Department of Water Resources (DWR).

"project applicant" means the individual or entity submitting a Landscape Documentation Package required under Section 492.3, to request a permit, plan check, or design review from the local agency. A project applicant may be the property owner or his or her designee.

"rain sensor" or "rain sensing shutoff device" means a component which automatically suspends an irrigation event when it rains.

"record drawing" or "as-builts" means a set of reproducible drawings which show significant changes in the work made during construction and which are usually based on drawings marked up in the field and other data furnished by the contractor.

"recreational area" means areas, excluding private single family residential areas, designated for active play, recreation or public assembly in parks, sports fields, picnic grounds, amphitheaters or golf course tees, fairways, roughs, surrounds and greens.

"recycled water," "reclaimed water," or "treated sewage effluent water" means treated or recycled waste water of a quality suitable for nonpotable uses such as landscape irrigation and water features. This water is not intended for human consumption.

"reference evapotranspiration" or "ETo" means a standard measurement of environmental parameters which affect the water use of plants. ETo is expressed in inches per day, month, or year, and is an estimate of the evapotranspiration of a large field of four- to seven-inch tall, cool-season grass that is well watered.
Reference evapotranspiration is used as the basis of determining the Maximum Applied Water Allowances so that regional differences in climate can be accommodated.

"Regional Water Efficient Landscape Ordinance" means a local Ordinance adopted by two or more local agencies, water suppliers and other stakeholders for implementing a consistent set of landscape provisions throughout a geographical region. Regional ordinances are strongly encouraged to provide a consistent framework for the landscape industry and applicants to adhere to.

"rehabilitated landscape" means any relandscaping project that requires a permit, plan check, or design review, meets the requirements of Section 490.1, and the modified landscape area is equal to or greater than 2,500 square feet.

"residential landscape" means landscapes surrounding single or multifamily homes.

"run off" means water which is not absorbed by the soil or landscape to which it is applied and flows from the landscape area. For example, run off may result from water that is applied at too great a rate (application rate exceeds infiltration rate) or when there is a slope.

"soil moisture sensing device" or "soil moisture sensor" means a device that measures the amount of water in the soil. The device may also suspend or initiate an irrigation event.

"soil texture" means the classification of soil based on its percentage of sand, silt, and clay.

"Special Landscape Area" (SLA) means an area of the landscape dedicated solely to edible plants, recreational areas, areas irrigated with recycled water, or water features using recycled water.

"sprinkler head" or "spray head" means a device which delivers water through a nozzle. "static water pressure" means the pipeline or municipal water supply pressure when water is not flowing.

"station" means an area served by one valve or by a set of valves that operate simultaneously.

"swing joint" means an irrigation component that provides a flexible, leak-free connection between the emission device and lateral pipeline to allow movement in any direction and to prevent equipment damage.

"submeter" means a metering device to measure water applied to the landscape that is installed after the primary utility water meter.

"turf" means a ground cover surface of mowed grass. Annual bluegrass, Kentucky bluegrass, Perennial ryegrass, Red fescue, and Tall fescue are cool-season grasses. Bermudagrass, Kikuyugrass, Seashore Paspalum, St. Augustinegrass, Zoysiagrass, and Buffalo grass are warm-season grasses.

"valve" means a device used to control the flow of water in the irrigation system.

"water conserving plant species" means a plant species identified as having a very low or low plant factor.

"water feature" means a design element where open water performs an aesthetic or recreational function. Water features include ponds, lakes, waterfalls, fountains, artificial streams, spas, and swimming pools (where water is artificially supplied). The surface area of water features is included in the high water use hydrozone of the landscape area. Constructed wetlands used for on-site wastewater treatment or stormwater best management practices that are not irrigated and used solely for water treatment or stormwater retention are not water features and, therefore, are not subject to the water budget calculation.

"watering window" means the time of day irrigation is allowed.

"WUCOLS" means the Water Use Classification of Landscape Species published by the University of California Cooperative Extension, and the Department of Water Resources 2014.

**END OF LANDSCAPE DOCUMENTATION PACKAGE**

**(August 2016 update)**