City of Desert Hot Springs

65-950 Pierson Blvd.• Desert Hot Springs • CA • 92240
(760) 329-6411
www.cityofdhs.org

January 28, 2010

Mr. Simon Eching
California Department of Water Resources
Water Use and Efficiency Resource
P.O. Box 94236
Sacramento, Ca 94236-0001

Ref: City of Desert Hot Springs Water Efficient Landscaping Ordinance

Mr. Simon Eching:

Please let this letter stand as notification that the City of Desert Hot Springs has adopted a new Water Efficient Landscaping Ordinance. Mission Springs Water District (MSWD) is the City's water purveyor. The City of Desert Hot Springs has worked with the MSWD to update its Water Efficient Landscaping Ordinance. MSWD adopted their new Ordinance on September 21, 2009. On December 15, 2009, the City of Desert Hot Springs City Council adopted its own Ordinance by incorporating MSWD's Ordinance by reference in the City's Municipal Code for consistency. This Ordinance will replace the existing Water Efficient Landscaping Ordinance. The new Ordinance is more effective at conserving water as the California Department of Water Resources updated Model Water Efficient Landscape Ordinance.

Attached please find a copy of the City Council of the City of Desert Hot Springs Adopted Ordinance (2009-515) and a copy of the Water Efficient Landscaping Ordinance as requested. Should you have any questions, please feel free to contact me at (760) 329-6411, extension 259.

Sincerely,

Martín Magaña
Planning Manager

C: file
Encls.

-2009-

MISSION SPRINGS WATER DISTRICT
WATER
EFFICIENT LANDSCAPING GUIDELINES

Sections:

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0.00.010 Purpose and intent.

A. The purpose of these guidelines is to establish effective water efficient landscape requirements for newly installed and rehabilitated landscapes. It is the intent of the District to promote water conservation through climate appropriate plant material and efficient irrigation practices and comply with the State of California's Water Conservation in Landscaping Act. These guidelines apply to all new and rehabilitated landscapes for private, recreational and commercial developments, including single or multifamily housing developments, and residential infill unless the owner selects a pre-approved landscape design model that conforms to these guidelines, (i.e., arid, semi-arid, or lush and efficient). Only those sites defined under Section 0.00.030, A. (5) are exempted as noted.

0.00.020 Definitions.

The words used in this chapter have the meanings set forth below:

A. "Anti-drain valve" or "check valve" means a valve located under a sprinkler head to hold water in the system so it minimizes drainage from the lower elevation sprinkler heads.

B. "Application rate" means the depth of water applied to a given area, usually measured in inches per hour. Also known as precipitation rate (sprinklers) or emission rate (drippers/microsprayers) in gallons per hour.

C. "Applied water" means the portion of water supplied by the irrigation system to the landscape. Applied water shall be distributed uniformly utilizing the low-quarter measurement method (DU_{LQ}) attainable performance measure of 75% for spray heads, 80% for rotary heads, 85% for recreational turf grass rotor heads, and 90% for drip/micro/PC bubblers.

D. "Automatic Smart irrigation Controller" means a solid-state timer, capable of operating valve stations to set the days and length of time of a water application automatically in response to changing weather conditions and or soil moisture levels, unless the use of the property would otherwise prohibit use of a timer.

E. "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.

F. "Conversion factor (0.62)" means a number that converts the maximum applied water allowance from acre-inches per acre per year to gallons per square foot per year. The conversion factor is calculated as follows:

(325,851 gallons/43,560 square feet)/12 inches = (0.62)

325,851 gallons	= one acre-foot
43,560 square feet	= one acre
12 inches	= one foot

To convert gallons per year to 100 cubic feet per year, the common billing unit for water, divide gallons per year by 748. (748 gallons = 100 cubic feet)

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

H. "Effective precipitation" or "usable rainfall" means the portion of total natural precipitation that is used by the plants. Precipitation is not a reliable source of water in the desert.

I. "Emitter" means drip irrigation fittings that deliver water slowly from the system to the soil.

J. "Established landscape" means the point at which plants in the landscape have developed roots into the soil adjacent to the root ball.

K. "Establishment period" means the first year after installing the plant in the landscape.

L. "Estimated annual applied water use" means the portion of the estimated annual total water use that is derived from applied water. The estimated annual applied water use shall not exceed the maximum applied water allowance.

M. "Estimated total water use" means the annual total amount of water estimated to be needed to keep the plants in the landscaped area healthy. It is based upon such factors as the local evapotranspiration rate, the size of the landscaped area, the types of plants, and the efficiency of the irrigation system.

N. "ET adjustment factor" means a factor of 0.5 that, when applied to reference evapotranspiration, adjusts for plant factors and irrigation efficiency, two major influences upon the amount of water that needs to be applied to the landscape. A combined plant mix with a site-wide average 0.38 is the basis of the plant factor portion of this calculation. The irrigation efficiency for purposes of the ET adjustment factor is 0.75. Therefore, the ET adjustment factor 0.5= (0.38/0.75).

O. "Evapotranspiration" means the quantity of water evaporated from adjacent soil surfaces and transpired by plants during a specific time.

P. "Flow rate" means the rate at which water flows through pipes and valves (gallons per minute or cubic feet per second).

Q. "Hydrozone" means a portion of the landscaped area having plants with similar water needs that are served by a valve or set of valves with the same schedule. A hydrozone may be irrigated or nonirrigated. For example, a naturalized area planted with native vegetation that will not need supplemental irrigation once established is a nonirrigated hydrozone.

R. "Infiltration rate" means the rate of water entry into the soil expressed as a depth of water per unit of time (inches per hour).

S. "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 irrigation efficiency for purposes of this chapter is 0.75. Greater irrigation efficiency can be expected from well-designed and maintained systems.

T. "Landscape irrigation audit" means a process to perform site inspections, evaluate irrigation systems, and develop efficient irrigation schedules.

U. "Landscaped area" means the entire parcel less the building footprint, driveways, nonirrigated portions of parking lots, hardscapes such as decks and patios, and other nonporous areas. Water features are included in the calculation of the landscaped area.

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

W. "Main line" means the pressurized pipeline that delivers water from the water meter to the valve or outlet.

X. "Service line" means the pressurized pipeline that delivers water from the water source to the water meter.

Y. "Maximum applied water allowance" means for design purposes, the upper limit of annual applied water for the established landscaped area. 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.

Z. "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.

AA. "Mulch" means any material such as gravel, small rocks, pebbles, decorative sand, decomposed granite, bark, straw or other material left loose and applied to the soil surface for the beneficial purpose of reducing evaporation.

BB. "Operating pressure" means the manufacturer's recommended pressure at which a system of sprinklers, bubblers, drippers or microsprayers is designed to operate.

CC "Overhead sprinkler irrigation systems" means those with high flow rates

(pop-ups, impulse sprinklers, rotors, etc.).

DD. "Overspray" means the water which is delivered beyond the landscaped area, wetting pavements, walks, structures, or other non-landscaped areas. Overhead irrigation is not permitted within 24 inches of any non-permeable surface. There are no restrictions on the irrigation type if the landscaped area is adjacent to a permeable area and no overspray or runoff occurs. Long-narrow or irregularly shaped areas including turf less than (8) eight feet in width in any direction shall be irrigated with subsurface irrigation or low-volume irrigation technology to prevent overspray.

EE. "Plant factor" means a factor that when multiplied by reference evapotranspiration, estimates the amount of water used by plants. For purposes of these guidelines, the average plant factor of very low water using plants ranges from 0.01 to 0.10, for low water using plants the range is 0.1 to 0.3, for moderate water using plants the range is 0.4 to 0.60 and for high water using plants, the range is 0.7 to 0.9. For reference use the Water Use Classifications of Landscape Species III (WUCOLS II) found on the Internet.

FF. "Rain sensing device" means a system, which automatically shuts off the irrigation system when it rains.

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

HH. "Recreational area" means areas of active play or recreation such as golf courses, sports fields, school yards, picnic grounds, or other areas with intense foot traffic.

II. "Recycled water," "reclaimed water" or "treated sewage effluent water" means treated or recycled waste water of a quality suitable for nonpotable uses such as landscape irrigation; not intended for human consumption.

JJ. "Reference evapotranspiration" or "ETo" means a standard measurement of environmental parameters which affect the water use of plants. ETo is given in inches per day, month, or year, and is an estimate of the evapotranspiration of a

large field of cool-season grass that is well watered. Reference evapotranspiration is used as a basis of determining the maximum applied water allowances so that regional differences in climate can be accommodated. For purposes of these guidelines, 93.9 inches per year will be used for ETo.

KK. "Rehabilitated landscape" means any relandscaping project whose choice of new plant material and/or new irrigation system components is such that the calculation of the site's estimated water use will be significantly changed and/or requires a permit, plan check, or design review. The new estimated water use calculation must not exceed the maximum applied water allowance calculated for the site using a 0.5 ET adjustment factor.

LL. "Runoff" means water which is not absorbed by the soil or landscape to which it is applied and flows from the planted area. For example, runoff may result from water that is applied at too great a rate (application rate exceeds infiltration rate), when there is a severe slope or when water is misapplied to hardscapes. Non-turf areas on slopes greater than 25% shall be irrigated with drip irrigation or other low-volume irrigation technology to prevent runoff. Excessive water flow or runoff onto hardscapes is prohibited.

MM. "Soil moisture sensing device" means a device that measures the amount of water in the soil.

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

OO. "Sprinkler head" means a device which sprays water through a nozzle.

PP. "Static water pressure" means the pipeline pressure when water is not flowing.

QQ. "Station" means an area served by one valve or by a set of valves that operates simultaneously. Separate valves shall be provided for separate water use planting areas, so that plants with similar water needs are irrigated by an irrigation station dedicated to those plants, i.e., shrubs and turf would not be grouped together on the same station.

RR. "Turf" means a surface layer of earth containing mowed grass with its roots. Perennial and Annual Ryegrass are examples of cool season grasses. Hybrid and common Bermuda grass are examples of warm season grasses.

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

TT. "Water Efficient Landscape Checklist" means a one-page checklist and a narrative summary of the project.

UU. "Water Feature" means any water applied to the landscape for non-irrigation decorative purposes. Fountains, streams, ponds and lakes are considered water features. Water features use more water than efficiently irrigated turfgrass and are assigned a plant factor value of 1.1 for a stationary body of water and 1.2 for a moving body of water. The assigned factors assume that water is recirculated in the water feature.

VV. "Recreational Turfgrass" means turfgrass that serves as a playing surface for sports and recreational activities. Athletic fields, golf courses, parks and school playgrounds are all examples of areas featuring recreational turfgrass.

WW. "Recreational Turfgrass ET adjustment factor" means a factor of 0.82 that, when applied to reference evapotranspiration, adjusts for the additional stress of high traffic on recreational turfgrass and the higher irrigation efficiencies of long range rotary sprinklers. These are the two major influences upon the amount of water that needs to be applied to a recreational landscape. A mixed cool/warm season turfgrass with a seasonal average of 0.7 is the basis of the plant factor portion of this calculation. The irrigation efficiency of long range sprinklers for purposes of the ET adjustment factor is 0.85. Therefore, the ET adjustment factor is 0.82 = 0.7/0.85. The plant factor assigned to Recreational Turfgrass areas is specifically reserved for those areas of high traffic. Turfgrass areas of passive recreation (picnic areas) and ornamental green belts are excluded and shall receive the appropriate plant factor for those particular areas.

0.00.030 Provisions for New or Rehabilitated Landscapes (Application Requirements)

A. Landscape Documentation Package.

1. Each landscape documentation package shall include the following elements, which are described separately in Exhibit 1 attached.

a. Water efficient landscape checklist;

b. Calculation of the maximum applied water allowance;

c. Calculation of the estimated applied water use;

d. Calculation of the estimated total water use;

e. Landscape design plan;

f. Irrigation design plan;

g. Grading design plan;

h. Soil Management Plan (required);

i. Certificate of Completion. (Provided from the District upon approved final inspection)) See Exhibit 2.

2. Three copies of the landscape documentation package conforming to this chapter shall be submitted to the Mission Springs Water District (District). Final approval of infrastructure and acceptance by the District shall not be given until the District reviews and approves the landscape documentation package.

3. A copy of the approved landscape documentation package shall be provided to the property owner or site manager along with the record drawings and any other information normally forwarded to the property owner or site manager.

4. Upon completion of construction, a copy of the water efficient landscape checklist and the Certificate of Completion shall be sent by the project manager to the owner of record and the local land use agency (City of Desert Hot Springs, City of Palm Springs or County of Riverside as applicable).

5. The following are exempt from these guidelines: Registered local, state or federal historical sites, ecological restoration projects that do not require a permanent irrigation system and have an establishment period of less than 3 years, mined land reclamation projects that do not require a permanent

irrigation system, and botanical gardens and arboretums open to the public.

6. Note: Only the most current Landscape Guidelines of the Mission Springs Water District that are in effect at the time of application are applicable. For phased projects, each phase is subject to this requirement, i.e., the most current guidelines apply to each phase according to when application is made. Applications that are over one year old, and have not received a Certificate of Completion, will expire and must be re-submitted.

B. Public Education.

1. The landscape architect will provide a site-specific landscape irrigation package for the homeowner (owner of record for the property) or irrigation system operator. The package will include a set of drawings, a recommended monthly irrigation schedule and a recommended irrigation system maintenance schedule. A copy of the drawings shall also be provided to the local land use agency (City of Desert Hot Springs, City of Palm Springs or County of Riverside as applicable). All model homes are required to use signs and written information to demonstrate the principles of water efficient landscapes, and provide information to owners of new single family residential homes regarding the design, installation, management and maintenance of water efficient landscapes.

2. Irrigation Schedules. Irrigation schedules shall be submitted as part of the landscape irrigation package. An annual irrigation program with monthly irrigation schedules shall be required for the plant establishment period, for the established landscape, and for any temporarily irrigated areas. The irrigation schedule shall:

   i. Include run time (in minutes per cycle), suggested number of cycles per day, and frequency of irrigation for the station; and

   ii. Provide the amount of applied water (in hundred cubic feet) recommended on a monthly and annual basis.

   iii. Irrigation scheduling shall incorporate the use of evapotranspiration data such as those from the California Irrigation Management

Information System (CIMIS) weather stations to apply the appropriate levels of water for different climates, however due to the microclimate conditions particular to the Desert Hot Springs area, due to high winds and reduced humidity levels in our area, a higher ETo value of 93.9 is used. Should a CIMIS value more applicable to the City of Desert Hot Springs become available in the future, that value will be used instead, and shall be provided for landscape design and operation provisions of these guidelines.

iv. Landscape irrigation is prohibited between the hours of 9:00 a.m. and 5:00 p.m. except through use of a handheld bucket or hose equipped with a positive shutoff nozzle or device, or for short periods of time for the express purpose of adjustment or repairs to the irrigation system. Overhead irrigation shall be limited to the hours of 8:00 p.m. to 9:00 a.m. to minimize water waste caused by irrigating during times of high wind, high temperature, etc.

3. Maintenance Schedules. A regular maintenance schedule satisfying the following conditions shall be submitted as part of the landscape documentation package:

i. Landscapes shall be maintained to ensure water efficiency. A regular maintenance schedule shall include but not be limited to checking, adjusting, cleaning and repairing equipment; resetting the automatic controller, aerating and dethatching turf areas; replenishing mulch; fertilizing; pruning; and weeding in all landscaped areas.

ii. Repair of irrigation equipment shall be done with the originally specified materials or their approved equivalents.

0.00.040 Provisions for audits.

A. Water Management. All landscaped areas covered by these guidelines which exceed 1.0 acre (43,560 square feet), including golf courses, green belts, common areas, multifamily housing, schools, businesses, public works, parks, and cemeteries may be subject to a landscape irrigation audit at the discretion of the District if the District has determined that the annual maximum applied water

allowance has been exceeded for a minimum of 2 consecutive years. At a minimum, the audit shall be conducted by a certified landscape irrigation auditor and shall be in accordance with the California Landscape Irrigation Auditor Handbook, the entire document which is hereby incorporated by reference. (See Landscape Irrigation Audit Handbook, Department of Water Resources, Water Conservation Office (June, 1990, Version 5.5.)

B. Water Waste Prevention. Water waste resulting from inefficient landscape irrigation including run-off, low-head drainage, overspray, or other similar conditions where water flows onto adjacent property, non-irrigated areas, walks, roadways, or structures shall be prohibited. All broken heads and pipes must be repaired within a reasonable time following notification, within 72 hours is expected.

0.00.050 Fees for initial review and program monitoring.

Fees are deemed necessary to review landscape documentation packages and monitor landscape irrigation audits and shall be imposed on the subject applicant, property owner or designee.

A. A landscape documentation package review fee will be due at the time the initial project application is submitted to the District. The fee includes an initial inspection. Subsequent reinspection shall be required for any failed inspections, and requires another inspection fee to be charged for each occurrence.

B. The Board of Directors, by resolution, shall establish the amount of the above-referenced fees in accordance with applicable law.

0.00.060 Appeals.

Decisions made by District personnel may be appealed by an applicant, property owner(s), or designee(s) of any applicable project to the General Manager and thereafter to a committee designated by the Board of Directors. Appeals shall be made in writing to the General Manager, within fifteen days from the date of notification of decision.

REPEALS:

These guidelines will become effective upon Board adoption. All plans approved on or after adoption are subject to the provisions of these guidelines. All other ordinances or parts of ordinances in conflict with the provisions of these guidelines are hereby expressly repealed.

EXHIBIT 1

Landscape Documentation Package

1. Water Efficient Landscape Checklist. Each landscape documentation package shall include a cover sheet, referred to as the Water Efficient Landscape Checklist similar to the following example. It serves to verify that the elements of the landscape documentation package have been completed and provides a narrative summary of the project.

2. Supporting documents. Following the Water Efficient Landscape Checklist shall be the items 1-7 as identified on the Checklist.. In completing these items, the applicant will provide the water calculations used to determine the Maximum Annual Applied Water Allowance, Estimated Annual Applied Water Use by Hydrozone and Estimated Annual Total Water Use for the project, as well as all other supporting documents required by the Water Efficient Landscape Checklist.

3. Item 7 on the Checklist - The Soil Management Plan - shall include results of a soil probe test to determine sufficient soil depth to support intended plants, representative sample(s) of the site shall also be taken and submitted to an approved laboratory that will provide a soils report that includes evaluation and results detailing the following; soil type and texture, infiltration rate, pH, total soluble salts, and sodium. Along with the soils report shall be a summary detailing any recommendations regarding the soil conditions, and the remediation efforts necessary to mitigate any limiting soil conditions.

WATER EFFICIENT LANDSCAPE CHECKLIST

Project Site: _____ Case Number:_____

Project Location:_____

Landscape Architect/Irrigation Designer/Contractor:_____

Included in this project submittal package are:
(Check to indicate completion)

____ 1. Maximum Annual Applied Water Allowance:
Conventional Landscape: _____ 100 cubic feet/year
+ Recreational Turfgrass Landscape: _____ 100 cubic feet/year(if applicable)
Total Maximum Annual Applied Water Allowance: _____ 100 cubic feet/year

____ 2. Estimated Annual Applied Water Use by Hydrozone:
Turfgrass: _____ 100 cubic feet/year
Recreational Turfgrass: _____ 100 cubic feet/year
High Water Use Plant Hydrozone:_____100 cubic feet/year
Medium Water Use Plant Hydrozone_____ 100 cubic feet/year
Low Water Use Plant Hydrozone: _____ 100 cubic feet/year
Water features: _____ 100 cubic feet/year
Other _____: _____ 100 cubic feet/year

____ 3. Estimated Annual Total Water Use: _____ 100 cubic feet/year

____ 4. Landscape Design Plan. Note: for Infill development only, if using a standard City of Desert Hot Springs Landscape Option, note here.
___ Arid_____Semi Arid____Lush and Efficient

____ 5. Irrigation Design Plan (including Smart Controller)

____ 6. Grading Design Plan

____ 7. Soil Management Report(required)

Description of Project:(Briefly describe the planning and design actions that are intended to achieve conservation and efficiency in water use.)

_____

_____

Date:_____ Prepared by:_____

1. The Annual Maximum Applied Water Allowance.

   a. A project's annual maximum applied water allowance shall be calculated using the following formula:

MAAWA = (ETo) (0..5) (LA) (0.62) where:

MAAWA = Maximum annual applied water allowance (gallons per year)

ETo = Reference evapotranspiration (i.e. 93.9 inches per year)

0.5 = ET adjustment factor

LA = Landscaped area (square feet)

0.62 = Conversion factor (to gallons per square foot)

   b. An example calculation of the annual maximum applied water allowance is:

   Project site: Landscape area of 50,000 square feet

MAWA = (ETo) (..5) (LA) (.62)

= **(93.9** inches) (.5) (50,000 square feet) (.62)

   Maximum applied water allowance = 1,455,450 gallons per year, 1,946 hundred-cubic-feet per year (billing units), 4.47 Acre Feet/Acre per year or 53.6" of water per year.

2. Estimated Annual Applied Water Use.

   a. The annual estimated applied water use shall not exceed the annual maximum applied water allowance.

   b. A calculation of the estimated annual applied water use shall be submitted with the landscape documentation package.

   c. The estimated annual total water use for each hydrozone is calculated from the following formula:

EWU (hydrozones) = $\frac{\text{(ETo) (PF) (HA) (.62)}}{\text{(IE)}}$ / 748

(in 100 cubic feet)

EWU (hydrozone) = Estimated water use (gallons per year)

ETo = Reference evapotranspiration of 93.9 inches per year)

PF = Plant factor (see definitions)

HA = Hydrozone area (square feet)

(.62) = Conversion factor

(IE) = Irrigation efficiency (see definitions)

748 = Conversion to billing units (100 cubic feet)

3. Estimated Annual Total Water Use. A calculation of the estimated annual total hydrozone water use shall be submitted with the landscape documentation package. The estimated annual total water use for the entire landscaped area equals the sum of the estimated annual water use (EWU) of all hydrozones in that landscaped area.

4. Landscape Design Plan. A landscape design plan meeting the following requirements shall be submitted as part of the landscape documentation package.

   a. Plant Selection and Grouping.

      i. Any plants may be used in the landscape, providing the estimated annual applied water use recommended does not exceed the maximum annual applied water allowance and that the plants meet the specifications set forth in (ii), (iii) and (iv).

      ii. Plants having similar water use shall be grouped together in distinct hydrozones.

      iii. Plants shall be selected appropriately based upon their adaptability to the climate, geologic, and topographical conditions of the site. Protection and preservation of native species and natural areas are encouraged. The planting of trees is encouraged whenever it is consistent with the other provisions of this chapter.

      iv. Fire prevention needs shall be addressed in areas that are fire prone. Information about fire prone areas and appropriate landscaping for fire safety is available from the fire marshal.

   b. Water Features.

      i. Recirculating water shall be used for decorative water features.

   c. Landscape Design Plan Specifications. The landscape design plan shall be drawn on project base sheets at a scale that accurately and clearly identifies:

      i. Designation of hydrozones;

      ii. Landscape materials, trees, shrubs, groundcover, turf and other vegetation.

      Planting symbols shall be clearly drawn and plants labeled by botanical name, common name, water use classification, container size, spacing and quantities of each group of plants indicated;

      iii. Property lines and street names;

      iv. Streets, driveways, walkways and other paved areas;

      v. Pools, ponds, water features, fences and retaining walls;

      vi. Existing and proposed buildings and structures including elevation, if applicable;

      vii. Location of all overhead and underground utilities.

      viii. Natural features including but not limited to rock outcroppings, existing trees and shrubs that will remain;

      ix. Tree staking, plant installation, soil preparation details, and any other applicable planting and installation details; including the use of soil

covering mulch or a mineral groundcover of a minimum two-inch depth to reduce soil surface evaporation is required around trees, shrubs and non-irrigated areas. The use of boulders and creek stones shall be considered to reduce the total vegetation area; make sure these areas have enough shade to avoid reflected or retained heat.

x. A calculation of the total landscaped area;

xi. Designation of recreational areas.

5. Irrigation Design Plan. An irrigation design plan meeting the following conditions shall be submitted as part of the landscape documentation package.

a. Irrigation Design Criteria.

i. Runoff and Overspray. Soil types and infiltration rate shall be considered when designing irrigation systems. All irrigation systems shall be designed to avoid runoff, low-head drainage, overspray, or other similar conditions where water flows onto adjacent property, nonirrigated areas, walks, roadways or structures. Proper irrigation equipment and schedules, including features such as repeat cycles, shall be used to closely match application rates to infiltration rates therefore minimizing runoff.

Special attention shall be given to avoid runoff on slopes and to avoid overspray in planting areas with a width less than eight feet. No overhead sprinkler irrigation systems shall be installed in median strips or islands where long, narrow, or irregularly shaped turf areas are located. These areas should be avoided as they are prone to overspray unless a subsurface irrigation or surface flow/wick irrigation system is employed in the design.

ii. Irrigation Efficiency. For the purpose of determining the maximum applied water allowance, irrigation efficiency is assumed to be 0.75. Mixed irrigation system types shall be designed, maintained and managed to meet or exceed an average of 0.75 efficiency.

iii. Equipment.

1. Water Meters. Separate landscape water meters shall be installed for all projects except for single-family homes or any project with a landscaped area of less than twenty five hundred square feet.

2. Controllers. Automatic Smart Control systems (solar or electric) shall be required for all irrigation systems and must be able to accommodate all aspects of the design. Mechanical irrigation controllers are prohibited.

3. Valves. Plants which require different amounts of water shall be irrigated by separate valves. If one valve is used for a given area, only plants with similar water use shall be used in that area.

4. Anti-drain (check) valves shall be installed in strategic points to prevent low-head drainage.

5. Sprinkler Heads. Heads shall have application rates appropriate to the plant water use requirements within each control valve circuit. Sprinkler heads shall be selected for proper area coverage,

application rate, matched precipitation rate nozzles, operating pressure, adjustment capability and ease of maintenance. Overhead irrigation is not permitted within 24 inches of any non-permeable surface. There are no restrictions on the irrigation type if the landscaped area is adjacent to a permeable area and no overspray or runoff occurs. Long-narrow or irregularly shaped areas including turf less than (8) eight feet in width in any direction shall be irrigated with subsurface irrigation or low-volume irrigation technology to prevent overspray.

6. Scheduling Aids: Soil Moisture Sensing Devices. It is required that soil moisture sensing devices be installed on all turfgrass sites exceeding 1.0 acres(43,560 square feet) of planted area in total or aggregate for a project site.

7. Scheduling Aids: Smart Controllers. Smart Controllers are required for installation on all sites. For areas of turfgrass exceeding 1.0 acre (43,560 square feet) of planted area in total or aggregate, a wind sensing device that prevents excessive overspray from occurring in overly windy conditions (wind speed greater than 25 mph) is recommended.

8. Equipment in Publicly Maintained Areas. Irrigation equipment in areas which may or will be maintained by the District shall conform to specifications of the District.

9. Emitters. Emitters shall have application rates appropriate to the plant water use requirements within each control valve circuit. Emitters shall be selected for specific area coverage (individual plants), application rates, operating pressure, adjustment capability and ease of maintenance.

b. Recycled Water.

i. The installation of recycled water irrigation systems (dual distribution systems) shall be required to allow for the future use of recycled water, unless a written exemption has been granted as described in the following subsection ii.

ii. Irrigation systems shall make use of recycled water unless a written exemption has been granted by the District, stating that recycled water meeting all health standards is not available and will not be available in the foreseeable future.

iii. Recycled water irrigation systems shall be designed and operated in accordance with all local and state codes and be applicable to all of the provisions of these guidelines.

c. Irrigation Design Plan Specifications. Irrigation systems shall be designed to be consistent with hydrozones. The irrigation design plan shall be drawn on project base sheets. It shall be separate from, but use the same format as, the landscape design plan. The scale shall be the same as that used for the landscape design plan. The irrigation design plan shall accurately and clearly identify:

i. Location and size of separate water meters for the landscape;

ii. Location, type, and size of all components of the irrigation system, including automatic controllers, main and lateral lines, valves, sprinkler heads, moisture sensing devices, rain switches, quick couplers, and backflow prevention devices;

iii. Static water pressure at the point of connection to the water supply;

iv. Flow rate (gallons per minute), application rate (inches per hour), and design operating pressure (psi) for each station;

v. Recycled water irrigation systems.

vi. The recommended irrigation schedule for the landscaped area shall also be included at the time the Certificate of Completion is filed.

6. Grading Design Plan. Grading design plans satisfying the city grading ordinance and the following conditions shall be submitted as part of the landscape documentation package.

a. A grading design plan shall be drawn on project base sheets. It shall be separate from but use the same format as the landscape design plan.

b. The grading design plan shall indicate finished configurations and elevations of the landscaped area, including the height of graded slopes, drainage patterns, pad elevations, and finish grade.

c. Turfgrass plantings are prohibited on slopes greater than three-to-one. Slopes steeper than three-to-one shall be planted to permanent ground covering plants adequate for proper slope protection.

7. Soil Management Plan (Required)

a. A soil analysis performed by an approved laboratory and report documenting the test results of representative soil sample(s) taken from the site, including any identification of soil characteristics and any recommendations requiring remediation or actions to address limiting soil characteristics for the site shall be submitted as part of the landscape documentation package:

i. Determination of soil type and texture, indicating the available water holding capacity.

ii. An approximate soil infiltration rate (either) measured or derived from soil texture/infiltration rate tables. A range of infiltration rates shall be noted where appropriate.

iii. Measure of pH, total soluble salts, sodium.

iv. The lab test results along with a report detailing the soil characteristics, particularly any limiting soil characteristics, recommendations regarding the soil conditions, and the remediation efforts necessary to mitigate any limiting soil conditions.

v. The aforementioned samples and testing shall take place only after mass grading is complete, and to determine the appropriate level of soil sampling and method needed to obtain representative sample(s) In

addition a soil probe test must be conducted to determine if the soil in the landscape area has sufficient depth to support the intended plants.

EXHIBIT 2

Certificate of Completion

1. An inspector, designated by the District to perform the final inspection of the installed landscape, shall conduct a final field observation and shall provide acknowledgment to the District of a successful inspection. The District will provide a Certificate of Completion to the applicant who then is responsible for submitting the certificate to the owner and the local land use agency (City of Desert Hot Springs, City of Palm Springs or County of Riverside as applicable). The certificate shall specifically indicate that plants were installed as specified, that the irrigation system was installed as designed, and that an irrigation audit has been performed, along with a list of any observed deficiencies. The recommended irrigation schedule shall be included with the certificate.
2. Certification shall be accomplished by obtaining the Certificate of Completion from the District and delivering it to the local land use agency (City of Desert Hot Springs, City of Palm Springs or County of Riverside as applicable), and to the owner of record. A sample of such a form, which shall be provided by the District is as follows:

CERTIFICATE OF COMPLETION

Project Site: _____ Project Number:_____

Project Location:_____

Preliminary Project Documentation Submitted: (Check indicating submittal)

____ 1. Total Maximum Applied Water Allowance: ____ (100 cubic feet per year)
____ 2. Estimated Applied Water Use by Hydrozone:
Turfgrass: _____ 100 cubic feet/year
Recreational Turfgrass: _____ 100 cubic feet/year
High Water Use Plant Hydrozone:_____100 cubic feet/year
Medium Plant Hydrozone: _____ 100 cubic feet/year
Low Plant Hydrozone: _____ 100 cubic feet/year
Water features: _____ 100 cubic feet/year
Other _____: _____ 100 cubic feet/year
____ 3. Estimated Total Water Use: ____ (100 cubic feet per year)
____ 4. Landscape Design Plan
____ 5. Irrigation Design Plan
____ 6. Grading Design Plan
____ 7. Soil Management Plan (required)

Post-Installation Inspection: (Initial indicating substantial completion)
____ A. Plants installed as specified
____ B. Irrigation system installed as designed including Smart Controller
_____ dual distribution system for recycled water (if applicable)
_____ minimum run-off or overspray
____C. Recommended irrigation system provided.

Inspection Comments:

_____

_____

_____

_____

The planting and irrigation installation at the above location has been inspected for compliance with the Mission Springs Water District's Water Efficient Landscape Guidelines and is found to conform to the specifications approved by Mission Springs Water District for this project/site.

_____

Signature Date