

MWEO

From: David D. Pagano [ddpic@pacbell.net]
Sent: Monday, December 29, 2008 7:15 PM
To: MWEO
Subject: Model Water Efficient Landscape Ordinance
Attachments: dd Pagano Model Ordinance Comment 12-27-08.pdf

Attention: Mr. Simon Eching and Ms. Judy Colvin

Attached are my comments to the proposed Updated Model Water Efficient Landscape Ordinance.

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IRRIGATION CONSULTANTS

December 29, 2008

State of California
Department of Water Resources
Office of Water Use Efficiency and Transfers
Attention: Simon Eching
901 P Street, Room 313A
Sacramento, CA 95814

Submitted via e-mail to: mweo@water.ca.gov

Re: Comments on Updated Water Efficient Model Landscape Ordinance

Dear Mr. Eching:

Comment 035.1

I have thoroughly reviewed the updated draft of the Model Water Efficient Landscape Ordinance prepared by DWR. While we all agree that there is a need to conserve water use in the landscape, I feel that the updated Model Ordinance has not changed very much and has been wordsmithed around to look different but say the same thing as the original draft and is doomed to crash under its own weight. Nobody wants to see this happen.

Under the rule making process, a California state agency must consider recommendations and objections from the public before it adopts or changes any regulation not expressly exempted from the California administrative Procedure Act (APA). A "regulation" is a policy or procedure affecting the public or any segment of the public that implements, interprets, or makes specific a statute that the state agency enforces or administers.

A rulemaking agency must summarize and respond on the record to timely comments that are directed at the rulemaking proposal or at the procedures followed. The summary and response to comment demonstrates that the agency has understood and considered all relevant material presented to it before adopting, amending, or repealing a regulation. An agency may respond to a comment in one of two ways. The agency must either (1) explain how it has amended the proposal to accommodate the comment, or (2) explain the reasons for making no change to the proposal. An agency's summary and response to comments is included as part of the final statement of reasons.

It is disappointing to know that in the last 9 months DWR has only found time to reply to a handful of comments. If I understand the rule making process, DWR must respond to all of the comments to the Model Ordinance. Why has DWR not responded to all of the public comments?

It was obvious that DWR paid little attention to the professionals of the landscape industry and what they had to say. It is as if DWR believes that the industry professionals who commented had something to gain by requesting changes in the Model Ordinance. In reality this is far from the truth. Professionals like myself in the landscape industry will be able to double or triple their design fees and contractors construction costs and fees will be increased. The comments by the professionals from the landscape industry chose to comment for the betterment of the industry. DWR chose to counter the constructive comments of industry professionals by citing 500 plus identical comments from non-industry individuals. These non-industry individuals supported the 0.7 ET adjustment factor, the 24" setback requirement and the increased compliance and enforcement mechanisms. These scripted letters stated that a 24" setback requirement will help to reduce wasteful and polluted runoff water and that water agencies like Coachella already require drip irrigation or low volume flow on this 24" setback. It is clear that these non-industry individuals who support the changes do not fully understand the impact of such changes.

Comment 035.2

Refer to Exhibit "A" regarding the ET Adjustment Factor and how it does not influence the design process but how it may influence actual water use do to an unscientific approach as suggested by DWR.

Comment 035.3

Refer to Exhibit "B" regarding how the Coachella Valley Water District achieves the 24" setback without runoff. Is this what DWR is proposing with the 24" setback rule without understanding that properly designed and managed irrigation systems do not have runoff or overspray? The 24" setback rule is a significant aesthetic and functional design issue. The addition of a 24" buffer or drip of sub-surface irrigation is very costly and does not assure a reduction in landscape water use and it does not necessarily reduce runoff. Proper management of the irrigation system is what will reduce or eliminate runoff. This is evidenced by the CIT protocol testing of Smart Controllers and by the EPA Residential Runoff Study found at IRWD's website <http://www.irwd.com/Conservation/R3-ExecSum10-26-04%5B1%5D.pdf>

The model ordinance should not dictate the appearance of the landscape. Each design should satisfy the water conservation and run-off objectives without dictating that turf irrigated with an overhead spray technique must be held 2' away from paved surfaces. The equipment selection and application scheduling for each project should be left to the applicant as necessary to adhere to the ordinance.

Comment 035.4

In many cases, the current draft of the Model Ordinance conflicts with many of the local agency ordinances and State of California Licensing that are already in place. These conflicts create a duplication of work for the designer's and local agencies alike.

Under the Model Ordinance as written, the only persons who are qualified to prepare landscape and irrigation plans are licensed landscape architects, certified irrigation designers and landscape contractors. Under the State of California Landscape Design In California, Permitted Practice for Professionals, Practitioners, and Unlicensed Persons many industry professional are allowed to perform services and designs for various functions related to the industry. In my case, under this Practice Act, unlicensed irrigation consultants may engage in the practice of, or offer to practice as, an irrigation consultant, may perform professional services, such as consultation, investigation, reconnaissance, research, design, preparation of drawings and specifications and responsible supervision, where the dominant purpose of such service is the design of landscape irrigation, in accordance with accepted professional standards of public health and safety. Refer to Exhibit "C" for additional information.

Since I am not a licensed landscape architect, certified irrigation designer or landscape contractor, am I to understand that it is DWR's intent to not allow me to practice my profession of providing irrigation consulting and water management services. Services that I have engaged in for over 50 years and that through the Model Ordinance, DWR acknowledges licensed landscape architects, certified irrigation designers and landscape contractors as the only persons qualified to perform irrigation design and water management services? Does this limitation extend to all of the other unlicensed persons that are qualified to practice their professions as outlined in the Sate of California Landscape Design California Practice Act? Don't forget that California is a right to work state as outlined in this State's Statutes. This Model Ordinance should not and can not supersede a person's right to work under California's Statutes.

Other issues include the following:

Comment 035.5

The Model Ordinance requires the use of drip irrigation on slopes. Please refer to Exhibit "D" for additional information.

Comment 035.6

Grading design is legislated by public works / engineering ordinance and code. Moreover, grading documentation requires separate permitting. It is inappropriate and confusing to include grading design and specification criteria in a water efficient ordinance. The landscape improvement base sheets should include all grading and drainage information, but should not duplicate the submittal of this civil engineering scope of separately permitted work. It is recommended that grading design should be deleted from the Model Ordinance and just note that jurisdictional agency requirements shall govern this section of the Model Ordinance.

Comment 035.7

Stormwater management is legislated by public works / engineering ordinance and code. Moreover, grading documentation requires separate permitting. It is inappropriate and confusing to include stormwater management design and specification criteria in a water efficient ordinance. It is recommended that stormwater management should be deleted from the Model Ordinance and just note that jurisdictional agency requirements shall govern this section of the Model Ordinance.

Comment 035.8

The Model Ordinance states that all irrigation schedules shall be developed, managed, and evaluated to utilize the minimum amount of water required to maintain plant health. Irrigation schedules shall be submitted as part of the Landscape Documentation Package and shall be submitted with the Certificate of Completion. The Model Ordinance goes on to state that actual irrigation schedules should be based on current time ETo data (e.g., CIMIS or soil moisture sensor) The ordinance requires that only weather based or sensor based irrigation controllers be included as a part of the irrigation design and installation. Both weather based and sensor based controllers automatically develop optimum irrigation schedules from data created by actual environmental and irrigation system parameters. If the required weather based or sensor based control systems automatically generate real time irrigation schedule, why does a historic weather based irrigation schedule need to be provided as a part of the Landscape Documentation package? How can the consultant creating irrigation schedules currently required by the ordinance by utilizing historic information and other anticipated environmental and irrigation system parameters be held responsible for how its created irrigation schedule will function in some future landscape?

Creating an irrigation schedule from historical data would mean that the consultant would be providing inaccurate irrigation schedules when compared to real time irrigation schedules. If a lawsuit becomes the result of the historic irrigation schedules which use is required by this ordinance, who is responsible? Is it the landscape maintenance contractor or the consultant? This situation would not be insurable under the consultant's professional liability insurance. Remember, the landscape is dynamic and needs to have its irrigation schedules adjusted by the landscape water manager and not use an erroneous irrigation schedule required by the ordinance.

Comment 35.9

What I believe needs to happen is for the Model Ordinance to be rewritten to provide an end result in terms of maximum applied water application (MAWA) and not how to reach MAWA. Of course, information on estimated applied water use (EAWU) will also need to be provided by the designer. There could be some simple rules like no water run-off, no overspray, use Smart controllers, develop and identify hydrozones, etc. The designer should determine the best approach to reach the end goal to ensure the EAWU is less than the MAWA. This can be accomplished without direction from the Model Ordinance on how the results should be achieved. I realize that my previous comments are an over simplification of a big issue, but not much more is needed to achieve the results desired.

In view of the many comments that DWR has received and the common thread that runs though most of the comments from individuals associated with the landscape industry, it is imperative that DWR make the changes necessary for the new Model Ordinance to succeed.

Respectfully Submitted,

d.d. Pagano, Inc.
Irrigation Consultants



David D. Pagano, FASIC



Mark W. Pagano, ASIC

Exhibit "A"

Prepared by d.d. Pagano, Inc. Irrigation Consultants
In response to Updated DWR Model Landscape Ordinance
27-Dec-08

Current AB 325 MAWA and EAWU Using an ET Adjustment Factor of 0.8 and an irrigation Efficiency of 0.625

Maximum Allowable Water Allowance

MAWA = $E_{To} \times 0.8 \times \text{Sq. Ft.} \times 0.62 = \text{Gallons per year}$

$$\text{MAWA} = 49.6 \times 0.8 \times 50,000 \times 0.62 = 1,230,824 \text{ Gallons Per Year}$$

Estimated Applied Water Use

EAWU = $E_{To} \times K_L \times \text{Sq. Ft.} \times 0.62 / \text{Efficiency} = \text{Gallons per year}$

$$\text{EAWU} = 49.6 \times 0.5 \times 50,000 \times 0.62 / 0.625 = 1,107,742 \text{ Gallons Per Year for Shrubs}$$

Proposed AB 325 MAWA and EAWU Using an ET Adjustment Factor of 0.7 and an irrigation Efficiency of 0.75

Maximum Allowable Water Allowance

MAWA = $49.6 \times 0.8 \times \text{Sq. Ft.} \times 0.62 = \text{Gallons per year}$

$$\text{MAWA} = 49.6 \times 0.7 \times 50,000 \times 0.62 = 1,076,971 \text{ Gallons Per Year}$$

Estimated Applied Water Use

EAWU = $49.6 \times K_L \times \text{Sq. Ft.} \times 0.62 / \text{Efficiency} = \text{Gallons per year}$

$$\text{EAWU} = 49.6 \times 0.5 \times 50,000 \times 0.62 / 0.75 = 923,118 \text{ Gallons Per Year for Shrubs}$$

As one can see, it does not really matter what numbers are used for calculating the MAWA and the EAWU. In either case the EAWU is lower than the MAWA. So the submittal to the local agency will always show that the EAWU can always be shown lower than the MAWA. The problem arises in the actual water use when compared to either the MAWA or the EAWU. DWR has chosen to use the untested DU theory that it is OK to use lower half distribution over lower quarter distribution and to except that the 90% irrigation management efficiency has been rejected by the Irrigation Association as an achievable goal in non-golf landscape management. The question is what happens when the actual water use can not match up with the estimated paper calculated water use?

EXHIBIT "B"

Coachella Valley typical landscape to achieve 24" setback with no runoff.

Is this what DWR intends for California landscapes?

Is this landscape appropriate for San Francisco or Los Angeles?



LANDSCAPE DESIGN IN CALIFORNIA

EXHIBIT "C"

Permitted Practice for Professionals, Practitioners, and Unlicensed Persons

This document has been prepared by the Landscape Architects Technical Committee (LATC), the licensing and regulatory agency for the practice of landscape architecture in California. The purpose of this document is to provide a quick reference regarding the various professionals, practitioners, and unlicensed persons who may offer landscape design services and the permitted scope and/or limitations that pertain to each. Please note that a licensed professional is required when the scope of a particular project demands the applicable professional services. While every effort has been made to ensure the accuracy of this document, it does not have legal effect. Should any difference or error occur, the law will take precedence. For more information, contact the LATC at (916) 575-7230 or latc@dca.ca.gov, or visit www.latc.ca.gov.

LANDSCAPE ARCHITECTS

- ◆ Hold a professional license to practice landscape architecture
- ◆ May perform professional services for the purpose of landscape preservation, development, and enhancement, such as consultation, investigation, reconnaissance, research, planning, design, preparation of drawings, construction documents and specifications, and responsible construction observation

APPLICABLE STATUTE: Section 5615 of the Business and Professions Code (BPC)

ARCHITECTS

- ◆ Hold a professional license to practice architecture
- ◆ May offer, perform, or be in responsible control of, professional services which require the skills of an architect in the planning of sites

APPLICABLE STATUTES: Sections 5500.1 and 5641.3 of the BPC

PROFESSIONAL ENGINEERS

- ◆ Hold professional registration to practice professional engineering
- ◆ May perform professional services, as defined under BPC 5615, as long as the work is incidental to an engineering project

APPLICABLE STATUTES: Sections 5615, 5641.3, and 6701 et seq. of the BPC

LANDSCAPE CONTRACTORS

- ◆ Hold a C-27 (landscaping contractor) license
- ◆ May design systems and facilities for work to be performed and supervised by that contractor

APPLICABLE REGULATION/STATUTES: Section 832.27 of the California Code of Regulations, Title 16, Division 8 and Section 5641.4 and 7027.5 of the BPC

NURSERYPERSONS

- ◆ Hold a license to sell nursery stock
- ◆ May prepare planting plans or drawings as an adjunct to merchandizing nursery stock and related products

APPLICABLE STATUTES: Section 5641.2 of the BPC and Section 6721 et seq. of the Food and Agriculture Code

UNLICENSED PERSONS

Landscape/Garden Designers, etc.

- ◆ May prepare plans, drawings, and specifications for the selection, placement, or use of plants for single family dwellings
 - ◆ May prepare drawings for the conceptual design and placement of tangible objects and landscape features
- ◆ May NOT prepare construction documents, details, or specifications for tangible landscape objects or landscape features
 - ◆ May NOT prepare grading and drainage plans for the alteration of sites

Personal Property Owners

- ◆ May prepare any plans, drawings, or specifications for any property owned by that person

Golf Course Architects

- ◆ May engage in the practice of, or offer to practice as, a golf course architect
- ◆ May perform professional services, such as consultation, investigation, reconnaissance, research, design, preparation of drawings and specifications and responsible supervision, where the dominant purpose of such services is the design of a golf course, in accordance with accepted professional standards of public health and safety

Irrigation Consultants

- ◆ May engage in the practice of, or offer to practice as, an irrigation consultant
- ◆ May perform professional services, such as consultation, investigation, reconnaissance, research, design, preparation of drawings and specifications and responsible supervision, where the dominant purpose of such service is the design of landscape irrigation, in accordance with accepted professional standards of public health and safety

APPLICABLE STATUTES: Sections 5641, 5641.1, 5641.5, 5641.6 of the BPC

Exhibit “D”

Prepared by d.d. Pagano, Inc. Irrigation Consultants
In response to Updated DWR Model Landscape Ordinance
December 27, 2008
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Page 29 item (T) non-turf areas on slopes greater than 25% shall be irrigated with drip irrigation or other low volume technology.

While drip irrigation has its place, slopes is not one of those places. Consider the following:

Rotor head Design Strategies 50,000 square feet of slope:

- Use rotor type sprinkler with 80 to 85 percent efficiency
- Precipitation rate = 0.60"/hour
- Assume erosion control/fuel modification slope 50' wide X 1000 long = 50,000 square feet
- Assume low water use plant with plant factor of 0.3
- MAWA = $49.63 \times 0.62 \times 0.7 \times 50,000 / 325,848 = 3.3$ Acre Feet
- ETWU = $49.63" \times 0.62 \times 0.3 \times 50,000 / 325,848 \times 0.80 = 1.77$ Acre Feet
- ETWU savings over MAWA = 1.53 Acre Feet
- Assume water cost \$1,000/Ac Ft.
- Annual Water Cost \$1,000/Ac Ft X 1.77 Ac. Ft. = \$1,770

Drip Design Strategies for 50,000 square feet of slope:

- Use drip emitter 18" on center installed on PVC pipe 18" between rows
- Precipitation rate using 1 gallon per hour emitter = .71" HR - This is higher than rotor system precipitation rate and therefore more potential for runoff.
- Assume erosion control/fuel modification slope 50' wide X 1000 long = 50,000 square feet
- Assume planting is low water use plant with plant factor of 0.3
- MAWA = $49.63 \times 0.62 \times 0.7 \times 50,000 / 325,848 = 3.3$ Acre Feet
- ETWU = $49.63" \times 0.62 \times 0.3 \times 50,000 / 325,848 \times 0.90 = 1.77$ Acre Feet
- Assume water cost \$ 1,000/Ac Ft.
- Annual Water Cost \$1,000/Ac Ft X 1.57 Ac. Ft. = \$1,570
- ETWU savings over MAWA = 1.73 Acre Feet
- A drip system could potentially save 0.2 Ac. Ft. per year or \$200 in water cost over rotor type irrigation system. However, this may not necessarily true in some soils. In soils where the vertical movement of water is much greater that the horizontal movement of water it is likely that in the effort to move the water horizontally to obtain optimum coverage, the vertical movement will exceed the root depth of the plant material. This water will be lost, thereby resulting in lower irrigation efficiencies for drip irrigation than rotor irrigation.

In either case, the use of drip or rotor irrigation is well below the MAWA. The potential saving of 0.2 acre feet of water of drip over rotor type sprinklers is

Exhibit “D”

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suspect at best. This is especially true when the cost of a drip system over a rotor system is considered.

Cost Considerations – Except for cost of sprinklers or drip emitters and lateral line piping, it is assumed all other system components are equal and are not included in the cost comparison

Rotor System Cost for erosion control/fuel modification slope 50’ wide X 1000’ long

- Use 3 rows of sprinkler 25’ on center will require 40 sprinkler X 3 row of 120 sprinklers at \$50.00 each = \$6,000
- Use 1000 Ft. of pipe per row X 3 rows = 3000 feet of pipe @ \$ 1.50/Ft. = \$4,500
- Total cost for rotor system = \$10,500

Drip System Cost

- Use 33 rows of drippers spaced 18” on center will require 667 drippers per row X 33 rows = 22,011 drippers @ \$2.00 each = \$ 44,022
- Use 1000 feet of pipe per row X 33 rows = 33,000 feet of pipe @ \$1.50/Ft. = \$49,500
- Total cost for drip system = \$ 93,522
- The drip system costs \$83,022 (93,522-10,500) more than conventional rotor system to save \$200 in water cost. This is not a beneficial use of financial resources and will lead to higher housing costs

Other Considerations

- Maintenance costs will be exponentially more costly than conventional rotor irrigation systems
- Drip irrigation may not work on Hydroseeded slopes. This will be especially true in the plant establishment period.