

Mayor
JOSEPH V. AGUIRRE
City Administrator
TROY L. BUTZLAFF, ICMA-CM



Councilmembers:
SCOTT W. NELSON
CONSTANCE UNDERHILL
GREG SOWARDS
JEREMY B. YAMAGUCHI

401 East Chapman Avenue - Placentia, California 92870

January 27, 2010

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

Re: Submittal of adopted water efficient landscape ordinance

Dear Mr. Eching:

At its meeting on November 17, 2009, the City Council of the City of Placentia approved the Ordinance No. 0-2009-15, adding to Chapter 23.77 of the Placentia Municipal Code regarding the adoption of a water efficient landscape ordinance. Enclosed is copy of this Ordinance for your review.

As you are aware, in 2006, Governor Schwarzenegger signed Assembly Bill 1881 (Laird, Water Conservation) amending the Water Conservation in the Landscape Act (Act). The bill required two new things: 1) DWR is to update the original Model Water Efficient Landscape Ordinance; and 2) cities and counties are to update local Landscape Ordinances by January 1, 2010 so that they are "at least as effective as" DWR's updated Model Ordinance.

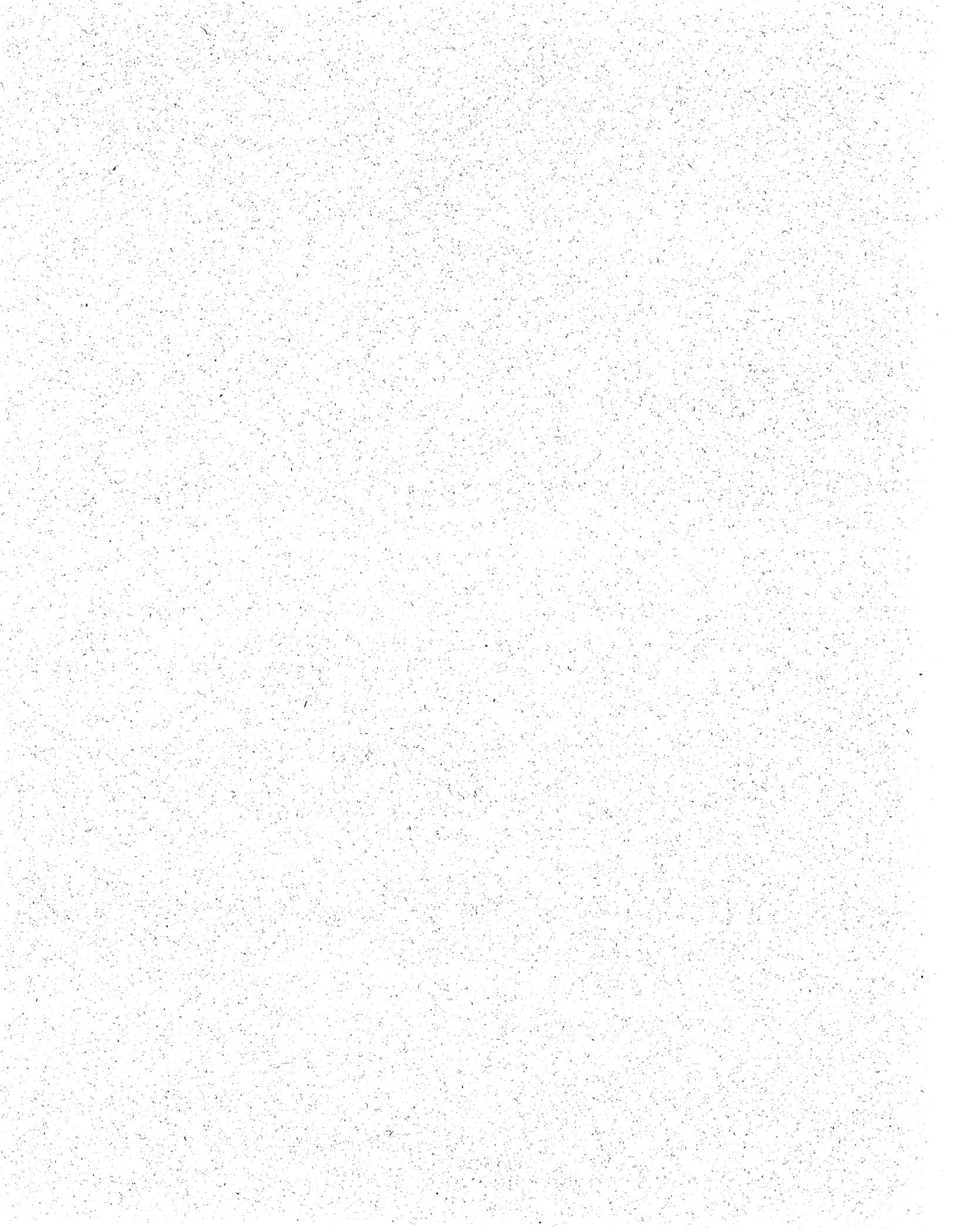
In response to the new landscape water efficiency requirements, a stakeholder group was formed under the leadership of the Municipal Water District of Orange County and the Orange County Division of the League of California Cities. The stakeholder group included representatives from the county, cities, local water agencies, Building Industries Association, Orange County Fire Authority, irrigation consultants, landscape architects, and other green industry professionals. The stakeholder group developed a locally-crafted Orange County Model Water Efficient Landscape Ordinance (OC Model Ordinance) that will meet the "at least as effective as" requirement of state law. City of Placentia Ordinance No. 0-2009-15 is consistent with the OC Model Ordinance.

Additionally attached, you will find a document identifying the significant differences between the OC Model Ordinance and the State Model Ordinance, and providing justification for how the OC Model Ordinance is "at least as effective" as the State's Model Ordinance. Please feel free to contact me at the number below should you have any questions.

Sincerely,

Robert H. Makowski Jr.
Environmental Compliance Officer

City of Placentia, Department of Public Works and Engineering
-Phone 714 993-8131-



ORDINANCE NO. O-2009-15

AN ORDINANCE OF THE CITY COUNCIL OF THE CITY OF PLACENTIA AMENDING CHAPTER 23.77 OF TITLE 23 OF THE PLACENTIA ZONING ORDINANCE PERTAINING TO XERISCAPE AND LANDSCAPE WATER CONSERVATION STANDARDS.

City Attorney's Summary

This Ordinance amends Chapter 23.77 of Title 23 of the Placentia Municipal Code pertaining to xeriscape requirements and water efficient landscape design, installation, maintenance and management in the City of Placentia pursuant to the requirements of California Government Code § 65595 and provides for the adoption, by Administrative Regulation, of guidelines for implementation thereof.

A. Recitals.

(i) The Legislature has determined that it is the policy of the State of California to promote the conservation and efficient use of water and to prevent the waste of this valuable resource.

(ii) This City Council concurs in that legislative determination and further finds that landscapes are essential to the quality of life in the City by providing areas for active and passive recreation and as an enhancement to the environment by cleaning air and water, preventing erosion, offering fire protection and replacing ecosystems lost to development.

(iii) Landscape design, installation, maintenance, and management can and should be water efficient.

(iv) Incentive-based water use efficiency programs have been actively implemented within Orange County since before 1991.

(v) Current local design practices in new landscapes typically achieve the State Model Water Efficient Landscape Ordinance water use goals and all water services within the City are metered.

(vi) Landscape plan submittal and review has been a long standing practice in Placentia since the average rainfall in the City is approximately 12 inches per year.

(vii) The local water purveyor are implementing a budget- based tiered-rate billing and/or enforcement of water waste prohibitions for all existing metered landscaped areas throughout its service area, which includes the City.

(viii) Consistent with these findings, the purpose of this Ordinance is to establish an alternative model acceptable under California Government Code § 65595 as being at least as effective as the State Model Water Efficient Landscape Ordinance in the context of conditions in the City in order to promote the benefits of consistent landscape ordinances with neighboring local and regional agencies; promote the values and benefits of landscapes while recognizing the need to invest water and other resources as efficiently as possible; establish a structure for planning, designing, installing, and maintaining and managing water efficient landscapes in new construction and rehabilitated projects; establish provisions for water management practices and water waste prevention for existing landscapes; use water efficiently without waste by setting a Maximum Applied Water Allowance as an upper limit for water use and reduce water use to the lowest practical amount; and encourage the use of economic incentives that promote the efficient use of water, such as implementing a budget-based tiered-rate structure.

(ix) On November 10, 2009, the Planning Commission of the City of Placentia conducted and concluded a duly noticed public hearing, as required by law, concerning amendments to the provisions of Chapter 23.77 of Title 23 of the Placentia Municipal Code, as heretofore adopted, (the Placentia Zoning Ordinance) set forth hereinafter and recommended, by its Resolution No. R-2009-11 that the City Council adopt said amendments.

(x) On November 24, 2009, this City Council conducted and concluded a duly noticed public hearing, as required by law, concerning the amendments to the Placentia Zoning Ordinance set forth below.

(xi) All legal prerequisites to the adoption of this Ordinance have occurred.

B. Ordinance.

NOW, THEREFORE, the City Council of the City of Placentia does hereby find, determine and ordain as follows:

SECTION 1. In all respects, as set forth in the Recitals, Part A, of this Ordinance.

SECTION 2. The City Council hereby determines that this Ordinance is exempt from review under the California Environmental Quality Act of 1970, as amended, the Guidelines promulgated thereunder pursuant to § 15307 of Division 6 of Title 14 of the California Code of Regulations and this Ordinance is an action taken to assure the maintenance, restoration, enhancement, or protection of a natural resource where the regulatory process involves procedures for protection of the environment. The adoption of this Ordinance will result in the enhancement and protection of water resources in the City and will not result in cumulative adverse environment impacts. It is therefore exempt from the provisions of CEQA. The City Council hereby directs the City Administrator or designee to prepare and file a Notice of Exemption as soon as possible following adoption of this Ordinance.

SECTION 3. Chapter 23.77 of Title 23 of the Placentia Municipal Code, hereby is amended to read, in words and figures, as follows:

"Chapter 23.77

"XERISCAPE AND WATER EFFICIENT LANDSCAPE ORDINANCE

"Sections:

"23.77.010	Purpose
"23.77.020	Definition
"23.77.030	Applicability
"23.77.040	Submittal of plans
"23.77.050	Xeriscape criteria
"23.77.060	Definitions
"23.77.070	Water Efficient Landscape Requirements - Applicability
"23.77.080	Implementation Procedures
"23.77.090	Landscape Water Use Standards
"23.77.100	Delegation

"Section 23.77.010 - Purpose

"The purpose of this chapter is to reduce the consumption of water in a landscape through the use of xeriscape principles and to implement water efficient landscape requirements pursuant to the requirements of California Government Code § 65595.

"23.77.020 - Definition of Xeriscape

"'Xeriscape' means a combination of landscaping and irrigation techniques which reduce the demand for water required to maintain a given landscape. The primary techniques are:

"A. Use of water-conserving plants;

"B. Minimum amount of turf (grass area);

"C. Plants grouped based on watering needs;

"D. Irrigation system designed to meet the needs of the plants in the landscape.

"23.77.030 - Applicability

"New developments, including move-ons, in all commercial, industrial and multiple-family districts and model homes for new projects in single-family districts shall be required to submit plans which comply with the provisions of this chapter.

"23.77.040 - Submittal of plans

"Both landscape and irrigation plans shall be submitted for plan check and approval by the department of development services. Landscape and irrigation plans shall be prepared by a licensed California landscape architect; irrigation plan may be prepared by a professional irrigation consultant. In the case of HCD defined affordable housing of four (4) units or less, the director of development services may permit plan to be designed by an alternate landscape professional. A list of water-conserving plants and/or plants native to hot/dry summers shall be kept on file with the development services department and made available for reference upon request.

"A. Landscape plans shall include the following:

"(1) Type, location and quantity of all species of plants utilized in the landscape including the percentage of low water use plants;

"(2) The type of and percentage of turf;

"(3) The location, percentage and types of mulch utilized;

"(4) A plant materials legend with both scientific and common names, quantity, size and descriptive remarks;

"(5) Planting notes and installation details.

"B. Irrigation plans shall include:

"(1) A system layout with the location of controllers and points of connection with data on valve sizes and gallons per minute (G.P.M.), the size and location of sleeves and all spray heads, including the location of conventional systems and drip systems;

"(2) An irrigation legend with complete specifications;

"(3) Irrigation notes and construction details of all assemblies and components;

"(4) A recommended irrigation schedule, preferably on an annual basis.

"A summary block shall be required on the initial page of submitted plans which will present the above information clearly and accurately.

"23.77.050 - Xeriscape criteria

"Landscape and irrigation plans shall be reviewed for compliance with the xeriscape criteria. These comprise a point system with points awarded for both landscape and irrigation techniques. A total of one hundred (100) points shall be achieved in each technique category to obtain a landscaping/irrigation permit.

"Landscape technique	Points
"Water conserving plants, and/or plants native to hot/dry summers, utilized in seventy-five (75) percent of the total plant area of the landscape.	40
"Turf limited to thirty (30) percent of the total landscape area in residential projects; twenty (20) percent of the total landscape in all other projects. In no case shall turf make up more than fifty (50) percent of the total landscape.	30
"Plants in the landscape grouped based on the amount of water needed to sustain them.	20
"Mulch (wood chips, bark, manures, sawdust, etc.) utilized in the landscape. Two (2) inches minimum, three (3) inches preferred.	10
"Hardscape, or nonirrigated surfaces used in at least ten (10) percent of the total landscape.	10
"Where turf is utilized, the use of a proven water-conserving turf.	10
"Irrigation technique	Points
"Low-water volume irrigation system.	40
"Automatic irrigation system adjusted seasonally (watering hours between 7:00 p.m. and 10:00 a.m.)	30
"Irrigation system designed to water different areas of the landscape based on watering need. (Drip/trickle system for shrubs, etc.)	20
"Use of reclaimed or recycled water in accordance with health and safety codes.	10
"Soil moisture sensor used in conjunction with the automatic irrigation system.	10
"Rain sensors used in conjunction with the automatic irrigation system.	10

"Additional comparable points (not to exceed twenty (20)) may be awarded for the use of any water-conserving method not listed above which the department of development services finds to be in accord with the purposes of this chapter.

"23.77.060 - Definitions

"The following definitions are applicable to this chapter:

"*'Applied water'* means the portion of water supplied by the irrigation system to the landscape.

"*'Budget-based tiered-rate structure'* means tiered or block rates for irrigation accounts charged by the retail water agency in which the block definition for each customer is derived from lot size or irrigated area and the evapotranspiration requirements of landscaping.

"*'Ecological restoration project'* means a project where the site is intentionally altered to establish a defined, indigenous, historic ecosystem.

"*'Estimated Applied Water Use'* means the average annual total amount of water estimated to be necessary to keep plants in a healthy state, calculated as provided in the Guidelines. It is based on the reference evapotranspiration rate, the size of the landscape area, plant water use factors, and the relative irrigation efficiency of the irrigation system.

"*'ET adjustment factor'* (*'ETAF'*) is equal to the plant factor divided by the irrigation efficiency factor for a landscape project, as described in the Guidelines. The ETAF is calculated in the context of local reference evapotranspiration, using site-specific plant factors and irrigation efficiency factors that influence the amount of water that needs to be applied to the specific landscaped area.

"A combined plant mix with a site-wide average plant factor of 0.5 (indicating a moderate water need) and average irrigation efficiency of 0.71 produces an ET adjustment factor of $(0.7) = (0.5/0.71)$, which is the standard of water use efficiency generally required by this Water Efficient Landscape Ordinance and the Guidelines, except that the ETAF for a special landscape area shall not exceed 1.0.

"*Guidelines*" refers to the Administrative Regulations adopting '*Guidelines for Implementation of the Xeriscape and Water Efficient Landscape Ordinance*,' as adopted by the City, which describes procedures, calculations, and requirements for landscape projects subject to this chapter.

"*Hardscapes*" means any durable material or feature (pervious and non-pervious) installed in or around a landscaped area, such as pavements or walls. Pools and other water features are considered part of the landscaped area and not considered hardscapes for purposes of this chapter.

"*Homeowner installed landscape*" means any landscaping either installed by a private individual for a single family residence or installed by a licensed contractor hired by a homeowner. A homeowner, for purposes of this ordinance, is a person who occupies the dwelling he or she owns. This definition excludes speculative homes, which are not owner-occupied dwellings and which are subject under this chapter to the requirements applicable to developer-installed residential landscape projects.

"*Irrigation efficiency*" 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 minimum average irrigation efficiency for purposes of this chapter is 0.71. Greater irrigation efficiency can be expected from well designed and maintained systems.

"*Landscaped area*" means all the planting areas, turf areas, and water features in a landscape design plan subject to the Maximum Applied Water Allowance and Estimated Applied Water Use calculations. The landscaped 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 to be provided to the City for review and approval of landscape design projects, as described in the Guidelines.

"*Landscape project*" means total area of landscape in a project, as provided in the definition of *'landscaped area,'* meeting the requirements under § 23.77.070 of this chapter.

"*Local agency*" means a city or county, including a charter city or charter county, that is authorized by the City to implement, administer, and/or enforce any of the provisions of this chapter on behalf of the City. The local agency may be responsible for the enforcement or delegation of enforcement of this chapter including, but not limited to, design review, plan check, issuance of permits, and inspection of a landscape project.

"*Local water purveyor*" means any entity, including a public agency, city, county, or private water company that provides retail water service within the jurisdictional boundaries of the City, as the same now exist or as may be modified in future.

"*Maximum Applied Water Allowance*" (*'MAWA'*) means the upper limit of annual applied water for the established landscaped area as specified in Section 2.2 of the Guidelines. It is based upon the area's reference evapotranspiration, the ET Adjustment Factor, and the size of the landscaped area. The Estimated Applied Water Use shall not exceed the Maximum Applied Water Allowance.

"*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.

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

"*Non-pervious*" means any surface or natural material that does not allow for the passage of water through the material and into the underlying soil.

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

"*Permit*" means an authorizing document issued by local agencies for new construction or rehabilitated landscape.

"*Plant factor*" or *'plant water use factor'* is a factor, when multiplied by ETo, that estimates the amount of water needed by plants. For purposes of this chapter, the plant factor range for low water use plants is 0 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 chapter are derived from the California Department of Water Resources 2000 publication *'Water Use Classification of Landscape Species.'*

"*Recycled water*" or *'reclaimed water'* means treated or recycled waste water of a quality suitable for non-potable uses such as landscape irrigation and water features. Such 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 given expressed in inches per day, month, or year as represented in Appendix A of the Guidelines, 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.

"*Rehabilitated landscape*" means any re-landscaping project that meets the applicability criteria of § 23.77.070.A, where the modified landscape area is greater than 2,500 square feet, is 50% of the total landscape area, and the modifications are planned to occur within one year.

"*Smart automatic irrigation controller*" means an automatic timing device used to remotely control valves that operate an irrigation system and which schedules irrigation events using either evapotranspiration (weather-based) or soil moisture data.

"*Special landscape area*" means an area of the landscape dedicated solely to edible plants such as orchards and vegetable gardens, areas irrigated with recycled water, water features using recycled water, and areas dedicated to active play such as parks, sports fields, golf courses, and where turf provides a playing surface.

"*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 an irrigation system.

"*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 landscaped area. Constructed wetlands used for on-site wastewater treatment, habitat protection or storm water best management practices that are not irrigated and used solely for water treatment or storm water retention are not water features and, therefore, are not subject to the water budget calculation.

"23.77.070 - Applicability

"A. Commencing January 1, 2010, all planting, irrigation, and landscape-related improvements required by this chapter shall apply to the following landscape projects:

"(1) New landscape installations or landscape rehabilitation projects by public agencies or private non-residential developers, except for cemeteries, with a landscaped area, including pools or other water features but excluding hardscape, equal to or greater than 2,500 square feet, and which are otherwise subject to a discretionary approval of a landscape plan, or which otherwise require a ministerial permit for a landscape or water feature;

"(2) New landscape installations or landscape rehabilitation projects by developers or property managers of single-family and multi-family residential projects or complexes with a landscaped area, including pools or other water features but excluding hardscape, equal to or greater than 2,500 square feet, and which are otherwise subject to a discretionary approval of a landscape plan, or which otherwise require a ministerial permit for a landscape or water feature;

"(3) new landscape installation projects by individual homeowners on single-family or multi-family residential lots with a total project landscaped area, including pools or other water features but excluding hardscape, equal to or greater than 5,000 square feet, and which are otherwise subject to a discretionary approval of a landscape plan, or which otherwise require a ministerial permit for a landscape or water feature;

"(4) Section 23.77.090 of this chapter shall apply to all landscaped areas installed after January 4, 2010 to which § 23.77.090 is applicable.

B. "This chapter 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.

"23.77.080 - Implementation Procedures

"A. Prior to installation, a Landscape Documentation Package shall be submitted to the City for review and approval of all landscape projects subject to the provisions of this chapter. Any Landscape Documentation Package submitted to the City shall comply with the provisions of the Guidelines.

"B. The Landscape Documentation Package shall include a certification by a professional appropriately licensed in the State of California stating that the landscape design and water use calculations have been prepared by or under the supervision of the licensed professional and are certified to be in compliance with the provisions of this chapter and the Guidelines.

"C. Landscape and irrigation plans shall be submitted to the City for review and approval with appropriate water use calculations. Water use calculations shall be consistent with calculations contained in the Guidelines and shall be provided to the local water purveyor, as appropriate, under procedures determined by the City

"D. Verification of compliance of the landscape installation with the approved plans shall be obtained through a Certification of Completion in conjunction with a Certificate of Use and Occupancy or Permit Final process, as provided in the Guidelines.

"23.77.090 - Landscape Water Use Standards

"A. For applicable landscape installation or rehabilitation projects subject to Section 1.1(a) of this Water Efficient Landscape Ordinance, the Estimated Applied Water Use allowed for the landscaped area shall not exceed the MAWA calculated using an ET adjustment factor of 0.7, except for special landscaped areas where the MAWA is calculated using an ET adjustment factor of 1.0; or the design of the landscaped area shall otherwise be shown to be equivalently water-efficient in a manner acceptable to the City; as provided in the Guidelines.

"B. Irrigation of all landscaped areas shall be conducted in a manner conforming to the rules and requirements, and shall be subject to penalties and incentives for water conservation and water waste prevention as determined and implemented by the local water purveyor or as mutually agreed by local water purveyor and the local agency.

"23.77.100 - Delegation.

"The City may delegate to, or into a contract with, a local agency to implement, administer, and/or enforce any of the provisions of this chapter on behalf of the City."

Section 6. Penalty for Violation.

It shall be unlawful for any person, firm, partnership or corporation to violate any provision or to fail to comply with any of the requirements of this Ordinance hereby adopted or the guidelines adopted pursuant to this Ordinance. Any person, firm, partnership or corporation violating any provision of this Ordinance or failing to comply with any of its requirements or

the guidelines adopted pursuant to this Ordinance shall be deemed guilty of a misdemeanor and upon conviction thereof shall be punished by a fine not exceeding One Thousand Dollars (\$1,000.00), or by imprisonment not exceeding six (6) months, or by both such fine and imprisonment. Each and every person, firm, partnership, or corporation shall be deemed guilty of a separate offense for each and every day or any portion thereof during which any violation of any of the provisions of this Ordinance or the guidelines adopted pursuant to this Ordinance is committed, continued or permitted by such person, firm, partnership or corporation, and shall be deemed punishable therefor as provided in this Ordinance.

Section 7. Civil Remedies Available.

The violation of any of the provisions of this Ordinance hereby adopted shall constitute a nuisance and may be abated by the City through civil process by means of restraining order, preliminary or permanent injunction or in any other manner provided by law for the abatement of such nuisances.

Section 8. Severability.

The City Council declares that, should any provision, section, paragraph, sentence or word of this Ordinance be rendered or declared invalid by any final court action in a court of competent jurisdiction, or by reason of any preemptive legislation, the remaining provisions, sections, paragraphs, sentences and words of this Ordinance shall remain in full force and effect.

SECTION 9. The Mayor shall sign and the City Clerk shall certify to the passage and adoption of this Ordinance and shall cause the same, or the summary thereof, to be published and posted pursuant to the provisions of law and this Ordinance shall take effect thirty (30) days after passage.

PASSED and ADOPTED this 1st day of December, 2009.


JOSEPH V. AGUIRRE, MAYOR

ATTEST:

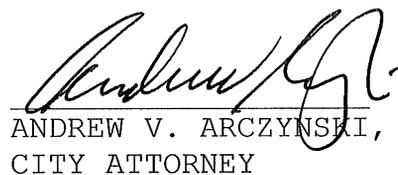

PATRICK J. MELIA, CITY CLERK

I, PATRICK J. MELIA, City Clerk of the City of Placentia, do hereby certify that the foregoing Ordinance was introduced at a regular meeting of the City Council held on the 17th day of November, 2009 and was finally adopted at a regular meeting held on the 1st day of December, 2009, by the following vote:

AYES: COUNCILMEMBERS: NELSON, UNDERHILL, YAMAGUCHI, AGUIRRE
NOES: COUNCILMEMBERS: NONE
ABSENT: COUNCILMEMBERS: SOWARDS
ABSTAIN: COUNCILMEMBERS: NONE


PATRICK J. MELIA, CITY CLERK

APPROVED AS TO FORM


ANDREW V. ARCZYNSKI,
CITY ATTORNEY





Placentia City Council

AGENDA REPORT

TO: CITY COUNCIL

VIA: CITY ADMINISTRATOR

FROM: ASSISTANT CITY ADMINISTRATOR

DATE: DECEMBER 1, 2009

SUBJECT: SECOND READING AND ADOPTION OF AN ORDINANCE AMENDING CHAPTER 23.77 OF TITLE 23 OF THE PLACENTIA ZONING ORDINANCE PERTAINING TO XERISCAPE AND LANDSCAPE WATER CONSERVATION STANDARDS.

FINANCIAL
IMPACT: NONE

INTRODUCTION:

The public hearing, first reading, and introduction of Ordinance No. O-2009-15 was held at the November 17, 2009, City Council meeting and approved by a 4-0 vote (Mayor Sowards absent).

RECOMMENDATION:

It is recommended that the City Council conduct the Second Reading and Adopt Ordinance No. O-2009-15, An Ordinance of the City Council of the City of Placentia Amending Chapter 23.77 of Title 23 of the Placentia Zoning Ordinance Pertaining to Xeriscape and Landscape Water Conservation Standards.

DISCUSSION:

The State of California, through legislation enacted by the passage of Assembly Bill 1881, requires each city and county to enact a landscape water conservation ordinance prior to January 1, 2010 that is at least as effective as the State model ordinance. In an effort led by the Orange County Division, League of California Cities, Municipal Water District of Orange County, OC Building Industry Association, Orange County Fire Authority and representatives from OC cities, an Orange County model ordinance was produced for consideration by Orange County cities. This "locally derived" model ordinance is as least as effective as the State model ordinance but is significantly more user friendly and with less impact to our residents.

Agenda Item: **CC 8.**
Meeting Date: **December 1, 2009**

Analysis of New Requirements

In evaluating the requirements of the new state Model Water Efficient Landscape Ordinance (State Model), significant differences between the new requirements and current regulations have been identified. The new requirements include the following:

1. Reduces the irrigated area compliance threshold from one acre to 2,500 square feet for developer-installed projects, public agency projects, and private development projects requiring a building or landscape permit, plan check, or design review.
2. Now requires homeowner-provided or homeowner-hired projects exceeding 5,000 square feet of irrigated area to acquire a building or landscape permit, plan check, or design review.
3. Collaboration between cities, counties, and water purveyors is now strongly encouraged in the development and implementation of water efficient landscape ordinances.
4. Local ordinances must now be "at least as effective as" the State Model and documented "on the record."
5. Jurisdictions must now utilize evapo-transpiration based "Maximum Applied Water Allowance" (MAWA) rates of 0.7 instead of 1.0. The use of the new MAWA rate represents a 30% reduction in water allocation for new landscapes.
6. Water purveyors are now required to offer landscape surveys and/or incentive programs targeting landscape irrigation efficiency for new and existing landscapes.
7. Local ordinances must now address smaller landscaping projects including single-family residential projects.
8. Local jurisdictions must now regulate existing landscapes for water waste.
9. A local agency may designate another agency, such as a water purveyor, to implement some or all of the requirements contained in the State Model.

In reviewing the requirements of the State Model, it appears that some of the steps may be duplicative or redundant to requirements already in place in Orange County, while other steps may be able to be repackaged to simplify the application process, depending on the scale of the proposed project. The comments received in the public dialogue meetings have emphasized local control and flexibility in the regulations to help avoid complexity, redundancy, and cost in the permitting process.

Guiding Principles for Orange County

The Division, in partnership with MWDOC, has developed an OC Model for Orange County cities. Input into this process was broad including city council members, city planning staff, water agency staff, Building Industry Association-members, irrigation consultants, landscape architects, and other green industry representatives. There were three broad policy principles that drove the Technical Drafting Committee:

- 1) To protect local control and mitigate the creation of increased layers of government and oversight.
 - a) While the State Model meets the requirements of the law, it goes a step further by including detailed and prescriptive language identifying how local agencies will meet targets. However, the law only requires that local agencies adopt an ordinance that is "at least as effective" as the State Model in reaching targets.
 - b) In addition, one size does not fit all. Many of the prescriptive measures in the State Model are not the most effective solutions for the diversity of ecological realities that exist between the various cities in Orange County. In the spirit of local land use decision making, we wanted cities to be able to adopt an ordinance relevant to its particular situation.
 - c) Using the State Model as a starting point, the OC Model separates the "what" from the "how," by creating a simple, clear model ordinance and a separate guidelines document that can be easily updated, edited, or augmented as a local agency sees fit for its particular situation.

- 2) To ensure as much simplicity, efficiency, and flexibility as possible.
 - a) The approach to protect local control also supports simplicity and efficiency. While the State Model is over 33-pages, the OC model is 11-pages, with a simple guidelines companion document. The customizable guidelines document provides flexibility to cities and can be easily updated as technologies and laws change.
 - b) The OC Model allows for self-certification, eliminating the need for additional layers of government and review, minimizes the cost of implementation, and yet allows cities to review in-house or out-source, if the self-certification option is not desired.
 - c) Because the OC Model reflects the minimum "at least as effective" requirements, it allows cities the flexibility to decide to implement more stringent requirements, or to add reference to methods and programs relative to their specific city in the guidelines document.

- 3) To provide for as much consistency among OC cities as possible, while mitigating the negative impacts that many different ordinances would have on the recovery of the building industry and the economy in general.
 - a) The OC Model provides consistency across the county. If a majority of OC cities adopt the OC Model, the negative impacts of many different ordinances and requirements will be mitigated, and cities will – in effect – help to promote the rebound of the building industry and jobs creation that is vital to our economy.
 - b) If a majority of OC cities adopt the OC Model, it will be easier to provide training and updates to cities in the future as technologies change and updated educational information becomes needed.

Proposed Orange County Approach

The State Model contained 33 pages of both policy issues and technical procedures. The approach taken by the Technical Drafting Committee was to separate the policy issues and technical procedures into two documents; the OC Model Ordinance and Guidelines respectively. This resulted in a succinct 11 page ordinance supported by a simple guidelines document. The local amendments proposed for Placentia include minor changes not impacting the ability to be as least as effective as the State requirements.

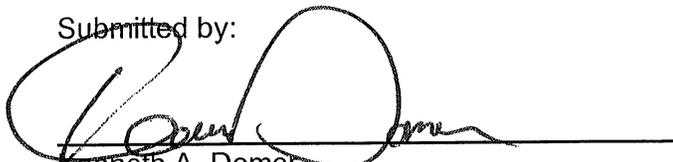
The cornerstone of the OC Model Ordinance and Guidelines is a self-certification process that will streamline the permitting process and reduce costs for applicants and local agencies. The self-certification includes two steps. First, the landscape designer will sign a Certification of Design, which includes their license number and/or professional stamp, stating that the landscape design is in conformance with the City ordinance and guidelines. The permit will not be issued unless the Landscape Documentation Package is complete, including this certification. Second, once construction of the landscape is complete, the installation contractor or designer will sign the Landscape Installation Certificate of Completion stating that the installation is complete and is in substantial conformance with the original plan. Once the Landscape Installation Certificate of Completion is accepted by the City, the permit will be completed. While this option has been established in the OC Model, some local agencies may choose the alternate approach of a formal plan check and design review.

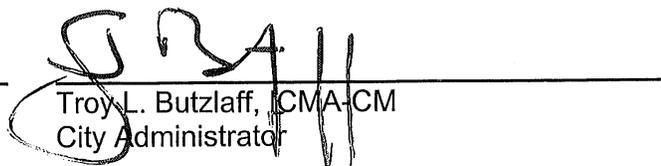
Summary

Overall, the impact to existing single-family residential properties in Placentia is extremely minimal given the square footage requirements. That is, the typical Placentia property is 7,000 square feet. The proposed ordinance requirements are that new landscape installation projects by individual homeowners on single-family or multi-family residential lots with a total project landscaped area, including pools or other water features, but excluding hardscape, be equal to or greater than 5,000 square feet in project size. Such a project must also be subject to a discretionary approval of a landscape plan or otherwise require a ministerial permit for a landscape or water feature. Accordingly, while the ordinance provides valuable guidance, it does not portend to negatively impact our residents due to the large project size triggering the requirements as compared to our typical residential lot.

Submitted by:

Reviewed and approved:


Kenneth A. Domei
Assistant City Administrator


Troy L. Butzlaff, CMA-CM
City Administrator

Attachment: Draft Ordinance 0-2009-15
Draft Water Conservation Guidelines



Placentia City Council

AGENDA REPORT

TO: CITY COUNCIL

VIA: CITY ADMINISTRATOR

FROM: ASSISTANT CITY ADMINISTRATOR

DATE: DECEMBER 1, 2009

SUBJECT: ADOPTION OF LANDSCAPE WATER CONSERVATION GUIDELINES.

FINANCIAL
IMPACT: NONE

INTRODUCTION:

The City Council held a Public Hearing and First Reading of an Ordinance pertaining to Xeriscape and Landscape Water Conservation Standards on November 17, 2009. The Second Reading and Adoption of said Ordinance is December 1, 2009. As part of the Ordinance, a taskforce comprised of the Orange County Division, League of California Cities, the Municipal Water District of Orange County (MWDOC), Building Industry Association, and cities and the County met to draft a model ordinance and a set of guidelines to help implement the State mandated requirements. This action will adopt City Council Policy 720 which are the implementing Landscape Water Conservation Guidelines.

RECOMMENDATION:

It is recommended that the City Council adopt Resolution R-2009-____, approving City Council Policy 720 pertaining to Xeriscape and Landscape Water Conservation Standards.

DISCUSSION:

In response to new landscape water efficiency requirements, a stakeholder group was formed under leadership of the Municipal Water District of Orange County (MWDOC) and the Orange County Division of the League of California Cities (the Division). The stakeholder group includes representatives from the county, cities, local water agencies, Building Industries Association (BIA), Orange County Fire Authority, irrigation consultants, landscape architects, and other green industry professionals. The goal of the stakeholder group was to develop a locally-crafted Orange County Model Water Efficient Landscape Ordinance and Guidelines that will meet the "at least as effective as" requirement of state law, minimize the complexity and cost of compliance, and provide consistency between local jurisdictions. Stakeholder meetings and technical writing sessions have taken place since June of 2009. These sessions produced an abbreviated OC Model and Guidelines for city consideration in pursuing adoption of their local ordinance.

The attached guidelines, as contained in City Council Policy No. 720, are to be adopted and are referenced within the Ordinance. As such, the policy may be amended as needed and brought back to the City Council as a change in the policy versus a change in the enabling Ordinance. All in all, the adoption of Policy No. 720 is resident and business friendly at the same time as

Agenda Item: **CC 10.**

Meeting Date: **December 1, 2009**

being as least as effective as the original State mandates. The Guidelines provide the technical documentation necessary to implement the Ordinance and serve as a reference to City staff, developers, and residential customers.

Summary

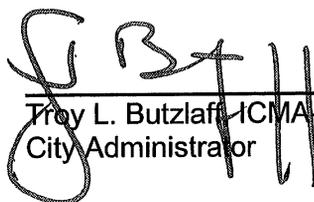
Overall, as discussed during the Public Hearing, the requirement for existing single-family residential properties in Placentia is extremely minimal given the square footage requirements. Adoption of the Guidelines provide specific guidance in the Ordinance and reduce the burden of adding multiple sections to the City's municipal code.

Prepared by:



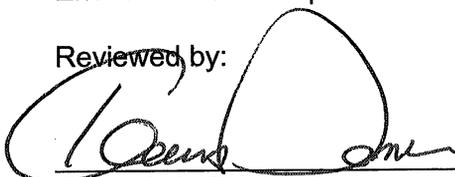
Robert Makowski
Environmental Compliance Officer

Reviewed and approved:



Troy L. Butzlaff, ICMA-CM
City Administrator

Reviewed by:



Kenneth A. Domer
Assistant City Administrator

Attachment: Draft Water Conservation Guidelines

RESOLUTION NO. R-2009-110

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF PLACENTIA ADOPTING XERISCAPE AND LANDSCAPE WATER CONSERVATION STANDARDS PURSUANT TO THE PROVISIONS OF ORDINANCE NO. O-2009-15.

A. Recitals.

(i) This City Council has recently adopted Ordinance No. O-2009-015, amending the provisions of Chapter 23-77 of the Placentia Municipal Code to reduce the consumption of water in a landscape through the use of xeriscape principles and to implement water efficient landscape requirements pursuant to the requirements of California Government Code § 65595.

(ii) In order to effectively implement the water efficient landscape requirements, City staff has prepared an administrative regulation captioned "Guidelines for Implementation of the Xeriscape and Water Efficient Landscape Ordinance," a full, true and correct copy of which is on file in the Office of the City Clerk.

(iii) The City Council desires to ensure that the Guidelines required for proper implementation of Chapter 23-77 are in effect concurrently with effective date of Ordinance No. O-2009-015.

(iv) All legal prerequisites to the adoption of this Resolution have occurred.

B. Resolution.

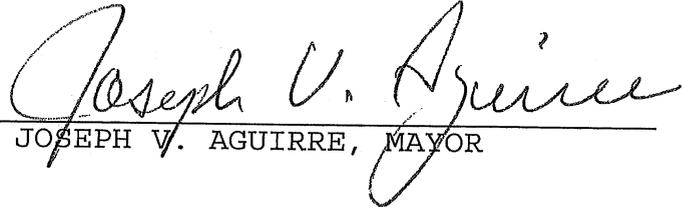
NOW, THEREFORE, THE CITY COUNCIL OF THE CITY OF PLACENTIA DOES HEREBY FIND, DETERMINE AND RESOLVE AS FOLLOWS:

1. In all respects as set forth in the Recitals, Part A., of this Resolution.

2. Pursuant to the provisions of Chapter 23-77 of the Placentia Municipal Code, those "Guidelines for Implementation of the Xeriscape and Water Efficient Landscape Ordinance," which are on file in the Office of the City Clerk and by this reference incorporated as though fully set forth herein, hereby are adopted to be effective January 4, 2010.

3. The City Administrator shall cause the "Guidelines for Implementation of the Xeriscape and Water Efficient Landscape Ordinance" to be included within the City of Placentia Policy Manual and shall cause copies of said Guidelines to be printed for use by those persons required to comply with the requirements of Chapter 23-77 and the Guidelines.

PASSED AND ADOPTED this 1st day of December, 2009.



JOSEPH V. AGUIRRE, MAYOR

ATTEST:



PATRICK J. MELIA, CITY CLERK

I, Patrick J. Melia, City Clerk of the City of Placentia, do hereby certify that the foregoing Resolution was adopted at a regular meeting of the City Council of the City of Placentia, held on the 1st day of December, 2009, by the following vote:

AYES: COUNCILMEMBERS: NELSON, UNDERHILL, YAMAGUCHI, AGUIRRE

NOES: COUNCILMEMBERS: NONE

ABSENT: COUNCILMEMBERS: SOWARDS

ABSTAIN: COUNCILMEMBERS: NONE



PATRICK J. MELIA, CITY CLERK

APPROVED AS TO FORM:



ANDREW V. ARCZYNSKI,
CITY ATTORNEY

Issues and Justifications for the differences between the OC Model and the State Model

In the process of drafting the OC Model Ordinance, the drafting committee sought ways of simplifying and streamlining the State Model while maintaining the requirement of being “at least as effective as” the State Model.

AB 1881 also required local agencies to include information in the record for any approval that designates the locally-approved alternative to the States Model as “equally effective” in conserving landscaping irrigation water. The appropriate action is suggested to utilize findings to establish the county’s position in the record. With one exception, no essential element of the States Model has been dropped, only re-organized to function more efficiently. The one exception is the States Model requests a Grading Design Plan for every application. The Orange County Grading Code and Grading Manual already provide appropriate and more stringent regulation for managing projects with significant grading elements.

This document identifies the significant differences between the OC Model and the State Model and provides justification for how the OC Model is “at least as effective” as the States Model.

Issue 1: Maximum Applied Water Allowance Calculation

Justification:

Calculation is simplified while still achieving “at least as effective” criteria. The State Model requires MAWA and Estimated Applied Water Use (EAWU) calculations for each valve installed in a landscape area. This requirement causes a significant amount of paperwork and labor and does not increase water efficiency in the landscape. By requiring MAWA and EAWU calculations for each meter rather than each valve, the calculations process is simplified while maintaining the “at least as effective” criteria of AB-1881.

Issue 2: Self Certification

2.4 Landscape Design Plan Section 13; 2.5 Irrigation Design Plan Section 7; 2.6 Grading Design Plan Section 3

Justification:

Self certification is performed by a licensed professional that is authorized to perform the tasks required in the Landscape Documentation Package. The licensed professionals certifying the

project have professional expertise necessary to ensure the project is “at least as effective” as the State Model. Self certification provides a cost effective method for cities to review plans without increasing the need for in-house technical expertise.

Issue 3: Option Boxes

Justification:

There are several billing structures currently implemented throughout the county, and it is necessary to accommodate the diverse rate structures. The OC Model includes option boxes allowing cities to choose the most applicable scenario.

Issue 4: Separation of Ordinance and Guidelines

Justification:

Implementing a new ordinance or updating an old one is a long and cumbersome process. Throughout the OC Model drafting process, city officials have stressed the importance of a streamlined and succinct ordinance that is “at least as effective” as the State Model. In response to these requests, the drafting committee has condensed the OC Model into a document that describes the essential components of AB 1881. All process-oriented elements, equations, and technology-related components have been removed from the ordinance and placed in a guidelines section. Updating guidelines is a less complicated process, which will better accommodate the rapidly evolving field of irrigation technology.

Issue 5: Section 1, C Option Box 1

“The local water purveyor is implementing budget-based tiered-rate billing, water budgeting, and enforcement of water waste prohibitions for all existing metered landscape areas throughout its service area.”

Explanation:

Budget-based tiered-rate billing structures are “at least as effective” at achieving outdoor water use efficiency as AB-1881.

Justification:

“The Irvine Ranch Water District (IRWD) has used pricing strategies successfully to discourage excessive outdoor water use. By implementing an increasing block rate structure, the IRWD has reduced outdoor water among customers by nearly 50%” (Amy Vickers, Water Use and Conservation 2001). “In 1990 water usage was 4.4 af/acre/year (ET demand averages about 4.0 af/acre/year). After implementing a budget-based tiered rate billing structure, water use has averaged approximately 2.2 af/acre/year” (Nick Mrvos, Senior Conservation Specialist, Irvine Ranch Water District).

Issue 6: Section 1, C Option Box 2

“The City, as the local water purveyor, is implementing enforcement of water waste prohibitions for all existing metered landscape areas within its jurisdiction.”

Explanation:

In recent years, regulatory approaches to conservation and water waste management have become powerful tools at the local, state, and national levels in establishing water conservation requirements for virtually every customer sector (Vickers, Water Use and Conservation 2001).

Justification:

Many cities have multiple codes regulating water waste. These regulations range from local codes that govern irrigation overspray to federal codes such as the Environmental Protection Agency’s National Pollution Discharge Elimination System. Existing regulatory water conservation requirements enforce efficient water use through monetary fines and have helped “to limit excessive lawn water and street runoff” (Vickers, Water Use and Conservation 2001).

Issue 7: 492.10 Irrigation Scheduling

Justification:

Prescriptive elements for parameters used to set the automatic controller are removed in order to defer to irrigation controller manufacturer specifications.

Issue 8: 492.11 Landscape and Irrigation Maintenance Schedule

Justification:

Prescriptive elements incorporated by reference to existing code in order to defer to local agency code.

Issue 9: Removal of 492.14 Recycled Water

Justification:

Section incorporated by reference to defer to existing recycled water and health code.

Issue 10: Removal of 492.15 Stormwater Management

Justification:

Section incorporated by reference to defer to existing National Pollutant Discharge Elimination System (NPDES) permits and local stormwater management code.

Issue 11: Removal of 493.2 Water Waste Prevention

Justification:

Section incorporated by reference to defer to existing agency code on water waste prevention.

Issue 12: Removal of 494 Effective Precipitation

Justification:

This section was considered optional in the State Model and was removed because annual effective precipitation of 12" in Orange County is not considered adequate for MAWA adjustment.

Issue 13: 2.1 Section 5 Certification of Completion (Now in Guidelines)

Justification:

Enrollment in one of the local or regional water budgeting programs fulfills the irrigation system audit report criteria. The water budgeting programs are an in-depth and ongoing irrigation monitoring process that is "at least as effective" as a one time irrigation system audit report.

Subject: Xeriscape and Water Efficient Landscape Ordinance

I. Purpose.

California Government Code § 65595 requires the implementation of water efficient standards for landscapes within the City. In keeping with the requirements of § 65595, the City Council has adopted a Xeriscape and Water Efficient Landscape Ordinance, Chapter 23.77 of the Placentia Municipal Code. These Guidelines are intended to provide procedural and design guidance for landscape installation or rehabilitation projects subject to Chapter 23.77. These guidelines shall be referenced by City staff in reviewing and approving designs and verifying compliance with Chapter 23.77.

II. Application.

This procedure applies to all landscaping projects governed by Chapter 23.77.

III. Effective Date.

This procedure shall be effective January 4, 2010.

IV. Procedure.

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1. Purpose and Applicability

1.1 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 Xeriscape and 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 Xeriscape and Water Efficient Landscape Ordinance. The general purpose of the Xeriscape and 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 implemented 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) Orange County Fire Authority Regulations for Fuel Modification in the Landscape;
- (4) Water Conservation and Drought Response Regulations of the Local Water Purveyor;
- (5) Regulations of the Local Water Purveyor governing use of Recycled Water;
- (6) Zoning Code;
- (7) Building Code;
- (8) Specific Plans, Master Plans, General Plan, or similar land use and planning documents; and
- (9) Conditions of approval for a specific project.

1.2 Applicability

The Xeriscape and Water Efficient Landscape Ordinance ("Ordinance") and these Guidelines apply to all of the following landscape projects:

(a) New landscape installations or landscape rehabilitation projects by public agencies or private non-residential developers with a landscaped area, including pools or other water features but excluding hardscape, equal to or greater than 2,500 square feet, and which are otherwise subject to a discretionary approval of a landscape plan or which otherwise require a ministerial permit for a landscape or water feature.

(b) New landscape installations or landscape rehabilitation projects by developers or property managers of single-family and multi-family residential projects or complexes with a landscaped area, including pools or other water features but excluding hardscape, equal to or greater than 2,500 square feet, and which are otherwise subject to a discretionary approval of a landscape plan or which otherwise require a ministerial permit for a landscape or water feature

(c) New landscape installation projects by individual homeowners on single-family or multi-family residential lots with a project landscaped area, including pools or other water features but excluding hardscape, equal to or greater than 5,000 square feet, and which are otherwise subject to a discretionary approval of a landscape plan or which otherwise require a ministerial permit for a landscape or water feature.

(d) A landscape rehabilitation project is subject to the requirements of the Ordinance and these Guidelines where (i) the modified landscaped area is greater than 2,500 square feet and represents at least 50% of the total landscaped area; and (ii) the modifications are planned to occur within one year. 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.

(e) Unless otherwise determined by the *City*, the Ordinance and these Guidelines do 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.

2. Submittal Requirements for New Landscape Installations or Landscape Rehabilitation Projects

Discretionary approval is typically required for landscape projects that are subject to site plan reviews, or where a variance from a local building code is requested, or other procedural processes apply such that standard or special conditions of approval may be required by the City. Discretionary projects with conditions of approval may be approved administratively by city staff, or acted on formally by the Planning Commission, City Council, or other jurisdictional authority. A typical standard condition of approval reads:

“Landscaping for the project shall be designed to comply with the City of Placentia Xeriscape and Water Efficient Landscape Ordinance and with the Guidelines for Implementation of the Xeriscape and Water Efficient Landscape Ordinance.”

Landscape or water features that typically require a ministerial permit (*i.e.*, a building, plumbing, electrical, or other similar permit), thereby triggering compliance with the Ordinance requirements independently of the need for discretionary approval include, but are not limited to, swimming pools, fountains or ponds, retaining walls, and overhead trellises.

2.1 Elements of the Landscape Documentation Package

A Landscape Documentation Package is required to be submitted by the project applicant for review and approval prior to the issuance of ministerial permits for landscape or water features by the City, and prior to start of construction. Unless otherwise directed by the City, the Landscape Documentation Package shall include the following elements either on plan sheets or supplemental pages as directed by the City:

- (a) Project Information, including, but not limited to, the following:
 - (1) project name;
 - (2) date of submittal;
 - (3) project address, parcel, and/or lot number(s);
 - (4) total landscaped area (square feet) and rehabilitated landscaped area (if applicable);
 - (5) project type (*e.g.*, new, rehabilitated, public, private, cemetery, homeowner-installed);
 - (6) water supply type (*e.g.*, potable, recycled, or well) and identification of the local retail water purveyor if the project applicant is not served by a private well;
 - (7) checklist or index of all documents in the Landscape Documentation Package;

(8) project contacts, including contact information for the project applicant and property owner;

(9) a Certification of Design in accordance with Exhibit A of these Guidelines that includes a landscape professional's professional stamp, as applicable, signature, contact information (including email and telephone number), license number, and date, certifying the statement that "The design of this project complies with the requirements of the City of Placentia Xeriscape and Water Efficient Landscape Ordinance" and shall bear the signature of the landscape professional as required by law; and

(10) any other information the City deems relevant for determining whether the landscape project complies with the Ordinance and these Guidelines.

(b) Maximum Applied Water Allowance (MAWA) and Estimated Applied Water Use (EAWU) expressed as annual totals including, but not limited to, the following:

(1) a Water Efficient Landscape Worksheet (optional at discretion of the City) for the landscape project;

(2) hydrozone information table (optional at the discretion of the City) for the landscape project; and

(3) water budget calculations (optional at the discretion of the City) for the landscape project.

(4) A soil management report or specifications, or specification provision requiring soil testing and amendment recommendations and implementation to be accomplished during construction of the landscape project.

(5) A landscape design plan for the landscape project.

(6) An irrigation design plan for the landscape project.

(7) A grading design plan, unless grading information is included in the landscape design plan for the landscape project or unless the landscape project is limited to replacement planting and/or irrigation to rehabilitate an existing landscaped area.

2.2 Water Efficient Landscape Calculations and Alternatives

(a) The project applicant shall provide the calculated Maximum Applied Water Allowance (MAWA) and Estimated Applied Water Use (EAWU) for the landscaped area as part of the Landscape Documentation Package submittal to the City. The MAWA and EAWU shall be calculated based on completing the Water Efficient Landscape Worksheets (in accordance with the sample worksheets in Appendix B).

(b) The EAWU allowable for the landscaped area shall not exceed the MAWA. The MAWA shall be calculated using an evapotranspiration adjustment factor (ETAF) of 0.7 except for the portion of the MAWA applicable to any special landscaped areas within the landscape project, which shall be calculated using an ETAF of 1.0.

Where the design of the landscaped area can otherwise be shown to be equivalently water-efficient, the project applicant may submit alternative or abbreviated information supporting the demonstration that the annual EAWU is less than the MAWA, at the discretion of and for the review and approval of the local agency.

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

(1) The MAWA shall be calculated using the Water Efficient Landscape Worksheets and equation presented in Appendix B on page B-1. The example calculation on page B-1 is a hypothetical example to demonstrate proper use of the equation.

(2) The EAWU shall be calculated using the Water Efficient Landscape Worksheets and equation presented in Appendix B on page B-2. The example calculation on page B-2 is a hypothetical example.

(3) For the calculation of the MAWA and EAWU, a project applicant shall use the ETo values from the closest location listed the Reference Evapotranspiration Table in Appendix C. For geographic areas not covered in Appendix C, data from other cities located nearby in the same reference evapotranspiration zone may be used, as found in the CIMIS Reference Evapotranspiration Zones Map, Department of Water Resources, 1999.

(4) For calculation of the EAWU, the plant water use factor shall be determined as appropriate to the project location from the Water Use Efficiency of Landscape Species (WUCOLS) Species Evaluation List. The plant factor is 0.1 for very low water use plants, 0.2 to 0.3 for low water use plants, 0.4 to 0.6 for moderate water use plants, and 0.7 to 1.0 for high water use plants.

(5) For calculating the EAWU, 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 project applicant or the City.

(6) For calculation of the EAWU, the area of a water feature shall be defined as a high water use hydrozone with a plant factor of 1.0.

(7) For calculation of the EAWU, a temporarily irrigated hydrozone area, such as an area of highly drought-tolerant native plants that are not intended to be irrigated after they are fully established, shall be defined as a very low water use hydrozone with a plant factor of 0.1.

(8) For calculation of the MAWA, the ETAF for special landscaped areas shall be set at 1.0. For calculation of the EAWU, the ETAF for special landscaped areas shall be calculated as the special landscaped area (SLA) plant factor divided by the SLA irrigation efficiency factor.

(9) Irrigation efficiency shall be calculated using the worksheet and equation presented in Appendix B on page B-2.

(d) The Maximum Applied Water Allowance shall be calculated using the equation presented in Appendix B. The example calculation in Appendix B is hypothetical to demonstrate proper use of the equation and does not represent an existing and/or planned landscape project. The reference evapotranspiration (ET_o) values used in this calculation are from the Reference Evapotranspiration Table in Appendix C and are for planning purposes only. For actual irrigation scheduling, automatic irrigation controllers are required and shall use current ET_o data, such as from the California Irrigation Management Information System (CIMIS), other equivalent data, or soil moisture sensor data.

2.3 Soil Management Report

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 certified agronomic soils laboratory for analysis and recommendations.

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

(c) The soil analysis may include, but is not limited to:

- (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.

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

(1) 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

(2) If significant mass grading is planned, the soil analysis report shall be submitted to the City as part of the Certification 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 in order 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 the Certification of Completion.

2.4 Landscape Design Plan

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

(a) Plant Material. Any plant may be selected for the landscaped area provided the EAWU in the landscaped area does not exceed the MAWA. To encourage the efficient use of water, the following is highly recommended:

- (1) protection and preservation of non-invasive water-conserving plant species and water-conserving turf;
- (2) selection of water-conserving plant species and water-conserving turf;
- (3) selection of plants based on disease and pest resistance;
- (4) selection of trees based on applicable City and 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 Section 2.5(a)(ii)(4) of these Guidelines.

(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 for inclusion in the landscape design plan:

- (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, and power lines); and
- (3) consider the solar orientation for plant placement to maximize summer shade and winter solar gain.

(d) Turf is discouraged 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 and fuel modification zones shall comply with requirements of the local Fire Authority, where applicable. When conflicts between water conservation and fire safety design elements exist, the fire safety requirements shall have priority. (See: PMC Title 18.)

(f) The use of *invasive plant species* 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 water efficient plant species as a group.

(h) Water Features

(1) Recirculating water systems shall be used for water features.

(2) Where available and consistent with public health guidelines, recycled water shall be used as a source for decorative water features.

(3) The surface area of a water feature shall be included in the high water use *hydrozone* area of the water budget calculation.

(3) Pool and spa covers are highly recommended.

(i) Mulch and Amendments

(1) 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.

(2) Stabilizing mulching products shall be used on slopes.

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

(4) Soil amendments shall be incorporated according to recommendations of the soil report and what is appropriate for the plants selected (see Section 2.3 of these Guidelines).

(j) 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 landscaped area 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 storm water best management practices that encourage on-site retention and infiltration of storm water. Storm water best management practices are encouraged in the landscape design plan and examples include, but are not limited to:

(i) infiltration beds, swales, and basins that allow water to collect and soak into the ground;
(ii) constructed wetlands and retention ponds that retain water, handle excess flow, and filter pollutants; and
(iii) 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 California-licensed landscape professional.

2.5 Irrigation Design Plan

For the efficient use of water, an irrigation system shall meet all the requirements listed in this section and the manufacturer's 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*.

(a) System

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

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

(3) 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.

(i) 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.

(ii) 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.

(4) 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.

(5) 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.

(6) 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 City code (i.e., public health) for additional backflow prevention requirements.

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

(8) 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.

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

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

(11) Average irrigation efficiency for the project shall be determined in accordance with the EAWU calculation sheet in Appendix B. Unless otherwise indicated by the irrigation equipment manufacturer's specifications or demonstrated by the project applicant, the irrigation efficiency of the irrigation heads used within each hydrozone shall be assumed to be:

Pop-up stream rotator heads = 75%

Stream rotor heads = 75%

Microspray = 75%

Bubbler = 80%

Drip emitter = 85%

Subsurface irrigation = 90%

(12) 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.

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

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

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

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

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

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

(19) 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:

(i) the landscaped area is adjacent to permeable surfacing and no runoff occurs; or

(ii) the adjacent non-permeable surfaces are designed and constructed to drain entirely to landscaping; or

(iii) the irrigation designer for the landscape project specifies an alternative design or technology, as part of the Landscape Documentation Package, and clearly demonstrates strict adherence to the irrigation system design criteria in Section 2.5 (a)(1)(H) hereof. Prevention of overspray and runoff must be confirmed during an irrigation audit.

(iv) 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 of the landscape project 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.

(b) Hydrozone

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

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

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

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

- (i) the plant factor calculation is based on the proportions of the respective plant water uses and their respective plant factors; or
- (ii) the plant factor of the higher water using plant is used for the calculations.

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

(6) 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.

(7) The irrigation design plan, at a minimum, shall contain:

- (i) the location and size of separate water meters for landscape;
- (ii) the 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;
- (iii) static water pressure at the point of connection to the public water supply;
- (iv) flow rate (gallons per minute), application rate (inches per hour), and design operating pressure (pressure per square inch) for each station;
- (v) irrigation schedule parameters necessary to program smart timers specified in the landscape design;
- (vi) the following statement: "I have complied with the criteria of the City of Placentia Xeriscape and Water Efficient Landscape Ordinance and applied them accordingly for the efficient use of water in the irrigation design plan;" and
- (vii) the signature of a California-licensed landscape professional.

2.6 Grading Design Plan

(a) For the efficient use of water, grading of a landscape project site shall be designed to minimize soil erosion, runoff, and water waste. Finished grading configuration of the landscaped area, including pads, slopes, drainage, post-construction erosion control, and storm water control Best Management Practices, as applicable, shall be shown on the Landscape Plan unless this information is fully included in separate Grading Plans for the project, or unless the project is limited to replacement planting and/or irrigation to rehabilitate an existing landscaped area.

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

- (1) height of graded slopes;
- (2) drainage patterns;
- (3) pad elevations;
- (4) finish grade; and
- (5) storm water retention improvements, if applicable.

(c) To prevent excessive erosion and runoff, it is highly recommended that the project applicant:

- (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 landscaped areas.

(d) The Grading Design Plan shall contain the following statement: "I have complied with the criteria of the City of Placentia Xeriscape and Water Efficient Landscape Ordinance and applied them accordingly for the efficient use of water in the grading design plan" and shall bear the signature of the landscape professional, as required by law.

2.7 Certification of Completion

(a) Landscape project installation shall not proceed until the Landscape Documentation Package has been approved by the City and any ministerial permits required are issued.

(b) The project applicant shall notify the City at the beginning of the installation work and at intervals, as necessary, for the duration of the landscape project work to schedule all required inspections.

(c) Certification of Completion of the landscape project shall be obtained through a Certificate of Use and Occupancy or a Permit Final. The requirements for the Final Inspection and Permit Closure include submittal of:

- (1) A Landscape Installation Certificate of Completion in the form included as Appendix D of these Guidelines, which shall include: (i) certification by a landscape professional that the landscape project has been installed per the approved Landscape Documentation Package; and (ii) the following statement: "The landscaping has been installed in substantial conformance to the design plans, and complies with the provisions of the City of Placentia Xeriscape and Water Efficient Landscape Ordinance for the efficient use of water in the landscape."

- (2) Documentation of the irrigation scheduling parameters used to set the controller(s);

(3) An irrigation audit report from a certified irrigation auditor, documentation of enrollment in regional or local water purveyor's water conservation programs, and/or documentation that the MAWA and EAWU information for the landscape project has been submitted to the local water purveyor, may be required at the option of the City.

2.8 Post-Installation 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:

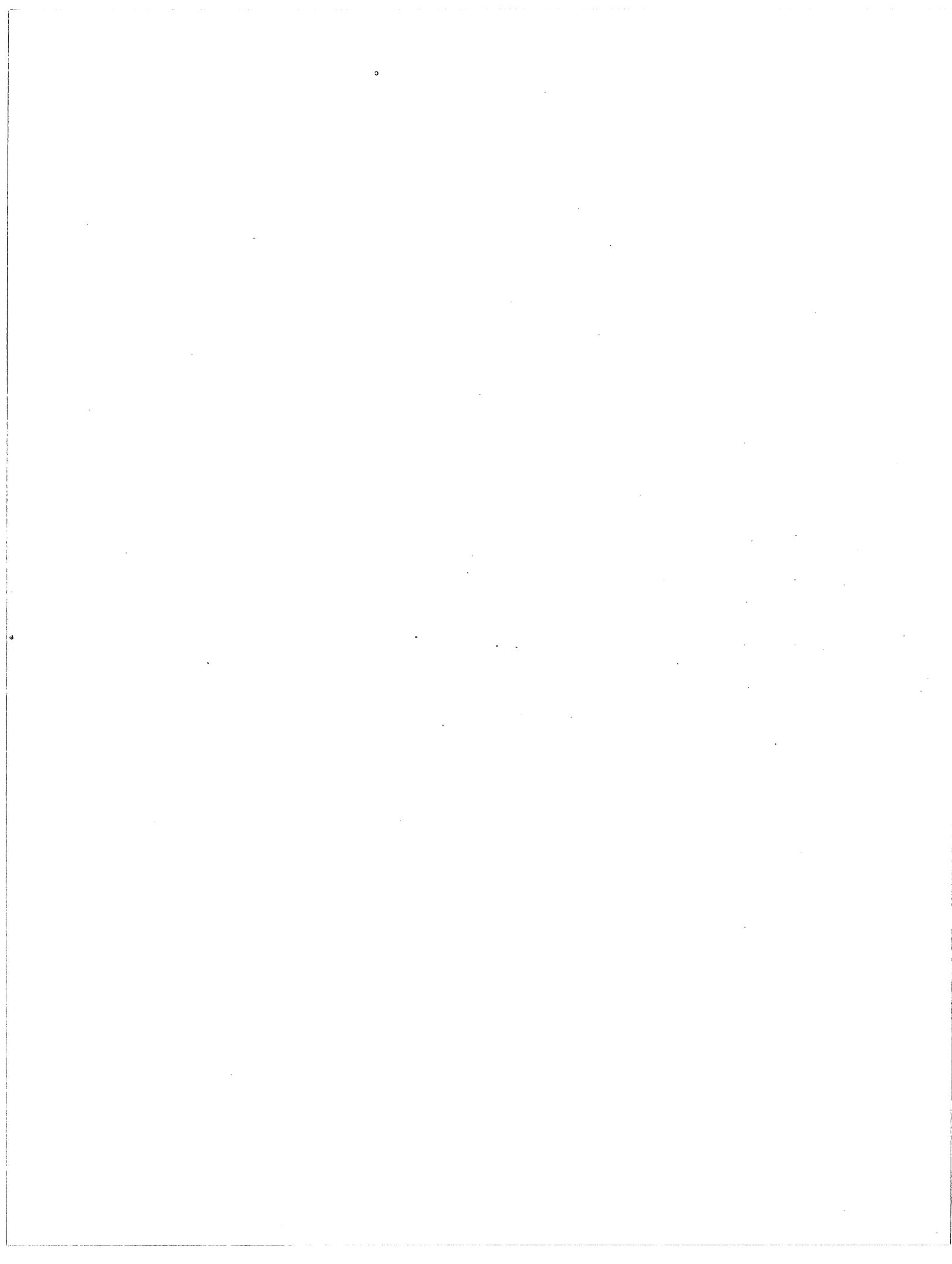
- (a) Irrigation scheduling shall be regulated by automatic irrigation controllers.
- (b) Overhead irrigation shall be scheduled in accordance with the local water purveyor's water conservation Requirements. Operation of the irrigation system outside the normal watering window is allowed for auditing and system maintenance.

2.9 Post-Installation Landscape and Irrigation Maintenance

Landscapes shall be maintained to ensure water use efficiency in accordance with existing local agency code. (See: PMC Chapter 23.77.)

3 Provisions for Existing Landscapes

- (a) Irrigation of all landscaped areas shall be conducted in a manner conforming to the rules and requirements and shall be subject to penalties and incentives for water conservation and water waste prevention, as determined and implemented by the local water purveyor and as may be mutually agreed by the City.
- (b) The City and/or the regional or local water purveyor may administer programs such as irrigation water use analyses, irrigation surveys and/or irrigation audits, tiered water rate structures, water budgeting by parcel, or other approaches to achieve landscape water use efficiency community-wide to a level equivalent to or less than would be achieved by applying a MAWA calculated with an ETAF of 0.8 to all landscaped areas in the City over one acre in size.
- (c) The architectural guidelines of a common interest development, including apartments, 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.



Appendix A

FORM OF CERTIFICATION OF LANDSCAPE DESIGN

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 _____ (provide street address or parcel number(s)) were prepared by me or under my supervision.
- (3) The landscape design and water use calculations for the identified property comply with the requirements of the City of Placentia Xeriscape and Water Efficient Landscape Ordinance (Municipal Code Chapter 23.77) and the City of Placentia Guidelines for Implementation of the City of Placentia Xeriscape and Water Efficient Landscape Ordinance.
- (4) The information I have provided in this Certificate of Landscape Design is true and correct and is hereby submitted in compliance with the City of Placentia Guidelines for Implementation of the City of Placentia Xeriscape and Water Efficient Landscape Ordinance.

Print Name

Date

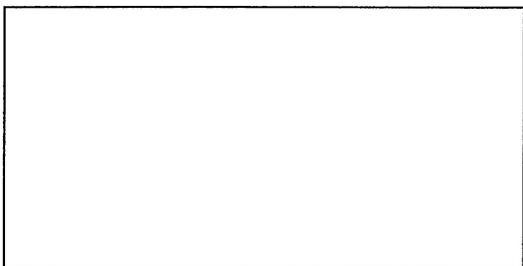
Signature

License Number

Address

Telephone
Landscape Design Professional's Stamp
(If applicable)

E-mail Address



Appendix B

EXAMPLE WATER EFFICIENT LANDSCAPE WORKSHEET

This worksheet is filled out by the *project applicant* for each Point of Connection. Please complete all sections of the worksheet.

Point of Connection # 1

Maximum Applied Water Allowance (MAWA)

Total MAWA = (ETo x 0.7 x LA in Sq. Ft. x 0.62) + (ETo x 1.0 x SLA in Sq. Ft. x 0.62) = Gallons per year for LA+SLA

where:

MAWA = Maximum Applied Water Allowance (gallons per year)

ETo = Reference Evapotranspiration **Appendix C** (inches per year)

0.7 = Evapotranspiration Adjustment Factor (ETAF)

1.0 = ETAF for Special Landscaped Area

LA = Landscaped Area (square feet)

0.62 = Conversion factor (to gallons per square foot)

SLA = Special Landscaped Area (square feet)

Example Calculation: a hypothetical landscape project in Santa Ana, CA with an irrigated landscaped area of 40,000 square feet with 10,000 square feet of Special Landscaped Area. To calculate MAWA, the annual reference evapotranspiration value for Santa Ana is 48.2 inches as listed in the Reference Evapotranspiration Table in **Appendix C**.

	ETo	ETAF	LA or SLA (ft ²)	Conversion	MAWA (Gallons Per Year)
MAWA for LA =	48.2	x 0.7	x 40,000	x 0.62	= 836,752
MAWA for SLA =	48.2	x 1.0	x 10,000	x 0.62	= 298,840
Total MAWA =			50,000		1,135,592 Gallons per year for LA+SLA

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$EAWU = ETo \times K_L \times LA \times 0.62 \div IE = \text{Gallons per year}$

where:

$EAWU = \text{Estimated Applied Water Use (gallons per year)}$

$ETo = \text{Reference Evapotranspiration Appendix C (inches per year)}$

$K_L = \text{Landscape Coefficient}$

$LA = \text{Landscaped Area (square feet)}$

$0.62 = \text{Conversion factor (to gallons per square foot)}$

$IE = \text{Irrigation Efficiency} = IME \times DU$ (See definition in Appendix E

for example IE percentages)

$IME = \text{Irrigation Management Efficiency (90\%)}$

$DU = \text{Distribution Uniformity of irrigation head}$

$K_L = K_s \times K_d \times K_{mc}$

$K_s = \text{species factor (range = 0.1-0.9)}$ (see WUCOLS list for values)

$K_d = \text{density factor (range = 0.5-1.3)}$ (see WUCOLS for density value ranges)

$K_{mc} = \text{microclimate factor (range = 0.5-1.4)}$ (see WUCOLS)

WUCOLS – www.owue.water.ca.gov/docs/wucols00.pdf

Example Calculation:

	ETo	K _L	LA	Conversion	IE	EAWU (Gallons per year)
Special Landscaped Area	48.2	x 1.00	x 10,000	x 0.62	+ 0.75	= 398,453
Cool Season Turf	48.2	x 1.00	x 0	x 0.62	+ 0.71	= 0
Warm Season Turf	48.2	x 0.65	x 0	x 0.62	+ 0.71	= 0
High Water Using Shrub	48.2	x 0.70	x 0	x 0.62	+ 0.71	= 0
Medium Water Using Shrub	48.2	x 0.50	x 15,000	x 0.62	+ 0.65	= 344,815
Low Water Using Shrub	48.2	x 0.30	x 25,000	x 0.62	+ 0.75	= 298,840
Very Low Water Using Shrub	48.2	x 0.20	x 0	x 0.62	+ 0.71	= 0
Other	48.2	x 0.50	x 0	x 0.62	+ 0.71	= 0
Other	48.2	x 0.50	x 0	x 0.62	+ 0.71	= 0
Total EAWU =			50,000			1,042,109 Gallons per year

Compare EAWU with MAWA.

The EAWU (1,042,109 gallons per year) is less than MAWA (1,135,592 gallons per year). For this example, the water budget complies with the MAWA.

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List sprinkler heads, microspray, and drip emitters here along with average precipitation rate and Distribution Uniformity of Irrigation Head.

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WATER EFFICIENT LANDSCAPE REQUIREMENTS

CITY COUNCIL

<u>Sprinkler Head Types</u>	<u>Average Precipitation Rate</u>	<u>Distribution Uniformity of Irrigation Head</u>
Drip		
Microspray		
Bubbler		
Low precipitation rotating nozzles		
Stream rotors		

WATER EFFICIENT LANDSCAPE WORKSHEET

This worksheet is filled out by the *project applicant* for each Point of Connection. Please complete all sections of the worksheet.

Point of Connection # _____

Maximum Applied Water Allowance (MAWA)

Total MAWA = $(ET_o \times 0.7 \times LA \text{ in Sq. Ft.} \times 0.62) + (ET_o \times 1.0 \times SLA \text{ in Sq. Ft.} \times 0.62) = \text{Gallons per year for LA+SLA}$

where:

- MAWA = Maximum Applied Water Allowance (gallons per year)
- ET_o = Reference Evapotranspiration **Appendix C** (inches per year)
- 0.7 = Evapotranspiration Adjustment Factor (ETAF)
- 1.0 = ETAF for Special Landscaped Area
- LA = Landscaped Area (square feet)
- 0.62 = Conversion factor (to gallons per square foot)
- SLA = Special Landscaped Area (square feet)

MAWA Calculation:

	ET _o	ETAF	LA or SLA (ft ²)	Conversion	MAWA (Gallons Per Year)
MAWA for LA =	x 0.7	x		x 0.62	=
MAWA for SLA =	x 1.0	x		x 0.62	=
Total MAWA =					

Estimated Applied Water Use

$EAWU = ETo \times K_L \times LA \times 0.62 \div IE = \text{Gallons per year}$

where:

- $EAWU = \text{Estimated Applied Water Use (gallons per year)}$
- $ETo = \text{Reference Evapotranspiration Appendix C (inches per year)}$
- $K_L = \text{Landscape Coefficient}$
- $LA = \text{Landscape Area (square feet)}$
- $0.62 = \text{Conversion factor (to gallons per square foot)}$
- $IE = \text{Irrigation Efficiency} = IME \times DU$
- $IME = \text{Irrigation Management Efficiency (90\%)}$
- $DU = \text{Distribution Uniformity of irrigation head}$

$K_L = K_s \times K_d \times K_{mc}$

- $K_s = \text{species factor (range = 0.1-0.9) (see WUCOLS list for values)}$
- $K_d = \text{density factor (range = 0.5-1.3) (see WUCOLS for density value ranges)}$
- $K_{mc} = \text{microclimate factor (range = 0.5-1.4) (see WUCOLS)}$

WUCOLS – www.owue.water.ca.gov/docs/wucols00.pdf

EAWU Calculation:

	ETo	KL	LA	Conversion	IE	EAWU (Gallons Per Year)
Special Landscaped Area	X	X	X	0.62	÷	=
Cool Season Turf	X	X	X	0.62	÷	=
Warm Season Turf	X	X	X	0.62	÷	=
High Water Using Shrub	X	X	X	0.62	÷	=
Medium Water Using Shrub	X	X	X	0.62	÷	=
Low Water Using Shrub	X	X	X	0.62	÷	=
Very Low Water Using Shrubs	X	X	X	0.62	÷	=
	X	X	X	0.62	÷	=
	X	X	X	0.62	÷	=
	X	X	X	0.62	÷	=
	X	X	X	0.62	÷	=
	X	X	X	0.62	÷	=
	X	X	X	0.62	÷	=
	X	X	X	0.62	÷	=
Other	X	X	X	0.62	÷	=
Total EAWU =						

ADMINISTRATIVE PROCEDURES MANUAL

POLICY NO. 720

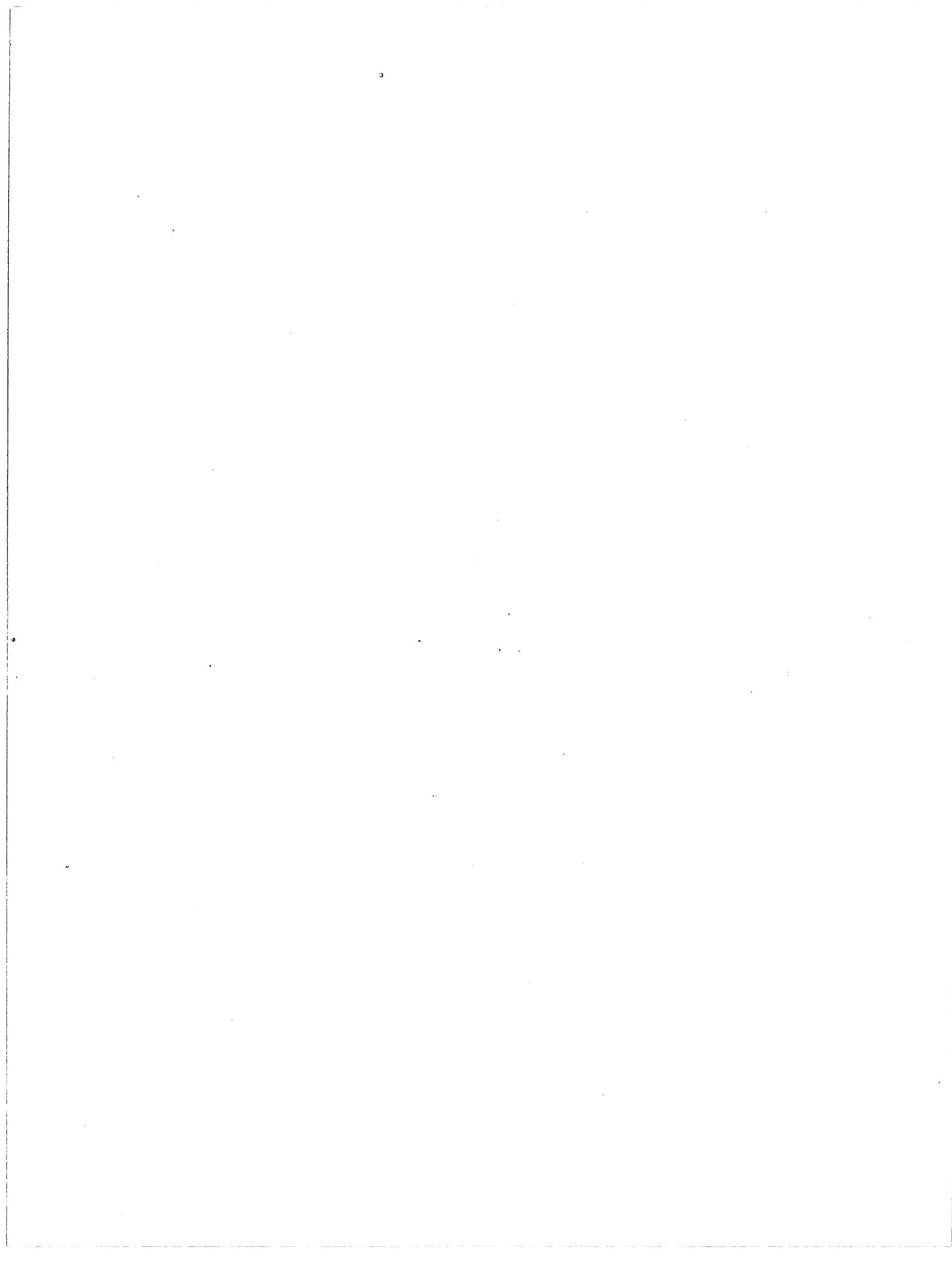
List *sprinkler heads*, *microspray*, and *drip emitters* here along with *average precipitation rate* and *Distribution Uniformity of Irrigation Head*.

<u>Sprinkler Head Types</u>	<u>Average Precipitation Rate</u>	<u>Distribution Uniformity of Irrigation Head</u>
Drip		
Microspray		
Bubbler		
Low precipitation rotating nozzles		
Stream rotors		

Appendix C

Reference Evapotranspiration (ETo) Table

Appendix C - Reference Evapotranspiration (ETo) Table*													
County and City	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual ETo
Orange													
Irvine	2.2	2.5	3.7	4.7	5.2	5.9	6.3	6.2	4.6	3.7	2.6	2.3	49.6
Laguna Beach	2.2	2.7	3.4	3.8	4.6	4.6	4.9	4.9	4.4	3.4	2.4	2.0	43.2
Santa Ana	2.2	2.7	3.7	4.5	4.6	5.4	6.2	6.1	4.7	3.7	2.5	2.0	48.2
* 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,													
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 D

LANDSCAPE INSTALLATION CERTIFICATE OF COMPLETION

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 project for the property located at _____ (provide street address or parcel number(s)) was installed by me or under my supervision.
- (3) The landscaping for the identified property has been installed in substantial conformance with the approved Landscape Documentation Package and complies with the requirements of the City of Placentia Xeriscape and Water Efficient Landscape Ordinance (Municipal Code Chapter 23.77) and the City of Placentia Guidelines for Implementation of the City of Placentia Xeriscape and Water Efficient Landscape Ordinance for the efficient use of water in the landscape.
- (4) The information I have provided in this Landscape Installation Certificate of Completion is true and correct and is hereby submitted in compliance with the City of Placentia Guidelines for Implementation of the City of Placentia Xeriscape and Water Efficient Landscape Ordinance.

Print Name

Date

Signature

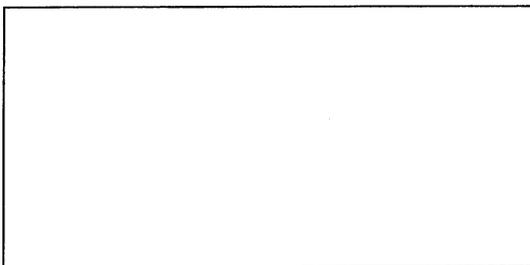
License Number

Address

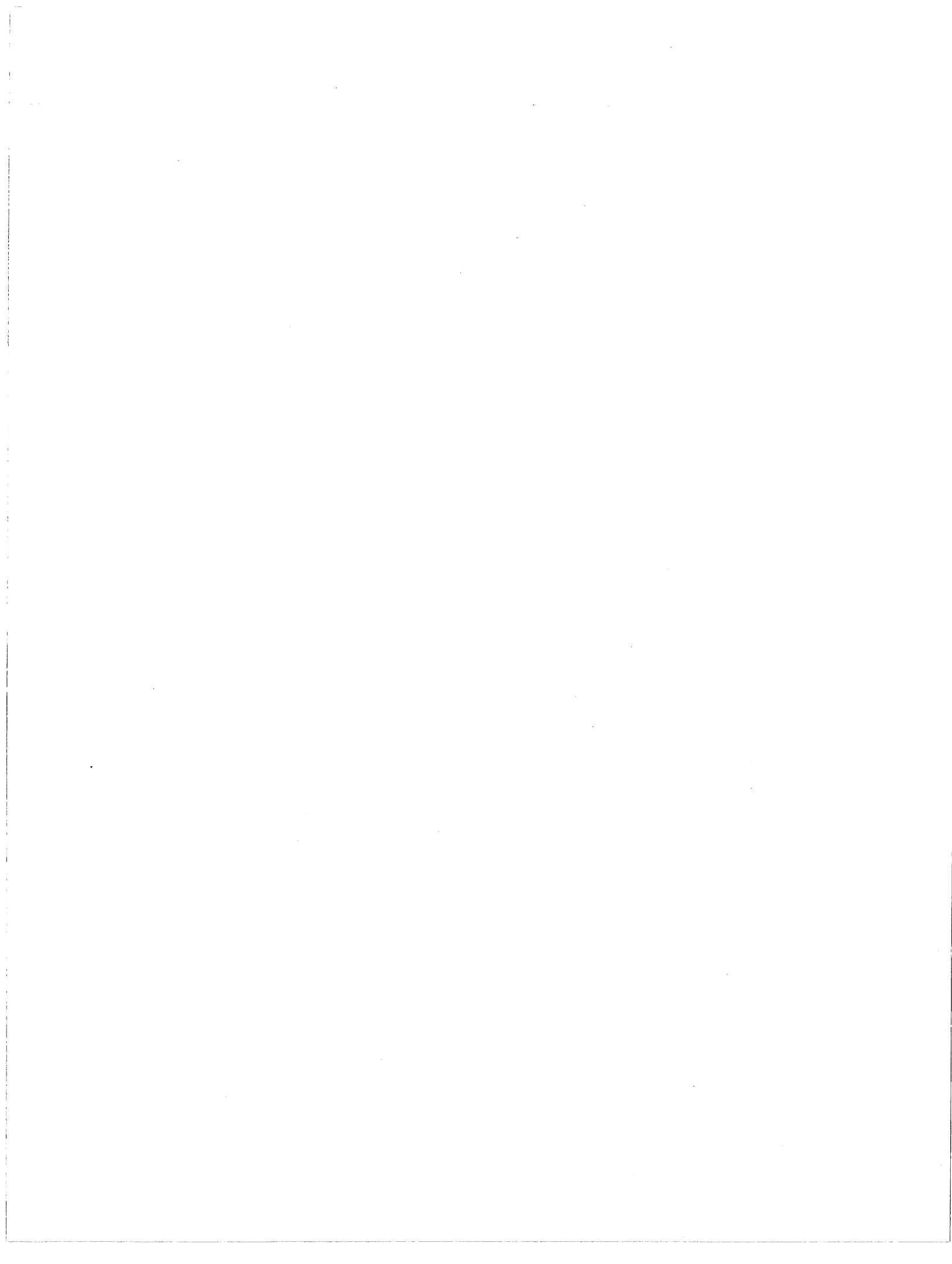
Telephone

E-mail Address

Landscape Design Professional's Stamp
(If Appropriate)



D-1



Appendix E

Definitions

The terms used in these *Guidelines* have the meaning set forth below:

“*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.

“*Conversion factor*” means the number that converts acre-inches per acre per year to gallons per square foot per year.

“*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.

“*Certification of Design*” means the certification included as Exhibit E of these Guidelines that must be included in the Landscape Documentation Package pursuant to Section 2.1 of these Guidelines.

“*City*” means the City of Placentia or its authorized designee.

“*Common interest developments*” means community apartment projects, condominium projects, planned developments, and stock cooperatives per Civil Code § 1351.

“*Distribution Uniformity*” or “*DU*” is a measure of how uniformly an irrigation head applies water to a specific target area and theoretically ranges from zero to 100 percent.

“*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.

“*Emitter*” means a drip irrigation emission device that delivers water slowly from the system to the soil.

“*Estimated Applied Water Use*” or “*EAWU*” means the annual total amount of water estimated to keep plants in a healthy state. It is based on factors such as reference evapotranspiration rate, the size of the landscaped area, plant water use factors, and the irrigation efficiency within each hydrozone.

“*Evapotranspiration adjustment factor*” or “*ETAF*” means a coefficient that adjusts reference evapotranspiration values based on plant factor and irrigation efficiency and is used to calculate the maximum amount of water that can be applied to a landscape.

“*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.

“*Hardscapes*” means any durable material or feature (pervious and non-pervious) installed in or around a landscaped area, such as pavements or walls. Pools and other water features are considered part of the landscaped area and not considered hardscapes for purposes of these Guidelines.

“*Hydrozone*” means a portion of the landscaped area having plants with similar water needs and typically irrigated by one valve/controller station. 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 plants species*” or “*noxious*” means species of plants not historically found in California that spread outside cultivated areas and can damage environmental or economic resources. Invasive plant species may be regulated by county agricultural agencies as noxious species.

“*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.

“*Irrigation Management Efficiency*” or “*IME*” means the measurement used to calculate the irrigation efficiency of the irrigation system for a landscaped project. A 90% IME can be achieved by using evapotranspiration controllers, soil moisture sensors, and other methods that will adjust irrigation run times to meet plant water needs.

“*Irrigation efficiency*” or “*IE*” means the measurement of the amount of water beneficially used divided by the amount of water applied to a landscaped area. Irrigation efficiency is derived from measurements and estimates of irrigation system characteristics and management practices. The minimum average irrigation efficiency for purposes of these Guidelines is 0.71. Greater irrigation efficiency can be expected from well designed and maintained systems. The following irrigation efficiency may be obtained for the listed irrigation heads with an IME of 90%:

- a. Pop-up stream rotator heads = 75%
- b. Stream rotor heads = 75%
- c. Microspray = 75%
- d. Bubbler = 80%
- e. Drip emitter = 85%
- f. Subsurface irrigation = 90%

"*Landscape coefficient*" (K_L) is the product of a plant factor multiplied by a density factor and a microclimate factor. The landscape coefficient is derived to estimate water loss from irrigated landscaped areas and special landscaped areas.

"*Landscape Documentation Package*" means the package of documents that a *project applicant* is required to submit to the City pursuant to Section 2.1 of these Guidelines.

"*Landscape Installation Certificate of Completion*" means the certificate included as Exhibit F of these Guidelines that must be submitted to the City pursuant to Section 2.7(a)(1) of hereof.

"*Landscape professional*" means a licensed landscape architect, licensed landscape contractor, or any other person authorized to design a landscape pursuant to §§ 5500.1, 5615, 5641, 5641.1, 5641.2, 5641.3, 5641.4, 5641.5, 5641.6, 6701, 7027.5 of the California Business and Professions Code, § 832.27 of Title 16 of the California Code of Regulations, and § 6721 of the California Food and Agriculture Code.

"*Landscaped area*" means all the planting areas, turf areas, and water features in a landscape design plan subject to the Maximum Applied Water Allowance and Estimated Applied Water Use calculations. The landscaped 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).

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

"*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.

"*Maximum Applied Water Allowance*" or "*MAWA*" means the upper limit of annual applied water for the established landscaped area, as specified in Section 2.2 of these Guidelines. It is based upon the area's reference evapotranspiration, the ETAF, and the size of the landscaped area. The Estimated Applied Water Use shall not exceed the Maximum Applied Water Allowance.

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

"Mulch" means any organic material such as leaves, bark, straw or compost, or inorganic mineral materials such as rocks, gravel, 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.

"Non-pervious" means any surface or natural material that does not allow for the passage of water through the material and into the underlying soil.

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

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

"Person" means any natural person, firm, joint venture, joint stock company, partnership, public or private association, club, company, corporation, business trust, organization, public or private agency, government agency or institution, school district, college, university, any other user of water provided by the City or the local water purveyor, or the manager, lessee, agent, servant, officer, or employee of any of them or any other entity which is recognized by law as the subject of rights or duties.

"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, that estimates the amount of water needed by plants. For purposes of the Ordinance and these Guidelines, the plant factor range for low water use plants is 0 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 these Guidelines are derived from the Department of Water Resources 2000 publication "Water Use Classification of Landscape Species."

"Precipitation rate" means the rate of application of water measured in inches per hour.

"Project applicant" means the person submitting a Landscape Documentation Package required under Section 2.1 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.

"Property owner" or *"owner"* means the record owner of real property as shown on the most recently issued equalized assessment roll.

"Reference evapotranspiration" or *"ETo"* means a standard measurement of environmental parameters which affect the water use of plants. ETo is given expressed in inches per day, month, or year as represented in Appendix C of these Guidelines, 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.

"Recycled water" or *"reclaimed water"* means treated or recycled waste water of a quality suitable for non-potable uses such as landscape irrigation and water features. This water is not intended for human consumption.

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

"Special Landscaped Areas" or *"SLA"* means an area of the landscape dedicated solely to edible plants such as orchards and vegetable gardens, areas irrigated with recycled water, water features using recycled water, and areas dedicated to active play such as parks, sports fields, golf courses, and where turf provides a playing surface.

"Sprinkler 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.

"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 an irrigation system

"Xeriscape and Water Efficient Landscape Ordinance" or *"Ordinance"* means Ordinance No. O-2009-15, adopted by the City Council on December 3, 2009, and codified in the Municipal Code in Chapter 23.77 as the same may be amended hereinafter.

"Water Efficient Landscape Worksheets" means the worksheets required to be completed pursuant to Section 2.2 of these Guidelines and which are included in Appendix B hereof.

"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 landscaped area. Constructed wetlands used for on-site wastewater treatment, habitat protection, or storm water best management practices that are not irrigated and used solely for water treatment or storm water 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 published by the University of California Cooperative Extension, the Department of Water Resources, and the Bureau of Reclamation, 2000. www.owue.water.ca.gov/docs/wucols00