

**DRAFT – CITY OF GONZALES**  
**CHAPTER 10.24**  
**WATER EFFICIENT LANDSCAPE DESIGN REQUIREMENTS**

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**10.24.010 Purpose.**

Purpose. It is the purpose of this chapter to identify landscape design standards for new and redevelopment projects that minimize water use and eliminate water waste in new and rehabilitated landscape areas by requiring low water landscape plantings and irrigation methods, and by encouraging stormwater management within required landscape areas.

**10.24.020 Applicability.**

A. This chapter shall apply to all of the following landscape projects:

1. New construction and rehabilitated landscapes for public agency projects and private development projects with a landscape area equal to or greater than 2,500 square feet requiring a building permit, design review or other discretionary use permit;
2. New construction and rehabilitated landscapes which are developer-installed in single-family and multi-family projects with a landscape area equal to or greater than 2,500 square feet requiring a building permit, design review or other discretionary use permit;
3. New construction landscapes which are homeowner-provided and/or homeowner-hired in single-family and multi-family residential projects with a total project landscape area equal to or greater than 5,000 square feet requiring a building permit, design review or other discretionary use permit;

B. This ordinance does not apply to:

1. Registered local, state or federal historical sites;
2. Ecological restoration projects that do not require a permanent irrigation system;
3. Plant collections, as part of botanical gardens and arboretums open to the public; or
4. Cemeteries. Recognizing the special landscape management needs of cemeteries, new and rehabilitated cemeteries are limited to Sections 492.4, 492.11 and 492.12; and existing cemeteries are limited to Sections 493, 493.1 and 493.2 of the State Model Water Efficient Landscape Ordinance.

**10.24.030 Definitions.**

A. The terms used in this chapter have the meaning set forth below:

1. “Applied water” means the portion of water supplied by the irrigation system to the landscape.
2. “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.

3. “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.
4. “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.
5. “Check valve” or “anti-drain valve” means a valve located under a sprinkler head, or other location in the irrigation system, to hold water in the system to prevent drainage from sprinkler heads when the sprinkler is off.
6. “Common interest developments” means community apartment projects, condominium projects, planned developments, and stock cooperatives per California Civil Code Section 1351.
7. “Conversion factor (0.62)” means the number that converts acre-inches per acre per year to gallons per square foot per year.
8. “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.
9. “Ecological restoration project” means a project where the site is intentionally altered to establish a defined, indigenous, historic ecosystem.
10. “Effective precipitation” or “usable rainfall” (Eppt) means the portion of total precipitation which becomes available for plant growth.
11. “Emitter” means a drip irrigation emission device that delivers water slowly from the system to the soil.
12. “Established landscape” means the point at which plants in the landscape have developed significant root growth into the soil. Typically, most plants are established after one or two years of growth.
13. “Establishment period of the plants” means the first year after installing the plant in the landscape or the first two years if irrigation will be terminated after establishment. Typically, most plants are established after one or two years of growth.
14. “Estimated Total Water Use” (ETWU) means the total water used for the landscape as described in §10.24.050.A.1.c.
15. “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.
16. “Evapotranspiration rate” means the quantity of water evaporated from adjacent soil and other surfaces and transpired by plants during a specified time.
17. “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.
18. “Hardscapes” means any durable material (pervious and non-pervious).
19. “Homeowner-provided landscaping” means any landscaping either installed by a private individual for a single family residence or installed by a licensed contractor hired by a homeowner. A homeowner, for purposes of this ordinance, is a person who occupies the dwelling he or she owns. This excludes speculative homes, which are not owner-occupied dwellings.
20. “Hydrozone” means a portion of the landscaped area having plants with similar water needs. A hydrozone may be irrigated or non-irrigated.

21. "Infiltration rate" means the rate of water entry into the soil expressed as a depth of water per unit of time (e.g., inches per hour).
22. "Invasive plant species" means species of plants not historically found in California that spread outside cultivated areas and can damage environmental or economic resources. Invasive species may be regulated by county agricultural agencies as noxious species. "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.
23. "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 0.71. Greater irrigation efficiency can be expected from well designed and maintained systems.
24. "Irrigation water use analysis" means an analysis of water use data based on meter readings and billing data.
25. "Landscape architect" means a person who holds a license to practice landscape architecture in the state of California.
26. "Landscape area" means all the planting areas, turf areas, and water features in a landscape design plan subject to the Maximum Applied Water Allowance calculation. The landscape area does not include footprints of buildings or structures, sidewalks, driveways, parking lots, decks, patios, gravel or stone walks, other pervious or non-pervious hardscapes, and other non-irrigated areas designated for non-development (e.g., open spaces and existing native vegetation).
27. "Landscape contractor" means a person licensed by the state of California to construct, maintain, repair, install, or subcontract the development of landscape systems.
28. "Landscape plan" means the documents required under §10.24.040.A.2.
29. "Landscape project" means total area of landscape in a project as defined in "landscape area" for the purposes of this ordinance, meeting requirements under §10.24.020.
30. "Lateral line" means the water delivery pipeline that supplies water to the emitters or sprinklers from the valve.
31. "Local water purveyor" means the City of Gonzales Public Works Department.
32. "Low volume irrigation" means the application of irrigation water at low pressure through a system of tubing or lateral lines and low-volume emitters such as drip, drip lines, and bubblers. Low volume irrigation systems are specifically designed to apply small volumes of water slowly at or near the root zone of plants.
33. "Main line" means the pressurized pipeline that delivers water from the water source to the valve or outlet.
34. "Maximum Applied Water Allowance" (MAWA) means the upper limit of annual applied water for the established landscaped area as specified in §10.24.050.A.3. It is based upon the area's reference evapotranspiration, the ET Adjustment Factor, and the size of the landscape area. The Estimated Total Water Use shall not exceed the Maximum Applied Water Allowance. Special Landscape Areas, including recreation areas, areas permanently and solely dedicated to edible plants such as orchards and vegetable gardens, and areas irrigated with recycled water are subject to the MAWA with an ETAF not to exceed 1.0.
35. "Microclimate" means the climate of a small, specific area that may contrast with the climate of the overall landscape area due to factors such as wind, sun exposure, plant density, or proximity to reflective surfaces.

36. “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.
37. “New construction” means, for the purposes of this ordinance, a new building with a landscape or other new landscape, such as a park, playground, or greenbelt without an associated building.
38. “Operating pressure” means the pressure at which the parts of an irrigation system are designed by the manufacturer to operate.
39. “Overhead sprinkler irrigation systems” means systems that deliver water through the air (e.g., spray heads and rotors).
40. “Overspray” means the irrigation water which is delivered beyond the target area.
41. “Permit” means an authorizing document issued by the City of Gonzales for new construction or rehabilitated landscapes.
42. “Pervious” means any surface or material that allows the passage of water through the material and into the underlying soil.
43. “Plant factor” or “plant water use factor” is a factor, when multiplied by ETo, estimates the amount of water needed by plants. For purposes of this ordinance, the plant factor range for low water use plants is 0 to 0.3, the plant factor range for moderate water use plants is 0.4 to 0.6, and the plant factor range for high water use plants is 0.7 to 1.0. Plant factors cited in this ordinance are derived from the Department of Water Resources 2000 publication “Water Use Classification of Landscape Species”.
44. “Precipitation rate” means the rate of application of water measured in inches per hour.
45. “Project applicant” means the individual or entity submitting a landscape plan required under §10.24.040.A.2, to request a permit, plan check, or design review from the City of Gonzales. A project applicant may be the property owner or his or her designee.
46. “Rain sensor” or “rain sensing shutoff device” means a component which automatically suspends an irrigation event when it rains.
47. “Record drawing” or “as-builts” means a set of reproducible drawings which show significant changes in the work made during construction and which are usually based on drawings marked up in the field and other data furnished by the contractor.
48. “Recreational area” means areas dedicated to active play such as parks, sports fields, and golf courses where turf provides a playing surface.
49. “Recycled water”, “reclaimed water”, or “treated sewage effluent water” means treated or recycled waste water of a quality suitable for non-potable uses such as landscape irrigation and water features. This water is not intended for human consumption.
50. “Reference evapotranspiration” or “ETo” means a standard measurement of environmental parameters which affect the water use of plants. ETo is expressed in inches per day, month, or year, and is an estimate of the evapotranspiration of a large field of four- to seven-inch tall, cool-season grass that is well watered. Reference evapotranspiration is used as the basis of determining the Maximum Applied Water Allowance so that regional differences in climate can be accommodated.

<u>County and City</u>	<u>Jan</u>	<u>Feb</u>	<u>Mar</u>	<u>Apr</u>	<u>May</u>	<u>Jun</u>	<u>Jul</u>	<u>Aug</u>	<u>Sep</u>	<u>Oct</u>	<u>Nov</u>	<u>Dec</u>	<u>Annual ETo</u>
<u>MONTEREY Gonzales</u>	<u>1.3</u>	<u>1.7</u>	<u>3.4</u>	<u>4.7</u>	<u>5.4</u>	<u>6.3</u>	<u>6.3</u>	<u>5.9</u>	<u>4.4</u>	<u>3.4</u>	<u>1.9</u>	<u>1.3</u>	<u>45.7</u>

51. “Rehabilitated landscape” means any re-landscaping project that requires landscape plan approval, meets the requirements of §10.24.020, and the modified landscape area is equal to or greater than 2,500 square feet, is 50% of the total landscape area, and the modifications are completed within one year.
52. “Runoff” means water which is not absorbed by the soil or landscape to which it is applied and flows from the landscape area. For example, runoff may result from water that is applied at too great a rate (application rate exceeds infiltration rate) or when there is a slope.
53. “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.
54. “Soil texture” means the classification of soil based on its percentage of sand, silt, and clay.
55. “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, golf courses, and where turf provides a playing surface.
56. “Sprinkler head” means a device which delivers water through a nozzle.
57. “Static water pressure” means the pipeline or municipal water supply pressure when water is not flowing.
58. “Station” means an area served by one valve or by a set of valves that operate simultaneously.
59. “Swing joint” means an irrigation component that provides a flexible, leak-free connection between the emission device and lateral pipeline to allow movement in any direction and to prevent equipment damage.
60. “Turf” means a ground cover surface of mowed grass. Annual bluegrass, Kentucky bluegrass, Perennial ryegrass, Red fescue, and Tall fescue are cool-season grasses. Bermudagrass, Kikuyugrass, Seashore Paspalum, St. Augustinegrass, Zoysiagrass, and Buffalo grass are warm-season grasses.
61. “Valve” means a device used to control the flow of water in the irrigation system.
62. “Water conserving plant species” means a plant species identified as having a low plant factor.
63. “Water feature” means a design element where open water performs an aesthetic or recreational function. Water features include ponds, lakes, waterfalls, fountains, artificial streams, spas, and swimming pools (where water is artificially supplied). The surface area of water features is included in the high water use hydrozone of the landscape area. Constructed wetlands used for on-site wastewater treatment or stormwater best management practices that are not irrigated and used solely for water treatment or stormwater retention are not water features and, therefore, are not subject to the water budget calculation.
64. “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.

#### **10.24.040 Landscape and Irrigation Plan Contents.**

Landscape and irrigation plans submitted to the City of Arcata under this Chapter shall include the following:

##### A. Compliance with landscape plan.

1. Prior to construction, the applicant shall submit a landscape plan to the City of Gonzales for review and approval.

2. Upon approval of the landscape plan by the City, the project applicant shall:
  - a. Receive a permit for the proposed landscaping and irrigation improvements;
  - b. Submit a copy of the approved landscape plan along with the record drawings, and any other information to the property owner or his/her designee; and
  - c. Submit a copy of the Water Efficient Landscape Worksheet to the City of Gonzales Public Works Department.

B. Elements of the landscape plan. The landscape plan shall include the following six (6) elements:

1. Project information;
  - a. Date
  - b. Project applicant name
  - c. Project address (if available, parcel and/or lot number(s))
  - d. Total landscape area (square feet)
  - e. Project type (e.g., new, rehabilitated, public, private, cemetery, homeowner-installed)
  - f. Water supply type (e.g., potable, recycled, etc.) and purveyor
  - g. Project contacts to include contact information for the project applicant and property owner
  - h. Applicant signature and date with statement, "I agree to comply with the requirements of the water efficient landscape ordinance and submit a complete landscape plan"
2. Water Efficient Landscape Worksheet;
  - a. Hydrozone information table
  - b. Water budget calculations
    - i. Maximum Applied Water Allowance (MAWA)
    - ii. Estimated Total Water Use (ETWU)
3. On-site soil characteristics;
4. Landscape design plan;
5. Irrigation design plan; and
6. Grading design plan (if applicable).

**10.24.050 Landscape and Irrigation Design**

Landscape and irrigation designs shall include the Water Efficient Landscape Worksheet, Landscape Design Plan, Irrigation Design Plan, irrigation scheduling, and recycled water plan as applicable to the project design proposal.

A. Water Efficient Landscape Worksheet.

1. A project applicant shall complete the Water Efficient Landscape Worksheet per §492.4 of the State's Model Water Efficient Landscaping Ordinance including:
  - a. A hydrozone information table for the landscape project; and
  - b. A water budget calculation for the landscape project. For the calculation of the Maximum Applied Water Allowance and Estimated Total Water Use, a project applicant shall use 45.7 inches as the City of Gonzales ETo as established in the State Department of Water Resources' CIMIS Reference Evapotranspiration Zones Map.
2. Water budget calculations shall adhere to the requirements in §492.4(b) of the State's Model Water Efficient Landscaping Ordinance.
3. Maximum Applied Water Allowance. The Maximum Applied Water Allowance shall be calculated using the equation found in §492.4(c) of the State's Model Water Efficient Landscaping Ordinance.
4. Estimated Total Water Use. The Estimated Total Water Use shall be calculated using the equation formula found in §492.4(d) of the State's Model Water Efficient Landscaping

Ordinance. The sum of the Estimated Total Water Use calculated for all hydrozones shall not exceed MAWA.

B. Landscape Design Plan.

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

a. Plant Material

- i. Any plant may be selected for the landscape, providing the Estimated Total Water Use in the landscape area does not exceed the Maximum Applied Water Allowance. To encourage the efficient use of water, the following is highly recommended:
  1. Protection and preservation of native species and natural vegetation;
  2. Selection of water-conserving plant and turf species;
  3. Selection of plants based on disease and pest resistance;
  4. Selection of trees based on applicable local tree ordinances or tree shading guidelines; and
  5. Selection of plants from local and regional landscape program plant lists.
- ii. Each hydrozone shall have plant materials with similar water use, with the exception of hydrozones with plants of mixed water use, as specified in §10.24.050.C.2.a.vii.
- iii. Plants shall be selected and planted appropriately based upon their adaptability to the climatic, geologic, and topographical conditions of the project site. To encourage the efficient use of water, the following is highly recommended:
  1. Use the Sunset Western Climate Zone System which takes into account temperature, humidity, elevation, terrain, latitude, and varying degrees of continental and marine influence on local climate;
  2. Recognize the horticultural attributes of plants (i.e., mature plant size, invasive surface roots) to minimize damage to property or infrastructure [e.g., buildings, sidewalks, power lines]; and
  3. Consider the solar orientation for plant placement to maximize summer shade and winter solar gain.
- iv. Turf is not allowed on slopes greater than 25% where the toe of the slope is adjacent to an impermeable hardscape and where 25% means 1 foot of vertical elevation change for every 4 feet of horizontal length (rise divided by run x 100 = slope percent).
- v. A landscape design plan for projects in fire-prone areas shall address fire safety and prevention. A defensible space or zone around a building or structure is required per the California Public Resources Code Section 4291(a) and (b). Avoid fire-prone plant materials and highly flammable mulches.
- vi. The use of invasive and/or noxious plant species is strongly discouraged.
- vii. The architectural guidelines of a common interest development, which include community apartment projects, condominiums, planned developments, and stock cooperatives, shall not prohibit or include conditions that have the effect of prohibiting the use of low-water use plants as a group.

b. Water Features

- i. Recirculating water systems shall be used for water features.
- ii. Where available, recycled water shall be used as a source for decorative water features.
- iii. Surface area of a water feature shall be included in the high water use hydrozone area of the water budget calculation.

- iv. Pool and spa covers are highly recommended.
- c. Mulch and Amendments
  - i. A minimum two inch (2") layer of mulch shall be applied on all exposed soil surfaces of planting areas except in turf areas, creeping or rooting groundcovers, or direct seeding applications where mulch is contraindicated.
  - ii. Stabilizing mulching products shall be used on slopes.
  - iii. The mulching portion of the seed/mulch slurry in hydro-seeded applications shall meet the mulching requirement.
  - iv. Soil amendments shall be incorporated according to recommendations of a soil report and what is appropriate for the plants selected.
- 2. The landscape design plan, at a minimum, shall:
  - a. Delineate and label each hydrozone by number, letter, or other method;
  - b. Identify each hydrozone as low, moderate, high water, or mixed water use. Temporarily irrigated areas of the landscape shall be included in the low water use hydrozone for the water budget calculation;
  - c. Identify recreational areas;
  - d. Identify areas permanently and solely dedicated to edible plants;
  - e. Identify areas irrigated with recycled water;
  - f. Identify type of mulch and application depth;
  - g. Identify soil amendments, type, and quantity;
  - h. Identify type and surface area of water features;
  - i. Identify hardscapes (pervious and non-pervious);
  - j. Identify location and installation details of any applicable stormwater best management practices that encourage on-site retention and infiltration of stormwater. Stormwater best management practices are encouraged in the landscape design plan and examples include, but are not limited to:
    - i. Infiltration beds, swales, and basins that allow water to collect and soak into the ground;
    - ii. Constructed wetlands and retention ponds that retain water, handle excess flow, and filter pollutants; and
    - iii. Pervious or porous surfaces (e.g., permeable pavers or blocks, pervious or porous concrete, etc.) that minimize runoff.
  - k. Identify any applicable rain harvesting or catchment technologies (e.g., rain gardens, cisterns, etc.);
  - l. Include the following statement: "I have complied with the criteria of the ordinance and applied them for the efficient use of water in the landscape design plan"; and
  - m. Bear the signature of the person authorized to design a landscape.

C. Irrigation Design Plan.

- 1. For the efficient use of water, 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. An irrigation design plan meeting the following design criteria shall be submitted as part of the landscape plan.
- 2. For the purpose of determining Maximum Applied Water Allowance, average irrigation efficiency is assumed to be 0.71. Irrigation systems shall be designed, maintained, and managed to meet or exceed an average landscape irrigation efficiency of 0.71.
  - a. System

- i. Dedicated landscape water meters are recommended on landscape areas smaller than 5,000 square feet to facilitate water management.
- ii. Automatic irrigation controllers utilizing either evapotranspiration or soil moisture sensor data shall be required for irrigation scheduling in all irrigation systems.
- iii. The irrigation system shall be designed to ensure that the dynamic pressure at each emission device is within the manufacturer's recommended pressure range for optimal performance.
  1. If the static pressure is above or below the required dynamic pressure of the irrigation system, pressure-regulating devices such as inline pressure regulators, booster pumps, or other devices shall be installed to meet the required dynamic pressure of the irrigation system.
  2. Static water pressure, dynamic or operating pressure and flow reading of the water supply shall be measured at the point of connection. These pressure and flow measurements shall be conducted at the design stage. If the measurements are not available at the design stage, the measurements shall be conducted at installation.
- iv. 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.
- v. Manual shut-off valves (such as a gate valve, ball valve, or butterfly valve) shall be required, as close as possible to the point of connection of the water supply, to minimize water loss in case of an emergency (such as a main line break) or routine repair.
- vi. Backflow prevention devices shall be required to protect the water supply from contamination by the irrigation system.
- vii. The irrigation system shall be designed to prevent runoff, low head drainage, overspray, or other similar conditions where irrigation water flows onto non-targeted areas, such as adjacent property, non-irrigated areas, hardscapes, roadways, or structures.
- viii. Relevant information from a soil management plan, such as soil type and infiltration rate, shall be utilized when designing irrigation systems.
- ix. The design of the irrigation system shall conform to the hydrozones of the landscape design plan.
- x. The irrigation system must be designed and installed to meet, at a minimum, the irrigation efficiency criteria as described in §10.24.050.A.1.c regarding the Maximum Applied Water Allowance.
- xi. In mulched planting areas, the use of low volume irrigation is required to maximize water infiltration into the root zone.
- xii. Sprinkler heads and other emission devices shall have matched precipitation rates, unless otherwise directed by the manufacturer's recommendations.
- xiii. Head to head coverage is recommended. However, sprinkler spacing shall be designed to achieve the highest possible distribution uniformity using the manufacturer's recommendations.
- xiv. Swing joints or other riser-protection components are required on all risers subject to damage that are adjacent to high traffic areas.
- xv. Check valves or anti-drain valves are required for all irrigation systems.

- xvi. Narrow or irregularly shaped areas, including turf, less than eight (8) feet in width in any direction shall be irrigated with subsurface irrigation or low volume irrigation system.
  - xvii. Overhead irrigation shall not be permitted within 24 inches of any non-permeable surface. Allowable irrigation within the setback from non-permeable surfaces may include drip, drip line, or other low flow non-spray technology. The setback area may be planted or unplanted. The surfacing of the setback may be mulch, gravel, or other porous material. These restrictions may be modified if:
    - 1. The landscape area is adjacent to permeable surfacing and no runoff occurs; or
    - 2. The adjacent non-permeable surfaces are designed and constructed to drain entirely to landscaping; or
    - 3. The irrigation designer specifies an alternative design or technology, as part of the landscape plan and clearly demonstrates strict adherence to irrigation system design criteria in §10.24.050.C.2.a.vii.
    - 4. Prevention of overspray and runoff must be confirmed during the irrigation audit.
  - xviii. Slopes greater than 25% shall not be irrigated with an irrigation system with a precipitation rate exceeding 0.75 inches per hour. This restriction may be modified if the landscape designer specifies an alternative design or technology, as part of the landscape plan, and clearly demonstrates no runoff or erosion will occur. Prevention of runoff and erosion must be confirmed during the irrigation audit.
- b. 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 placed on separate valves from shrubs, groundcovers, and turf.
  - iv. Individual hydrozones that mix plants of moderate and low water use, or moderate and high water use, may be allowed if:
    - 1. Plant factor calculation is based on the proportions of the respective plant water uses and their plant factor; or
    - 2. The plant factor of the higher water using plant is used for calculations.
  - v. Individual hydrozones that mix high and low water use plants shall not be permitted.
  - vi. On the landscape design plan and irrigation design plan, hydrozone areas shall be designated by number, letter, or other designation. On the irrigation design plan, designate the areas irrigated by each valve, and assign a number to each valve. Use this valve number in the Hydrozone Information Table.
3. The irrigation design plan, at a minimum, shall contain:
- a. Location and size of separate water meters for landscape;
  - b. 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;
  - c. Static water pressure at the point of connection to the public water supply;
  - d. Flow rate (gallons per minute), application rate (inches per hour), and design operating pressure (pressure per square inch) for each station;
  - e. Recycled water irrigation systems as specified in §10.24.050.E;

- f. The following statement: “I have complied with the criteria of the ordinance and applied them accordingly for the efficient use of water in the irrigation design plan”; and
- g. The signature of a licensed landscape architect, certified irrigation designer, licensed landscape contractor, or any other person authorized to design an irrigation system.

D. Irrigation Scheduling. For the efficient use of water, all irrigation schedules shall be developed, managed, and evaluated to utilize the minimum amount of water required to maintain plant health. Irrigation schedules shall meet the following criteria:

- 1. Irrigation scheduling shall be regulated by automatic irrigation controllers.
- 2. Overhead irrigation shall be scheduled between 8:00 p.m. and 10:00 a.m. unless weather conditions prevent it.
- 3. Total annual applied water shall be less than or equal to Maximum Applied Water Allowance (MAWA). Actual irrigation schedules shall be regulated by automatic irrigation controllers using current reference evapotranspiration data (e.g., CIMIS) or soil moisture sensor data.
- 4. Parameters used to set the automatic controller shall be developed for each of the following:
  - a. Plant establishment period;
  - b. Established landscape; and
  - c. Temporarily irrigated areas.
- 5. Each irrigation schedule shall consider for each station all of the following that apply:
  - a. Irrigation interval (days between irrigation);
  - b. Irrigation run times (hours or minutes per irrigation event to avoid runoff);
  - c. Number of cycle starts required for each irrigation event to avoid runoff;
  - d. Amount of applied water scheduled to be applied on a monthly basis;
  - e. Application rate setting;
  - f. Root depth setting;
  - g. Plant type setting;
  - h. Soil type;
  - i. Slope factor setting;
  - j. Shade factor setting; and
  - k. Irrigation uniformity or efficiency setting.

E. Recycled Water.

- 1. The installation of recycled water irrigation systems shall allow for the current and future use of recycled water, unless a written exemption has been granted as described in §10.24.050.E.2.
- 2. Irrigation systems and decorative water features shall use recycled water unless a written exemption has been granted by the local water purveyor stating that recycled water meeting all public health codes and standards is not available and will not be available for the foreseeable future.
- 3. All recycled water irrigation systems shall be designed and operated in accordance with all applicable local and State laws.
- 4. Landscapes using recycled water are considered Special Landscape Areas. The ET Adjustment Factor for Special Landscape Areas shall not exceed 1.0.

#### **10.24.060 Stormwater Management.**

Landscape-related stormwater management practices can reduce runoff and improve water quality when properly designed and constructed. The following standards apply to the design of landscape areas used as bioretention facilities:

- A. Facility Sizing. Bioretention facilities shall be designed to manage stormwater from the drainage management area. Sizing shall be in accordance with the City's stormwater permit and as codified elsewhere in the Gonzales Municipal Code.
- B. Plant Selection. Plants used in bioretention facilities shall be selected for tolerance to both periodic inundation, as well as prolonged dry periods. Plants shall be non-invasive and should be native to the region whenever possible. A list of suitable plant species is on file with the City of Gonzales Department of Planning and Economic Development. Plants shall be selected according to the surface grade and the incidence of periodic surface water inundation. Plants selected for Zone A should tolerate periodic surface water inundation as well as seasonal dry periods. Plants selected for Zone B should tolerate the planting on side slopes and surface water runoff.
- C. Hydrozone Grouping and Irrigation. Installed plants within rain gardens and other bioretention facilities shall be grouped into hydrozones based on similar water usage. During plant establishment, temporary irrigation shall use separate valves for each hydrozone. All irrigation shall be removed or disconnected from the bioretention facility at the end of plant establishment.
- D. Planter Edge and Curb Design. Bioretention facilities are intended to receive and treat stormwater runoff. Edge treatments shall be designed not to impede sheet flow from surrounding areas. See standard design details contained in the City of Gonzales Standard Drawings.
- E. Mulching. Mulch application, quantity, and composition for bioretention facilities shall be as specified in the design details contained in the City of Gonzales Standard Drawings.

#### **10.24.070 Landscape and Irrigation Maintenance**

- A. Landscapes shall be maintained to ensure water use efficiency.
- B. Regular maintenance 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 and obstruction to emission devices. Operation of the irrigation system outside the normal watering window is allowed for auditing and system maintenance.
- C. Irrigation systems shall be properly maintained to prevent water waste 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. Repair of all irrigation equipment shall be done with the originally installed components or equivalents.