



TOWN OF HILLSBOROUGH

1600 FLORIBUNDA AVENUE
HILLSBOROUGH
CALIFORNIA
94010-6418

DEPARTMENT OF PUBLIC WORKS

August 25, 2010

Mr. Simon Eching
California Department of Water Resources
Office of Water Use Efficiency
901 P Street, Third Floor
P. O. Box 942836
Sacramento, CA 94236-0001

Subject: Notification of the Town of Hillsborough's Adoption of a Water Conservation in Landscaping Ordinance

Dear Mr. Eching,

Pursuant to AB 1881, Section 65597, on or before January 31, 2010 each City and County within California is obligated to notify the California Department of Water Resources (DWR) as to whether that City or County is subject to the DWR updated model water-efficient landscape ordinance (DWR Model Ordinance), or whether that City or County has adopted its own water-efficient landscape ordinance.

As described in our letter dated December 30, 2009, the Town of Hillsborough has been in the process of developing our own Water Conservation in Landscaping Ordinance. The Town of Hillsborough is writing to inform you that, on June 14, 2010, we adopted our own Water Conservation in Landscaping (Ordinance). A copy of our Ordinance, and the resolution adopting the Ordinance, is attached.

Based on the following findings, we have concluded that our Ordinance addresses the needs of our local community and is at least as effective as the DWR Model Ordinance in conserving water:

- (1) **The Ordinance applies to more accounts in our service area than the DWR Model Ordinance would.** The Ordinance applies to all new development and rehabilitated landscapes that are greater than 2,500 square feet (sq.ft.) and that require a landscape permit, plan check or design review, or new or expanded water service. The thresholds specified in the Ordinance are lower than the DWR Model Ordinance thresholds of 5,000 sq.ft. for homeowner-installed projects.

(The Town of Hillsborough is almost exclusively a residential community.) The impact of lowering the landscape size thresholds is that more landscapes will be subject to the Ordinance and therefore, will be designed to be more water efficient than they may otherwise have been pursuant to the DWR Model Ordinance, with the result of increased water savings.

- (2) **The Ordinance limits the allowable turf area to 25% of the irrigated area, unless the project applicant chooses to develop a water budget.** Turf area restrictions result in lower water use landscape designs than a water budget based approach (i.e., the DWR Model Ordinance approach). By having a turf restriction as the default option, the Ordinance has been designed to minimize the use of turf in landscaping and result in increased water savings.
- (3) **The Ordinance requires that at least 80% of the plants in non-turf landscape areas shall be native plants, low-water using plants, or no-water using plants, unless the project applicant chooses to develop a water budget.** The DWR Model Ordinance does not specify plant requirements as it is based on a water budget approach. By having low water use plantings as a default requirement, the Ordinance has been designed to minimize the use of high-water using plants in landscaping and result in increased water savings.
- (4) **The Ordinance includes water budget parameters and values that are consistent with the DWR Model Ordinance.** By using the same parameters as the DWR Model Ordinance for purposes of developing the water budgets (e.g., plant factors, irrigation efficiency, etc), the Ordinance will necessarily be at least effective as the DWR Model Ordinance in terms of developing landscape water budgets and achieving water savings.
- (5) **The Ordinance includes landscape parameters that are consistent with the DWR Model Ordinance.** The Ordinance includes the same values as the DWR Model Ordinance for, among other things, establishing slope restrictions and width restrictions for turf, limiting irrigation times, and establishing minimum mulch requirements. By adopting the same requirements as the DWR Model Ordinance, the Ordinance will necessarily be at least as effective as the DWR Model Ordinance in terms of achieving water savings.
- (6) **The Ordinance has been simplified relative to the DWR ordinance.** The Ordinance is more simple and streamlined than the DWR Model Ordinance. As such, it will be easier for applicants to comply with the Ordinance and easier for the agency or water purveyor to implement and enforce the Ordinance. The Ordinance will therefore be at least as effective as the DWR Model Ordinance in terms of achieving water savings.

Our community has a strong commitment to conserving water. The Ordinance will apply to the majority of the new and rehabilitated landscapes within our jurisdiction that require a landscape permit, plan check or design review, or new or expanded water service. We will be working with the Project applicants to ensure that they install and maintain beautiful and water-efficient landscaping that also

coincides with our stormwater best management practices and other goals. Please do not hesitate to contact me with any questions at 650-375-7400.

Sincerely,

A handwritten signature in black ink, appearing to read "Kathy Leroux". The signature is fluid and cursive, with the first name "Kathy" written in a larger, more prominent script than the last name "Leroux".

Kathy Leroux
Assistant City Manager
Town of Hillsborough

cc. BAWSCA

Attachments:

Ordinance, as adopted by the Town of Hillsborough on June 14, 2010.

ORDINANCE NO. 689

ORDINANCE AMENDING SECTION 13.16.030 AND ADDING SECTION 13.16.035 OF CHAPTER 13.04, ADDING CHAPTER 15.29 ESTABLISHING WATER CONSERVATION IN LANDSCAPE REQUIREMENTS AND AMENDING SECTION 17.56.040

Section 1. Section 13.16.030, sub-sections D and E, are hereby amended to read as follows:

13.16.030 Voluntary water conservation

- D. Since the mandatory rationing program revealed that leaks were a major cause of waste, customers are encouraged to monitor their water use and to maintain close surveillance over their plumbing and irrigation systems to insure early leak detection. Customers who have been given notice to repair broken or defective plumbing or irrigation systems are urged to have those repairs completed as soon as possible and in any event within five days after receipt of the notice. Customers with existing landscapes over one acre in size shall comply with Section 15.29.130 of the Hillsborough Municipal Code.
- E. Customers are encouraged to prepare for the future by converting high water use landscapes to plantings of low and moderate water use. The end of rationing frees up water to establish these new plants. (Customers are also referred to the town's landscaping ordinance, currently codified in Chapter 17.56, which requires permits for new landscapes and major landscape rehabilitations. Chapter 15.29 of the Hillsborough Municipal Code provides standards for landscape design for water conservation and provides for reference materials, which classify plants by level of water use.)

Section 2. Chapter 13.16 is hereby amended to add Section 13.16.035, as follows:

13.16.035 Mandatory Water Conservation

Chapter 15.29 of the Hillsborough Municipal Code establishes mandatory outdoor water conservation measures for new construction and permitted, rehabilitated landscapes with irrigated areas greater than 2,500 square feet.

Section 3. Chapter 15.29 is here by added to read as follows:

15.29.10 Purpose

The purpose of this chapter is to establish a structure for planning, designing, installing, maintaining and managing water efficient landscapes in applicable new construction and rehabilitated projects and to establish provisions for water management practices and water waste prevention for existing landscapes, pursuant to California State Assembly Bill 1881, Section 65597, "The Water Conservation in Landscaping Act".

15.29.20 Applicability

- A. The provisions of this Ordinance shall apply to all of the following landscape projects:
 - i. *Tier 1 Landscapes*: All new construction and rehabilitated landscapes with irrigated landscape areas between 2,500 square feet and 5,000 square feet requiring a building or landscape permit, plan check or design review, or requiring new or expanded water service.
 - ii. *Tier 2 Landscapes*: All new construction and rehabilitated landscapes with irrigated landscape areas greater than 5,000 square feet requiring a building or landscape permit, plan check or design review or requiring new or expanded water service.
 - iii. Existing landscapes, shall only be subject to the provisions for existing landscapes provided for in Section XIII "Provisions for Existing Landscapes Over One Acre in Size;" and

- B. The provisions of this Ordinance shall not apply to:
 - i. New construction and rehabilitated landscapes with irrigated landscape areas less than 2,500 square feet or that do not require a building or landscape permit, plan check or design review, or new or expanded water service;
 - ii. Landscapes, or portions of landscapes, that are only irrigated for an establishment period;
 - iii. Registered local, state or federal historical sites where landscaping establishes a historical landscape style, as determined by a public board or commission responsible for architectural review or historic preservation;
 - iv. Ecological restoration or mined-land reclamation projects that do not require a permanent irrigation system; or
 - v. Community gardens or plant collections, as part of botanical gardens and arboretums open to the public, agricultural uses, commercial nurseries and sod farms.

15.29.30 Definitions

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

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

- C. “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.
- D. “certified irrigation designer” means a person certified to design irrigation systems by an accredited academic institution a professional trade organization or other program such as the US Environmental Protection Agency’s WaterSense irrigation designer certification program and Irrigation Association’s Certified Irrigation Designer program.
- E. “certified landscape irrigation auditor” means a person certified to perform landscape irrigation audits by an accredited academic institution, a professional trade organization or other program such as the US Environmental Protection Agency’s WaterSense Landscape Irrigation Certification Program, the Irrigation Association’s certified landscape water conservation professional programs and the California Landscape Contractors Association’s Certified Water Manager Program.
- F. “certified professional” or “authorized professional” means a certified irrigation designer, a certified landscape irrigation auditor, a licensed landscape architect, a licensed landscape contractor, a licensed professional engineer, or any other person authorized by the state to design a landscape, an irrigation system, or authorized to complete a water budget.
- G. “conversion factor (0.62)” means the number that converts acre-inches per acre per year to gallons per square foot per year
- H. “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.
- I. “ecological restoration project” means a project where the site is intentionally altered to establish a defined, indigenous, historic ecosystem.
- J. “effective precipitation” or “usable rainfall” (Eppt) means the portion of total precipitation which becomes available for plant growth.
- K. “establishment period” means the first year after installing the plant in the landscape or the first two years if irrigation will be terminated after establishment. Typically, most plants are established after one or two years of growth.
- L. “Estimated Total Water Use” (ETWU) means the total water used for the landscape as described in Section VIII “Water Budget Calculations.”
- M. “ET adjustment factor” (ETAF) means a factor of 0.7, 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. ETAF for a Special Landscape Area shall not exceed 1.0. ETAF for existing non-rehabilitated landscapes shall not exceed 0.8.

- N. “evapotranspiration rate” means the quantity of water evaporated from adjacent soil and other surfaces and transpired by plants during a specified time.
- O. “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.
- P. “hardscapes” means areas located beneath a roof or covered by manufactured, non-plant pervious or impervious materials.
- Q. “hydrozone” means a portion of the landscaped area having plants with similar water needs. A hydrozone may be irrigated or non-irrigated.
- R. “invasive plant species” means species of plants not historically found in California that spread outside cultivated areas and can damage environmental or economic resources. “Noxious weeds” means any weed designated by the Weed Control Regulations in the Weed Control Act and identified on a Regional District noxious weed control list. Lists of invasive plants are maintained at the California Invasive Plant Inventory and USDA invasive and noxious weeds database.
- S. “irrigation audit” means an in-depth evaluation of the performance of an irrigation system. 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.
- T. “irrigation efficiency” (IE) means the measurement of the amount of water beneficially used divided by the amount of water applied. Irrigation efficiency is derived from measurements and estimates of irrigation system characteristics and management practices. The minimum average irrigation efficiency for purposes of this Ordinance is 70%. Greater irrigation efficiency can be expected from well-designed and maintained systems.
- U. “irrigation survey” means an evaluation of an irrigation system that is less detailed than an irrigation audit. An irrigation survey includes, but is not limited to: inspection, system test, and written recommendations to improve performance of the irrigation system.
- V. “irrigation water use analysis” means an analysis of water use data based on meter readings and billing data.
- W. “landscape architect” means a person who holds a license to practice landscape architecture in California as further defined by the California Business and Professions Code, Section 5615.
- X. “landscape” and “landscape area” means all the planting areas, turf areas, and water features in a landscape design plan subject to the Maximum Applied Water Allowance calculation. The landscape area does not include footprints of buildings or structures, sidewalks, driveways, parking lots, decks, patios, gravel or stone walks, other pervious or impervious hardscapes, other non-irrigated areas designated for non-development (e.g.,

open spaces and existing native vegetation), agricultural uses, commercial nurseries and sod farms.

- Y. "landscape contractor" means a person licensed by the State of California to construct, maintain, repair, install, or subcontract the development of landscape systems.
- Z. "landscape project" means the total area comprising the landscape area, as defined in this Ordinance.
- AA. "lateral line" means the water delivery pipeline that supplies water to the emitters or sprinklers from the valve.
- BB. "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.
- CC. "low water use plant" means a plant species whose water needs are compatible with local climate and soil conditions. Species classified as "very low water use" and "low water use" by *WUCOLS*, having a regionally adjusted plant factor of 0.0 through 0.3, shall be considered low water use plants. "Maximum Applied Water Allowance" (MAWA) means the upper limit of annual applied water for the established landscaped area as specified in Section VIII "Water Budget Calculations."
- DD. "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.
- EE. "mulch" means any organic material such as leaves, bark, straw, compost, or inorganic mineral materials such as rocks, gravel, and 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.
- FF. "new construction" means the construction of a new building or structure containing a landscape or other new land improvement, such as a park, playground, or greenbelt without an associated building.
- GG. "no-water using plant" means a plant species with water needs that are compatible with local climate and soil conditions such that regular supplemental irrigation is not required to sustain the plant after it has become established.
- HH. "operating pressure" means the pressure at which the parts of an irrigation system are designed by the manufacturer to operate.
- II. "overhead sprinkler irrigation systems" means systems that deliver water through the air (e.g., spray heads and rotors).
- JJ. "overspray" means the irrigation water which is delivered beyond the target area.

- KK. “permit” means an authorizing document issued by local agencies for new construction or rehabilitated landscapes.
- LL. “pervious” means any surface or material that allows the passage of water through the material and into the underlying soil.
- MM. “plant factor” or “plant water use factor” is a factor, when multiplied by ETo, estimates the amount of water needed by plants.
- NN. “precipitation rate” means the rate of application of water measured in inches per hour.
- OO. “project applicant” means the individual or entity submitting a Project Landscape Application required under Section VI, to request a permit, plan check, design review, or new or expanded water service from the Town of Hillsborough. A project applicant may be the property owner or his or her designee.
- PP. “rain sensor” or “rain sensing shutoff device” means a component which automatically suspends an irrigation event when it rains.
- QQ. “recreational area” means areas dedicated to active play such as parks, sports fields, and golf courses where turf provides a playing surface.
- RR. “reference evapotranspiration” or “ETo” means a standard measurement of environmental parameters which affect the water use of plants.
- SS. “rehabilitated landscape” means any re-landscaping project that requires a permit, plan check, design review, or requires a new or expanded water service application.
- TT. “runoff” means water which is not absorbed by the soil or landscape to which it is applied and flows from the landscape area.
- UU. “soil moisture sensing device” or “soil moisture sensor” means a device that measures the amount of water in the soil. The device may also suspend or initiate an irrigation event.
- VV. “Special Landscape Area” (SLA) means an area of the landscape dedicated solely to edible plants, areas irrigated with recycled water, water features using recycled water and areas dedicated to active play such as parks, sports fields, and golf courses, where turf provides a playing surface.
- WW. “sprinkler head” means a device which delivers water through a nozzle.
- XX. “station” means an area served by one valve or by a set of valves that operate simultaneously.
- YY. “turf” means a ground cover surface of mowed grass. Annual bluegrass, Kentucky bluegrass, Perennial ryegrass, Red fescue, and Tall fescue are cool-season grasses. Bermuda grass, Kikuyu grass, Seashore Paspalum, St. Augustine grass, Zoysia grass, and Buffalo grass are warm-season grasses.

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

AAA. "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).

BBB. "WUCOLS" means the Water Use Classification of Landscape Species published by the University of California Cooperative Extension, the Department of Water Resources and the Bureau of Reclamation, 2000.

15.29.40 Water Conservation in Landscaping Ordinance Requirements

- A. All owners of new construction and rehabilitated landscapes of applicable sizes shall: (1) complete the Landscape Project Application (Section VI) and (2) comply with the Landscape and Irrigation Maintenance Schedule (Section XI) requirements of this Ordinance.
- B. All owners of existing landscapes over one acre in size, even if installed before enactment of this Ordinance, shall: (1) comply with Town programs that may be instituted relating to irrigation audits, surveys and water use analysis, and (2) shall maintain landscape irrigation facilities to prevent water waste and runoff.

15.29.050 Compliance with Ordinance

- A. The Town shall:
 - i. Provide the project applicant with the Ordinance and Landscape Project Application requirements and the procedures for permits, plan checks, design reviews, or new or expanded water service;
 - ii. Review the Landscape Project Application submitted by the project applicant;
 - iii. Approve, conditionally approve, or deny the project applicant's Landscape Project Application submittal;
- B. The project applicant shall:
 - i. Prior to construction, submit all portions of the Landscape Project Application, except the Landscape Audit Report, to the Town's Planning/Building Department; and
 - ii. After construction, submit the Landscape Audit Report portion of the Landscape Project Application to the Building Department.

15.29.060 Landscape Project Application

- A. The elements of a landscape must be designed to achieve water efficiency and comply with the criteria described in this Ordinance. In completing the Landscape Project

Application, project applicants may choose one of two options to demonstrate that the landscape meets the Ordinance's water efficiency goals. Regardless of which option is selected, the applicant must complete and comply with all other elements of the Ordinance. The options include:

- i. Planting restrictions:
 - a. The turf area may not be more than 25% of the landscape area; and
 - b. At least 80% of the plants in non-turf landscape areas shall be low-water or no-water using plants; or the
- ii. Water Budget Calculation option (Section VIII).

B. The Landscape Project Application shall include the following elements:

- i. Project Information;
- ii. Outdoor Water Use Efficiency Checklist (Section VII);
- iii. Water Budget Calculations, if applicant selects to use a water budget approach rather than comply with the turf area limitations or specified plant type restrictions (Section VIII);
- iv. Landscape and Irrigation System Design Plans (Section IX); and
- v. Landscape Audit Report (Section X).

15.29.70 Outdoor Water Use Efficiency Checklist

The Town of Hillsborough has developed an Outdoor Water Use Efficiency Checklist (Checklist), based on the criteria described below. For Tier 1 projects, either the project applicant or a certified or authorized professional shall complete the Checklist and submit it to the Town of Hillsborough along with the Landscape and Irrigation Design Plan. For Tier 2 projects, the Checklist shall be completed by a certified or authorized professional and submitted to the Town of Hillsborough along with the Landscape and Irrigation Design Plan.

A. Plant Material

- i. Each hydrozone shall have plant materials with similar water use that are selected and planted appropriately based upon their adaptability to the climatic, geologic, and topographical conditions of the project site.
- ii. The turf area shall not be more than 25% of the landscape area unless the project applicant develops a site-specific water budget and the ETWU of the landscape area does not exceed the MAWA.

- iii. Turf shall not be planted on slopes greater than 25% or in areas that are less than eight feet wide, unless irrigated with subsurface irrigation or a low volume irrigation system.
- iv. At least 80% of the plants in non-turf landscape areas shall be low-water or no-water using plants, unless the project applicant develops a site-specific water budget and the ETWU of the landscaped area does not exceed the MAWA.
- v. A defensible space around a building or structure is required in wildland urban interface areas per Public Resources Code Section 4291 (a) and (b).
- vi. Fire-prone plant materials and highly flammable mulches should be avoided.
- vii. The use of invasive and/or noxious plant species is strongly discouraged.
- viii. The architectural guidelines of a common interest development shall not prohibit or include conditions that have the effect of prohibiting the use of low-water use plants as a group.

B. Mulch

A minimum two-inch layer of mulch shall be applied on all exposed soil surfaces of planting areas, although a three-inch layer is recommended.

C. Irrigation System

An irrigation system shall meet all the requirements listed in this section and the manufacturers' recommendations. The irrigation system and its related components shall be planned and designed to allow for proper installation, management, and maintenance.

- i. Dedicated landscape water meters shall be required for non-residential new construction with landscape areas greater than 5,000 square feet, and are highly recommended for residential and non-residential landscape areas greater than 5,000 square feet.
- ii. Tier 2 Landscapes are required to have automatic irrigation controllers that utilize either evapotranspiration or soil moisture sensor data for irrigation scheduling.
- iii. 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.
- iv. The irrigation system shall be designed to prevent runoff, low head drainage, overspray, or other similar conditions.

- v. Low volume irrigation is required in mulched areas, in areas with slope greater than 25%, or in narrow or irregularly shaped areas that are less than eight feet in width in any direction.
- vi. 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:
 - a. the landscape area is adjacent to permeable surfacing and no runoff occurs; or
 - b. the adjacent non-permeable surfaces are designed and constructed to drain entirely to the landscaping; or
 - c. the irrigation designer specifies an alternative design or technology, as part of the Landscape Design Plan and clearly demonstrates that overspray and runoff will be avoided. Prevention of overspray and runoff must be confirmed during the irrigation audit.
- vii. Average irrigation efficiency is assumed to be 70% for the purposes of calculating Estimated Total Water Use in Water Budget calculations. Irrigation systems shall be designed, maintained, and managed to meet or exceed an average landscape irrigation efficiency of 70%.
- viii. Irrigation shall be scheduled between 8:00 p.m. and 10:00 a.m., unless unfavorable weather prevents it or otherwise renders irrigation unnecessary.

D. Hydrozone

- i. Each valve shall irrigate a hydrozone with similar site, slope, sun exposure, soil conditions, and plant materials with similar water use.
- ii. Sprinkler heads and other emission devices shall be selected based on what is appropriate for the plant type within that hydrozone.
- iii. Where feasible, trees shall be irrigated by separate valves from shrubs, groundcovers, and turf.
- iv. Individual hydrozones that mix plants with different water uses may be allowed if a water budget is performed, and the plant factor calculation is based on the proportion of the respective plant water uses or the plant factor of the higher water using plant is used.

E. Water Features

- i. Recirculating water systems will be used for water features.
- ii. The wet surface area of a water feature will not exceed 10% of the softscape area, as defined in Hillsborough Municipal Code Section 17.32.060(A)(3), and will be counted as a high-water using plant for purposes of a water budget calculation.
- iii. Pool and spa covers are highly recommended. The surface area of a pool or spa equipped with a cover will be counted as a moderate-water using plant for purposes of a water budget calculation.

F. Soil Amendments

Soil amendments, such as compost, shall be incorporated according to the soil conditions at the project site and based on what is appropriate for the selected plants.

15.29.80 Water Budget Calculations

Project applicant may elect to complete a water budget calculation for the landscape project. A Tier 1 water budget may be developed and completed by the project applicant. A Tier 2 water budget calculation must be completed by a certified or authorized professional. Water budget calculations, if prepared, shall adhere to the following requirements:

- A. The plant factor used shall be from WUCOLS. The plant factor ranges from 0.0 to 0.3 for low water use plants, from 0.4 to 0.6 for moderate water use plants, and from 0.7 to 1.0 for high water use plants.
- B. Requests to adjust a plant's WUCOLS listed plant factor, due to site-specific microclimate conditions, will be considered on a case-by-case basis by the building official. Requests to adjust a plant factor shall be prepared by a certified or authorized landscape professional, submitted in writing with the Water Budget and detailed on the submitted Landscape Design Plan. The certified professional will describe the site conditions, irrigation design, irrigation schedule and other considerations that support the request for the plant factor adjustment. The conditions in the submitted request will be confirmed by an authorized professional during the irrigation audit. Plant factor adjustments not supported by the irrigation audit will revert to their WUCOLS listed plant factor.
- C. The wet surface areas of all non-covered water features shall be included in the high water use hydrozone. The covered, wet surface areas of pools and spas equipped with covers shall be included in the medium use hydrozone.
- D. All Special Landscape Areas (SLA) shall be identified and their water use included in the water budget calculations.

E. The reference evapotranspiration adjustment factor (ETAF) for SLA shall not exceed 1.0. The ETAF for all other landscaped areas shall not exceed 0.7.

F. Irrigation system efficiency shall be greater than or equal to 70%.

G. Maximum Applied Water Allowance (MAWA) shall be calculated using the equation below:

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

Where:

MAWA = Maximum Applied Water Allowance (gallons per year)

ET_o = Reference Evapotranspiration (inches per year)

0.62 = Conversion Factor (to gallons)

0.7 = Reference Evapotranspiration Adjustment Factor (ETAF)

LA = Landscape Area including SLA (square feet)

0.3 = Additional Water Allowance for SLA

SLA = Special Landscape Area (square feet)

H. The Town or project applicant may consider Effective Precipitation (25% of annual precipitation) in tracking water use and may use the following equation to calculate the MAWA:

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

I. Estimated Total Water Use (ETWU) will be calculated using the equation below. The sum of the ETWU calculated for all hydrozones will not exceed the MAWA.

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

Where:

ETWU = Estimated Total Water Use per year (gallons)

ET_o = Reference Evapotranspiration (inches)

PF = Plant Factor from WUCOLS (see Section 491)

HA = Hydrozone Area [high, medium, and low water use areas] (square feet)

SLA = Special Landscape Area (square feet)

0.62 = Conversion Factor

IE = Irrigation Efficiency (minimum 0.70)

15.29.090 Landscape and Irrigation Design Plans

A. Tier 1 Landscapes: The Landscape and Irrigation Design Plan may be prepared by, and bear the signature of, the project applicant, or that of a certified or authorized professional.

B. Tier 2 Landscapes: The components of the Landscape and Irrigation Design Plan shall be prepared as follows:

- i. The landscape design portion shall be prepared by, and bear the signature of, a licensed landscape architect, licensed landscape contractor, or that of a certified or authorized professional; and
 - ii. The irrigation design portion shall be prepared by, and bear the signature of, a licensed landscape architect, certified irrigation designer, licensed landscape contractor, or that of a certified or authorized professional.
- C. The landscape design portion of the Landscape and Irrigation Design Plan, at a minimum, shall:
 - i. Delineate and label each hydrozone;
 - ii. Identify each hydrozone as low, moderate, high water, or mixed water use;
 - iii. Identify Special Landscape Areas (i.e., recreational areas; areas permanently and solely dedicated to edible plants; areas irrigated with recycled water);
 - iv. Identify type of mulch and application depth;
 - v. Identify type and surface area of water features, and any covers;
 - vi. Identify hardscapes (pervious and impervious); and
 - vii. Contain the following statement: "I have complied with the criteria of the Water Conservation in Landscaping Ordinance and applied them for the efficient use of water in the Landscape and Irrigation Design Plan."
- D. The irrigation design portion of the Landscape and Irrigation Design Plan, at a minimum, shall contain:
 - i. Location and size of water meter(s);
 - ii. 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;
 - vi. The following statement: "I have complied with the criteria of the Water Conservation in Landscaping Ordinance and applied them accordingly for the efficient use of water in the Landscape and Irrigation Design Plan."

E. Grading

If the Landscape Project will be graded, then the grading shall be designed to minimize soil erosion, runoff, and water waste. All grading shall be conducted to:

- i. Maintain all irrigation and normal rainfall within property lines and avoid drainage on to impermeable hardscapes;
- ii. Avoid disruption of natural drainage patterns and undisturbed soil;
- iii. Avoid soil compaction in landscape areas; and
- iv. Be consistent with National Pollution Discharge Elimination System and other applicable grading requirements.

15.29.100 Landscape Audit Report

- A. Tier 1 Landscapes: Landscape irrigation audits for new or rehabilitated landscapes installed after the Ordinance effective date shall be conducted after the landscaping and irrigation systems have been installed. The audit may be conducted by the project applicant or by a certified landscape irrigation auditor.
- B. Tier 2 Landscapes: Landscape irrigation audits for new or rehabilitated landscapes installed after the Ordinance effective date shall be conducted by a certified landscape irrigation auditor after the landscaping and irrigation system have been installed.
- C. The Landscape Audit Report shall include, but is not limited to: inspection to confirm that the landscaping and irrigation system were installed as specified in the Landscape and Irrigation Design Plan, system tune-up, system test with distribution uniformity, reporting overspray or run off that causes overland flow, and preparation of an irrigation schedule.
- D. The Landscape Audit Report shall include the following statement: "The landscape and irrigation system has been installed as specified in the Landscape and Irrigation Design Plan and complies with the criteria of the Ordinance and the permit".
- E. The Town shall administer on-going programs that may include, but not be limited to, post-installation landscape inspection, irrigation water use analysis, irrigation audits, irrigation surveys and water budget calculations to evaluate compliance with the MAWA.

15.29.110 Landscape and Irrigation Maintenance Schedule

Landscapes shall be maintained to ensure water use efficiency.

- A. A regular maintenance schedule shall include, but not be limited to, routine inspection; adjustment and repair of the irrigation system and its components; aerating and dethatching turf areas; replenishing mulch; fertilizing; pruning; weeding in all landscape areas; and removing obstructions to emission devices.

- B. Repair of all irrigation equipment shall be done with the originally installed components or their equivalents.
- C. A Project applicant is encouraged to implement sustainable or environmentally-friendly practices for overall landscape maintenance.

15.29.120 Stormwater Management

Stormwater best management practices shall be incorporated into the landscape and grading design plans to minimize runoff and to increase on-site retention and infiltration and shall be consistent with the National Pollution Discharge Elimination System and other applicable stormwater management requirements.

15.29.130 Provisions for Existing Landscapes Over One Acre in Size

This section shall apply to all existing landscapes that were installed before Ordinance effective date and are over one acre in size.

A. Irrigation Audit, Irrigation Survey, and Irrigation Water Use Analysis.

- i. For landscapes that have a water meter, the Town shall administer programs that may include, but not be limited to, irrigation water use analyses, irrigation surveys, and irrigation audits to evaluate water use and provide recommendations as necessary to reduce landscape water use to a level that does not exceed the MAWA for existing landscapes. The MAWA for existing landscapes shall be calculated as:

$$\text{MAWA} = (0.8) (\text{ETo})(\text{LA})(0.62).$$

- ii. For landscapes that do not have a meter, the Town shall administer programs that may include, but not be limited to, irrigation surveys and irrigation audits to evaluate water use and provide recommendations as necessary in order to prevent water waste.
- iii. All landscape irrigation audits for existing landscapes that are greater than one acre in size shall be conducted by a certified landscape irrigation auditor.

B. Water Waste Prevention.

Local agencies shall prevent water waste resulting from inefficient landscape irrigation by prohibiting runoff from leaving the target landscape due to low head drainage, overspray, or other similar conditions where water flows onto adjacent property, non-irrigated areas, walks, roadways, parking lots, or structures.

15.29.140 Penalties

If the building official determines that the responsible party has not complied with this chapter, then the project shall be determined to be non-compliant, and the responsible party shall be subject to a penalty of up to ten times the permit fee, as set forth in Sections 15.04.070 C.1.

15.29.150 Public Education

The Town shall provide information to all applicants regarding the design, installation, management, and maintenance of water-efficient landscapes and irrigation systems.

Section 4. Section 17.56.040 is hereby amended to read as follows:

17.56.040. Water Conservation

Landscaping shall comply with the Town's Water Conservation Landscaping requirements as outlined in Chapter 15.29 of the Hillsborough Municipal Code.

Section 5. If any section, subsection, sentence, clause, phrase, or portion of this ordinance is for any reason held to be unconstitutional or otherwise invalid by the decision of any court of competent jurisdiction, such decision shall not affect the validity of the remaining portions of this ordinance. The City Council of the Town of Hillsborough hereby declares that it would have adopted the remainder of this ordinance, including each section, subsection, sentence, clause, phrase, or portion irrespective of the invalidity of any other article, section, subsection, sentence, clause, phrase, or portion.

Section 6. This ordinance shall be printed and posted upon the three official bulletin boards of the Town of Hillsborough and shall be effective thirty days after adoption.


MAYOR OF THE TOWN OF HILLSBOROUGH

ATTEST:

City Clerk

ORDINANCE NO. 689 of the TOWN OF HILLSBOROUGH introduced on May 10, 2010, and adopted on June 14, 2010, by the following vote of the City Council:

AYES:	Councilmembers	<u>Krolik, Kasten, Fannon, Regan, Benton</u>
NOES:	Councilmembers	<u>None</u>
ABSENT:	Councilmembers	<u>None</u>
ABSTAIN:	Councilmembers	<u>None</u>