

## CHAPTER 19.28 LANDSCAPING STANDARDS

<u>Section</u>	<u>Page</u>
<a href="#">19.28.010</a> Purpose .....	III-19.28-1
<a href="#">19.28.020</a> Application.....	III-19.28-2
<a href="#">19.28.030</a> General Regulations .....	III-19.28-2
<a href="#">19.28.040</a> Screening Requirements.....	III-19.28-4
<a href="#">19.28.050</a> Standards for Parking Areas.....	III-19.28-7
<a href="#">19.28.060</a> Setback and Parkway Treatment Standards .....	III-19.28-8
<a href="#">19.28.070</a> Corner Treatment Standards .....	III-19.28-9
<a href="#">19.28.080</a> Installation of Landscaping .....	III-19.28-9
<a href="#">19.28.090</a> Maintenance of Landscaping .....	III-19.28-9
<a href="#">19.28.100</a> Removal or Destruction of Trees .....	III-19.28-9
<a href="#">19.28.110</a> Erosion Control Landscaping.....	III-19.28-10
<a href="#">19.28.120</a> Water Efficient Landscaping Standards .....	III-19.28-10
<a href="#">19.28.130</a> Applicable Regulations .....	III-19.28-25

### Tables

<a href="#">19.28.01</a>	Screening Requirements.....	III-19.28-5
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### Guidelines

<a href="#">G19.28.130</a>	Landscape Design Guidelines .....	III-G19.28-1
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### **19.28.010 PURPOSE**

The purpose of this Chapter is to establish landscaping regulations that are intended to:

1. Enhance the aesthetic appearance of development in all areas of the City by providing standards relating to quality, quantity and functional aspects of landscaping and landscape screening.
2. Increase compatibility between residential and abutting commercial and industrial land uses.
3. Reduce the heat and glare generated by development.
4. Protect public health, safety, and welfare by minimizing the impact of all forms of physical and visual pollution, controlling soil erosion, screening incompatible land uses, preserving the integrity of neighborhoods, and enhancing pedestrian and vehicular traffic and safety.
5. Water is an increasingly and costly resource. It is the intent of this chapter to establish a water conservation plan to reduce water consumption in the landscape environment by using drought tolerant principals. MC 871 5/2/93

### 19.28.020 APPLICATION

A concept landscaping plan shall be submitted as part of a permit application, pursuant to Chapter 19.32 (Applications and Fees).

The concept plan shall meet the intent of this Chapter by exhibiting a generalized design layout which adequately demonstrates the desired landscaping program in terms of location, size/scale, function, theme and similar attributes. The concept plan shall provide the review authority with a clear understanding of the landscaping program prior to the preparation of a detailed, comprehensive landscaping plan.

### 19.28.030 GENERAL REGULATIONS

The comprehensive landscaping plan shall be prepared following approval of the permit application by the review authority. Submittal of the comprehensive plan shall be concurrent with the grading plan(s) and other documents and reports. This section and those that follow provide the regulations to be followed in the preparation of the comprehensive landscape program.

In addition to the following regulations, the Director of Community Development shall have the discretion to determine the conformance of a landscape and irrigation plan.

1. Landscape designs shall be in harmony with the surrounding environment.
2. Landscape design and construction shall emphasize drought-tolerant landscaping whenever/wherever possible.
3. Processing of landscape plans shall conform to the policies and procedures of the Department of Community Development. A fully dimensioned comprehensive landscape and irrigation plan shall include, but not be limited to:

+List of Plants (Common & Latin)	+Any other information
+Size	deemed necessary by the
+Location	Director
+Irrigation Plan	
+Hardscape	
+Water Elements	
4. The planting of trees and shrubs shall comply with the following installation requirements:
  - A. Landscape areas shall have plant material selected and planting methods used which are suitable for the soil and climatic conditions of the site. Sizes of the plant materials shall conform to the following mix:

Trees

20%, 24 inch box;  
50%, 15 gallon;

In addition, mature trees shall be provided for variety and emphasis of focal areas as follows:

15% mature specimen trees in 36 inch box  
15% mature specimen trees in 48 inch box

Shrubs

80%, 5 gallon; and  
20%, 1 gallon

Groundcover

100% coverage within 1 year

- B. Trees shall be long-lived (minimum life expectancy of 60 years), clean, require little maintenance, be structurally strong, insect and disease resistant, and require little pruning.
  - C. Trees and shrubs shall be planted so that at maturity they do not interfere with service lines, Traffic Safety Sight Area, basic property rights of adjacent property owners, particularly the right of solar access, pursuant to Section 19.20.030 (23) (Solar Energy Design Standards).
  - D. Trees planted near public curbs shall have a limited root structure and shall be installed in such a manner as to prevent physical damage to sidewalks, curbs, gutters and other public improvements. A deep root system shall be used.
5. Where trees are planted in paved areas, they shall have a protective tree grate. Tree grates shall be cast iron with a natural finish. A deep root system shall be used.
  6. Concrete mow strips are required to separate all turf areas from other landscaped areas for all developments except single family residential.
  7. Buffer planting shall occur along all freeways and major arterials in order to visually screen uses and provide noise reduction. This landscaping shall be in addition to screening requirements set forth in Section 19.28.040 below.
  8. Appropriate shrubbery and creeping vines shall be provided along all walls and fences adjoining public rights-of-way.
  9. When inorganic groundcover is used, it shall be in combination with live plants and shall be limited to an accent feature.

10. All landscaping shall have an approved automatic irrigation system.
11. All residential subdivisions shall be provided with trees, shrubs, and ground cover of a type and quality generally consistent or compatible with those characterizing single-family homes in the front yard and that portion of the side yards which are visible from the street. All landscaped areas shall be provided with an automatic irrigation system adequate to insure their viability. The landscape and irrigation plans shall be approved by the Community Development Department.

#### **19.28.040 SCREENING REQUIREMENTS**

1. Every development shall provide sufficient screening so that neighboring properties are effectively shielded from any adverse impacts of that development or so that the new developing use shields itself from existing potential impacts from uses already in operation.
2. Table 28.01 sets forth the type of screening method required between various uses in order to provide a mechanism to buffer potential negative impacts. To determine the type of screening required (Type A, B, or C), find the use in the "Developing Use" column which is similar to the proposed use to be developed and follow that line across the page to its intersection with the type of use(s) that adjoins the property to be developed. For each intersection square that contains a letter, the developer is required to install the level of screening indicated.

Table 28.01 Screening Requirements Page III-19.28-5

DEVELOPING USE	Adjacent Existing or Permitted Use	One and Two family residences	Multi-Family residences	Mobile/Modular home parks	Group care facilities	Adult & Child care facilities	All office uses including medical	Schools (public/private) & libraries	Churches & associated uses	Hospitals & clinics over 10,000 s.f.	Fraternal clubs, lodges, union halls	Retail Sales	Auto service & repair	Equipment rental yard	Commercial Recreation	Hotels & Motels	Restaurant & night clubs	Uses conducted totally indoors	Uses conducted substantially outdoors	Scrap materials, salvage yards	Totally enclosed within a structure	Not totally enclosed within a structure	Veterinarian hosp. with boarding	Kennels
1. RESIDENTIAL	One & two family residences																							
	Multi-Family Residences	A	C	C	B	B	A	A	B	A		B	A	A	B	B	A	C	A	A	C	A	A	A
	Mobile/Modular home parks	B	B	C	B	B	A	C	B	A	C	B	A	A	B	B	A	C	A	A	C	A	A	A
	Group Care Facilities	A	B	B	C	C	B	A	B	C	C	A	A	A	B	A	A	C	A	A	C	A	A	A
	Adult & child care facilities	B	C	C	A	C	A	B	C	A	C					B								
2. OFFICE, FINANCIAL	All office uses including medical	A	B	B	A	A		A	C	C	C													
3. INSTITUTIONAL, SOCIAL	Schools (public/private), and libraries	B	B	B	A	C	A			A	C													
	Churches & associated uses	A	A	A	A	A				C														
	Hospitals and clinics over 10,000 s.f.	B	B	B	B	B	C	A				C												
	Fraternal clubs, lodges, union halls	A	A	A	A	A	B	A	A	A														
4. COMMERCIAL	Retail Sales	A	A	A	A	A	C	A	B	A														
	Auto service & repair	A	A	A	A	A	A	A	A	A	A	A			B	A	A							
	Equipment rental yard	A	A	A	A	A	A	A	A	A	A	A			B	A	A						C	C
	Commercial recreation	A	A	B	B	B		C		B													C	C
	Hotels & motels	A	A	A	A	A	C	A		B														
	Restaurants & night clubs	A	A	A	A	A		B	C	A														
5. MFG. & STORAGE	Uses conducted totally indoors	A	A	A	A	A	A	A	A	A	C	B				A	A							
	Uses conducted substantially outdoors	A	A	A	A	A	A	A	A	A	A	A			C	A	A							
	Scrap materials, salvage yards	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
6. PUBLIC UTILITY INSTALLATIONS	Totally enclosed within a structure	A	A	A	A	A	B	B				B				C	C							
	Not totally enclosed within a structure	A	A	A	A	A	A	A	B	A	B	A	C	C	B	A	A	C	C	C	C		C	C
7. OTHER USES	Veterinarian hospitals with boarding	A	A	A	A	A	A	A	A	A	A	A	B			A	A							
	Kennels	A	A	A	A	A	A	A	A	A	A	A	A	B	A	A	A							

3. The three basic types of screens that are required by Table 28.01 "Screening Requirements," are as follows:

A. **OPAQUE SCREEN, TYPE A**

A screen that is opaque from the ground to a height of at least six feet, with intermittent visual obstructions from the opaque portion to a height of at least 20 feet. An opaque screen is intended to exclude all visual contact between uses and to create a strong impression of spacial separation. The opaque screen may be composed of a wall, fence, or densely planted vegetation. Compliance of planted vegetative screens will be judged on the basis of the average mature height and density of foliage of the subject species, or field observation of existing vegetation. The opaque portion of the screen must be opaque in all seasons of the year. At maturity, the portion of intermittent visual obstructions should not contain any completely unobstructed openings more than 10 feet wide. Suggested planting patterns are shown in Figure 28-1.

B. **SEMI-OPAQUE SCREEN, TYPE B**

A screen that is opaque from the ground to height of 3 feet, with intermittent visual obstruction from above the opaque portion to a height of at least 20 feet. The semi-opaque screen is intended to partially block visual contact between uses and to create a strong impression of the separation of spaces. The semi-opaque screen may be composed of a wall, fence, landscaped earth berm, or planted vegetation. Compliance of planted vegetative screens will be judged on the basis of the average mature height and density of foliage of the subject species, or field observation of existing vegetation. At maturity, the portion of intermittent visual obstructions should not contain any completely unobstructed openings more than 15 feet wide.

C. **BROKEN SCREEN, TYPE C**

A screen composed of intermittent visual obstructions from the ground to a height of at least 20 feet. The broken screen is intended to create the impression of a separation of spaces without necessarily eliminating visual contact between the spaces. It may be composed of a wall, fence, landscaped earth berm, planted vegetation or existing vegetation. Compliance of planted vegetative screens or natural vegetation will be judged on the basis of the average mature height and density of foliage of the subject species, or field observation of existing vegetation. The screen may contain deciduous plants.

4. The screening requirements set forth in this section may be interpreted with some flexibility by the Director and Commission in their enforcement of the standards.

It is recognized that because of the wide variety of types of developments and the relationships between them, it is neither possible nor prudent to establish inflexible screening requirements. Therefore, minor deviations may be granted to allow less intensive

screening, or requirements for more intensive screening may be imposed, whenever such deviations are more likely to satisfy the intent of this section.

TYPE A  
TYPICAL OPAQUE SCREENS



SMALL TREES PLANTED  
30' ON CENTER.  
6' HIGH EVERGREEN  
SCREENING SHRUBS  
PLANTED 4' O.C.



LARGE TREES PLANTED  
40' ON CENTER.  
6' HIGH  
MASONRY WALL



TALL EVERGREEN TREES  
STAGGER PLANTED,  
WITH BRANCHES  
TOUCHING GROUND.

TYPE B  
TYPICAL SEMI-OPAQUE SCREENS



SMALL TREES PLANTED  
30' ON CENTER.  
3' HIGH WALL



SMALL TREES PLANTED  
20'-30' ON CENTER  
ON TOP OF BERM.  
3' HIGH BERM  
WITH GROUNDCOVER.



LARGE TREES PLANTED  
40' ON CENTER.  
3' HIGH EVERGREEN  
SHRUB HEDGE  
PLANTED 3' O.C.

TYPE C  
TYPICAL BROKEN SCREENS



SMALL TREES PLANTED  
30' ON CENTER.



SMALL TREES PLANTED  
30' ON CENTER.  
OPEN FENCE



LARGE TREES PLANTED  
40' ON CENTER.  
ASSORTED SHRUBBERY.

FIGURE 28-1  
TYPICAL SCREENING METHODS

### 19.28.050 STANDARDS FOR PARKING AREAS

In addition to landscaping of all required setback areas, a minimum of 15% of the net area of all surface parking areas shall be landscaped as follows:

- A. Where parking areas adjoin a public right-of-way, a landscaped planting strip equal to the required yard setback shall be established and continuously maintained between the public right-of-way and parking area. Any planting, sign, or any other structure within safety sight distance of a driveway shall not exceed 30 inches in height.
- B. Provisions shall be made to ensure that adequate pedestrian paths are provided throughout the landscaped areas. At least one 24-inch box tree for every four spaces shall be included in the development of the overall landscape program. The maximum spacing between trees in parking areas shall be 30 feet; however, appropriate clustering of trees may be permitted.

- C. All areas in a parking lot not used for driveways, maneuvering areas, parking spaces, or walks, shall be permanently landscaped with suitable materials and permanently maintained, pursuant to a program submitted by the applicant and approved by the Director of the Parks and Recreation Department.
  - D. All landscaped areas shall be bordered by a concrete curb that is at least six inches high and six inches wide. All landscaped areas shall be a minimum of six feet in width. Concrete now strips at least six inches deep and four inches wide shall be required to separate turf areas from shrub areas.
  - E. A permanent and automatic irrigation system shall be installed and permanently maintained in all landscaped areas. The system shall employ state-of-the-art water conservation technology and recognize differing irrigation needs of various plant materials.
  - F. The landscaping plan shall provide for a variety of plant materials, with an emphasis on drought tolerant species, appropriate for the local environment and shall include a legend showing common names, sizes, quantities, location, dimensions of planted area, and percentage of parking lot landscaping.
  - G. To increase the parking lot landscaped area, a maximum of 2½ feet of the parking stall depth may be landscaped in lieu of asphalt while maintaining the required parking dimensions. This overhang is in addition to the required yard setbacks.
- MC 1381 12/19/12

### **19.28.060 SETBACK AND PARKWAY TREATMENT STANDARDS**

Landscape plans for setback and parkway areas shall include, but not be limited to the following:

1. Setback and parkway areas shall be properly designed and landscaped in order to establish a high level of development quality while providing for neighborhood identity where appropriate. The design shall utilize uniform street tree plantings with complementary landscape materials.
2. Provide a design which ensures the desired screening, shading, appearance and compatibility with established setback and parkway areas, including a sensitive transition between diverse landscape types and patterns.
3. Incorporate mounding within the overall design, with landscaped slopes not exceeding a 3:1 ratio, or three feet in height. A minimum of six feet of landscaping shall be placed on the exterior of perimeter walls and fences.
4. Incorporate walls and fences into the landscape design, including the special treatment of meandering walls, and wall breaks or openings where the design shall complement the interior landscaping of the adjacent development.
5. Street tree varieties and exact location shall be determined by the Director of Community Development. The Community Development Department shall approve the locations and

inspect plant material on-site, prior to planting. Sidewalks, curb and gutter, must be clean of debris prior to marking. A 24-hour notice is required for inspection. The size of the street trees shall be 24 inch box specimens. The 24 inch box trees shall be planted as street trees within the public parkway or City property.

### **19.28.070 CORNER TREATMENT STANDARDS**

Landscape plans for any development involving corner lots shall include additional special design requirements, including, but not limited to the following:

1. A minimum landscape area of 300 square feet for corner areas.
2. Incorporate significant landscape and water features, including specimen trees, coordination with wall breaks or openings, and special "city entry" image treatment wherever appropriate.
3. Specimen trees shall be a minimum of 48-inch box size.
4. Ensure that any corner landscape plan within the "Traffic Safety Sight Area," as defined, shall be designed to protect public safety.

### **19.28.080 INSTALLATION OF LANDSCAPING**

All required landscaping shall be property installed, irrigated, inspected and permanently maintained prior to use inauguration or the issuance of a Certificate of Occupancy, whichever first occurs. The landscaping and irrigation shall be inspected as stated in the procedures and policy for landscaping and irrigation.

### **19.28.090 MAINTENANCE OF LANDSCAPING**

1. Maintenance of approved landscaping shall consist of regular watering, mowing, pruning, fertilizing, clearing of debris and weeds, the removal and replacement of dead plants, and the repair and replacement of irrigation systems and integrated architectural features.
2. Prior to the issuance of a Certificate of Occupancy, the landowner shall file a maintenance agreement or covenant and easement to enter and maintain, subject to the approval of the City Attorney. The agreement or covenant and easement to enter and maintain shall ensure that if the landowner, or subsequent owners, fails to maintain the required/installed site improvements, the City will be able to file an appropriate lien(s) against the property in order to accomplish the required maintenance.

### **19.28.100 REMOVAL OR DESTRUCTION OF TREES**

Removal of healthy, shade providing, aesthetically valuable trees shall be discouraged. In the event that more than five trees are to be cut down, uprooted, destroyed or removed within a 36 month period, a permit shall first be issued by the Department.

An arborist survey and report may be required at the developer's expense, to evaluate existing trees prior to the issuance of a tree removal permit, as determined by the Director of Community Development. Unless there is a pre-approved tree replacement plan, each tree that is removed in a new subdivision and is determined to be of significant value by the Community Development Director shall be replaced with a 36 inch box specimen tree in the subdivision in addition to any other required landscaping. Such a plan does not necessarily require a tree for tree replacement provision. Commercial tree farms, City Government projects, and individual single-family residential lots less than one acre shall be exempt from this provision.

### **19.28.110 EROSION CONTROL LANDSCAPING**

Landscaping for the purpose of erosion control shall be in compliance with the standards outlined in Chapter 15 of the Municipal Code.

### **19.28.120 WATER EFFICIENT LANDSCAPING STANDARDS**

MC 1368 02/08/12

#### **1. PURPOSE AND INTENT**

- A. The purpose of this Chapter is to:
- (1) Promote the aesthetic and recreational values of landscapes, while recognizing the need to invest water resources as efficiently as possible;
  - (2) Establish a structure for planning, designing, installing and maintaining water efficient landscapes in new construction and rehabilitated projects;
  - (3) Establish provisions for water management practices and water waste prevention in the irrigation of existing landscapes;
  - (4) Implement water quality management practices that minimize storm water and irrigation runoff, to achieve on-site filtration and groundwater recharge;
  - (5) Promote and encourage the use of low water use plants in landscapes;
  - (6) Minimize the use of cool season turf;
  - (7) Promote conservation of potable water by encouraging the use of recycled water and water-conserving technology in landscape irrigation; and
  - (8) Promote public education about water conservation and water efficient landscape irrigation.
- B. The intent of this Chapter is to implement water efficient landscape regulations at least as effective as the state model ordinance adopted pursuant to California Government Code Section 65595.

**2. APPLICABILITY**

After January 1, 2010, the provisions of this Chapter shall apply as follows:

- A. All provisions of this chapter for planning, design, installation and management of new landscapes shall apply to the following new construction and rehabilitation landscape projects normally subject to building or landscaping plan review and permits.
  - (1) Public agency projects and private development projects with a landscape area equal to or greater than 2,500 square feet;
  - (2) Developer-installed single-family and multi-family residential projects with a landscape area equal to or greater than 2,500 square feet in the aggregate;
  - (3) Homeowner-installed and/or homeowner-hired single-family and multifamily residential projects with a total project landscape area equal to or greater than 5,000 square feet.
  
- B. Limited applicability. Existing landscapes, cemeteries and certain Special Landscape Areas are exempt from the provisions of this Chapter as follows:
  - (1) Existing landscapes installed before January 1, 2010 and exceeding one acre in area are subject only to water waste prevention and efficient irrigation requirements of Sections 19.28.110(12) and 19.28.110(13).
  - (2) New cemeteries or cemetery expansion projects exceeding 2,500 square feet in landscape area shall be subject to the Water Efficient Landscape worksheet requirement and the irrigation analysis and maintenance requirements of Section 19.28.110(9) and Section 19.28.110(10).
  - (3) New development or rehabilitation of landscapes including Special Landscape Areas (SLAs), such as edible landscapes, landscapes irrigated with recycled water, and active parks or sport field landscaping shall be subject to the provisions of this Ordinance, except that the Maximum Applies Water Allowance (MAWA) shall be adjusted to provide for adequate irrigation of SLAs.
  
- C. Exemptions. The provisions of this Chapter shall not apply to the following exempt landscapes:
  - (1) Registered local, state or federal historic sites;
  - (2) Ecological restoration projects that do not require permanent irrigation systems;

- (3) Mined land restoration projects that do not require permanent irrigation systems;
- (4) Botanical gardens and arboretums open to the public.

**3. LANDSCAPE DESIGN STANDARDS AND PLANNING GUIDELINES**

For the efficient use of water, landscapes shall be carefully designed and planned to thrive in local soil and climatic conditions and to suit the intended function of the project. The following design guidelines shall also be considered in landscape planning:

**A. Plant Selection:**

- (1) Native plants and drought-tolerant species are encouraged to promote low maintenance, water efficient landscapes.
- (2) Any plant may be used in the landscape, provided that the EAWU (estimated annual applied water use) does not exceed the MAWA (maximum annual applied water allowance).
- (3) Plants with similar water use requirements shall be grouped together in “hydrozones” wherever possible.
- (4) Turf areas should be minimal, limited mainly to active recreation areas and small lawns. Where turf is used, it should not be planted on slopes greater than 4:1, and warm season varieties are preferred.
- (5) Fire resistant plant species and fuel modification requirements shall be top priority for landscape design in high fire hazard areas.
- (6) Invasive plant species should be avoided, especially near natural areas, fuel modification zones, parks and water bodies.
- (7) The use of mulch is encouraged to retain moisture.
- (8) Plant placement shall be planned to create shade in summer and permit solar gain in winter.
- (9) Plant size and root characteristics at maturity should be considered in plant selection and placement, to avoid damage to property or infrastructure.

**B. Water Features:**

- (1) Recirculating water systems shall be used for all decorative water features.
- (2) If available, recycled water should be used in decorative water features, except pools and spas.

- (3) The surface area of a water feature shall be included in MAWA calculation with an evaporation rate equivalent to that of a high water use plant.
- (4) Pool and spa covers are highly recommended.

C. Content Requirements of Landscape Design Plans:

- (1) Each hydrozone shall be identified as a “low”, “moderate”, “high”, or “mixed” water use zone.
- (2) Landscape areas with unique water budget considerations, such as recreation areas, areas dedicated to edible landscapes, and areas to be irrigated with recycled water shall be delineated.
- (3) Areas planned for soil amendments, mulch application, surface water features, and hardscapes (pervious and impervious) shall be delineated with applicable notes regarding installation and design.
- (4) On-site design measures for storm water quality management shall be identified to demonstrate consistency with the corresponding Water Quality Management Plan (WQMP).

**1. IRRIGATION REQUIREMENTS**

- A. All irrigation systems shall be designed and maintained to prevent runoff, overspray, low head drainage and other conditions of water waste. Soil types and infiltration rates shall be considered when designing irrigation systems, and irrigation plans shall be designed to meet specific water needs of each hydrozone, to maximize the efficiency of the irrigation systems.
- B. Dedicated (separate) landscape water meters shall be installed at new project sites with landscape areas greater than 5,000 square feet, subject to concurrence of the water purveyor.
- C. The following equipment shall be required to control water waste in new irrigation systems subject to this Ordinance.
  - (1) Automatic irrigation controllers that utilize evapotranspiration or soil moisture sensor data to adjust the frequency and/or duration of irrigation in response to changing weather conditions.
  - (2) Rain sensors with automatic shut-off features.
  - (3) Anti-drain check valves to prevent low-head drainage in sprinkler heads.
  - (4) Pressure regulators as needed when the static water pressure exceeds the maximum recommended operating pressure.

- (5) Manual shut-off valves located as close as possible to the point of connection to the water supply, to minimize water loss in case of an emergency or a routine repair.

D. Irrigation Design Standards:

- (1) The irrigation systems shall be designed and installed to conform to the project water budget (MAWA), based on planting plans for the project hydrozones;
- (2) Overhead irrigation shall not be permitted within a 24-inch setback from any non-permeable surface. Allowable irrigation within such setback areas may include drip, drip line, or other low flow, non-spray technology. The setback 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 landscaping; or
  - c. the irrigation designer specified an alternative design or technology as part of the Landscape Documentation Package, and clearly demonstrates compliance with the requirements of this Ordinance.
- (3) Slopes greater than 25% shall not be irrigated within an irrigation system with a precipitation rate exceeding 0.75 inches per hour. This restriction may be modified if the irrigation designer specified an alternative design or technology as part of the Landscape Documentation Package, and clearly demonstrates that no excess runoff or erosion will occur. This demonstration shall be confirmed by an irrigation audit.

E. The irrigation plan shall be prepared separate from the landscape planting plan, but it shall be consistent with the planting plan and shall conform to all the requirements of this Ordinance.

F. A Water Management Plan shall be prepared to accompany the irrigation plan, in accordance with the requirements of this Ordinance. The Water Management Plan shall describe the irrigation system in detail, identify parties responsible for maintenance of the irrigation system, and set a plan and schedule for management of the system.

G. Recycle Water. Dual water distribution systems allowing irrigation with recycled water are encouraged, and may be required to be installed on new construction sites, at the discretion of the water purveyor, and subject to availability.

**2. LANDSCAPE SOIL MANAGEMENT AND LANDSCAPE GRADING REQUIREMENTS**

- A. Soil testing shall be performed after mass grading and prior to landscape installation, to ensure the selection of plant materials is suitable for the site. The soil analysis shall be incorporated in a soil management plan, including the following:
- (1) A determination of soil texture, indicating the available water holding capacity;
  - (2) An approximate soil infiltration rate, or a range of infiltration rates;
  - (3) Measures of pH and total soluble salts; and
  - (4) Soil management and amendment regulations.
- B. Grading of landscape areas shall be designed to minimize unnecessary soil compaction, erosion, and water waste. Landscape grading shall be designed to prevent runoff, avoid disruption and natural drainage patterns and to support on-site infiltration of storm water and irrigation water for water quality management.

**3. LANDSCAPE PLAN SUBMITTAL REQUIREMENTS**

A Landscape Documentation Package prepared by a licensed landscape architect shall be required for any new construction of landscape or landscape rehabilitation that is normally subject to building or landscape plan review and permits. The Landscape Documentation Package shall contain the following elements:

- A. Project information:
- (1) Date;
  - (2) Project applicant;
  - (3) Project address or location;
  - (4) Total landscape area in square feet;
  - (5) Project type (e.g., new, rehabilitated, public, private, developer or homeowner installed, cemetery, park, etc.);
  - (6) Water supply type (e.g., potable, recycled, well) and identify the local retail water purveyor;
  - (7) Checklist of all documents in the Landscape Documentation Package;

- (8) Contact information for the project applicant and property owner;
- (9) Applicant signature, dated with the statement, “I agree to comply with the requirements of the Water Efficient Landscape Ordinance and submit a complete Landscape Documentation Package.”
- B. Water Efficient Landscape Worksheet. Worksheet examples, sample calculations and the Reference Evapotranspiration (ET<sub>o</sub>) Table for the City of San Bernardino are available in the Community Development Department to guide preparation of the required elements of the Water Efficient Landscape Worksheet, including:
  - (1) Hydrozone information table;
  - (2) Water budget calculations:
    - (a) Maximum Applied Water Allowance (MAWA);
    - (b) Estimated Total Water Use (ETWU);
- C. Landscape design plan, prepared according to Section 19.28.110(3);
- D. Irrigation design plan, prepared according to Section 19.28.110(4);
- E. Soil management report, prepared according to Section 19.28.110(5)(A); and
- F. Grading design plan, prepared according to Section 19.28.110(5)(B).

#### **4. COMPLIANCE DOCUMENTATION**

- A. Certificate of Completion. Prior to issuance of a Certificate of Occupancy or final inspection for a new construction project or a landscape rehabilitation project, a Certificate of Completion shall be submitted to the City, signed by a licensed landscape architect to certify that:
  - (1) The landscaping has been installed in conformance with the approved planting and irrigation plans;
  - (2) The automatic irrigation controller has been set according to the irrigation schedule;
  - (3) The irrigation system has been adjusted to maximize irrigation efficiency and eliminate over-spray and runoff; and
  - (4) A copy of the irrigation schedule has been given to the property owner.
- B. Completed Landscape Documentation Packages and Certificated of Completion shall be made available for review by the water purveyor. Sites found to be out of compliance with the provisions of this Ordinance may be subject to landscape water audits and compliance enforcement by the water purveyor.

**5. IRRIGATION SCHEDULING**

- A. 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. If allowable hours of irrigation differ from the local water purveyor, the stricter of the two shall apply. Operation of the irrigation system outside of the normal watering window is allowed for auditing and system maintenance.
  - (3) For implementation of the irrigation schedule, particular attention must be paid to irrigation run times, emission device, flow rate, and current reference evapotranspiration, so that applied water meets the Estimated Total Water Use. 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.

**6. LANDSCAPE AND IRRIGATION MAINTENANCE SCHEDULE**

- A. Landscapes shall be maintained to ensure water use efficiency. A regular maintenance schedule shall be submitted with the Certificate of Completion.
- B. 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 and weeding in all landscape areas; and removing any obstruction to emission devices. Operation of the irrigation system outside the normal watering window is allowed for auditing and system maintenance.
- C. Repair of all irrigation equipment shall be done with the originally installed components or their equivalents.
- D. A project applicant is encouraged to implement sustainable or environmentally friendly practices for overall landscape maintenance.

**7. IRRIGATION AUDIT, IRRIGATION SURVEY, AND IRRIGATION WATER USE ANALYSIS**

- A. All landscape irrigation audits shall be conducted by a certified landscape irrigation auditor.

- B. For new landscape construction and rehabilitated landscape projects installed after January 1, 2010:
  - (1) The project applicant shall submit an irrigation audit report with the Certificate of Completion to the City that may include, but is not limited to: inspection, system tune-up, system test with distribution uniformity, reporting overspray or runoff that causes overland flow, and preparation of an irrigation schedule.
  - (2) The City or the water purveyor may conduct or require an irrigation water use analysis, irrigation audit or irrigation survey for compliance with the Maximum Applied Water Allowance (MAWA).
- C. For existing landscapes that were installed before January 1, 2010 and are over one acre in size, the City or the water purveyor may require irrigation water use analyses, irrigation surveys, and irrigation audits to evaluate water use and provide recommendations a necessary to reduce landscape water use to a level that does not exceed the Maximum Applied Water Allowance for existing landscapes, which shall be calculated as:  $MAWA = (0.8)(ET_o)(LA)(0.62)$ . All landscape irrigation audits shall be conducted by a certified landscape irrigation auditor,

## 8. IRRIGATION EFFICIENCY

- A. 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.

## 9. PROVISIONS FOR EXISTING LANDSCAPE

- A. The City or the water purveyor may enforce the requirements contained in this Ordinance, and may assess penalties for water waste in existing landscapes constructed prior to January 1, 2010.

## 10. WATER WASTE PREVENTION

- A. Water waste resulting from inefficient landscape irrigation is prohibited. Runoff of irrigation water into the public right-of-way caused by low head drainage, broken sprinkler heads, overspray or other similar conditions shall be prohibited. Overspray or runoff onto adjacent property, non-irrigated areas walks roadways parking lots, or structures shall be prohibited. Restrictions regarding overspray ad runoff 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.

## 11. DEFINITIONS

The terms used in this ordinance have the meaning set forth below:

- 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. “Certificate of Completion” means the document required under Section 19.28.110(7).
- E. “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 designed certification program and Irrigation Association’s Certified Irrigation Designer Program.
- F. “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 irrigation auditor certification program and Irrigation Association’s Certified Landscape Irrigation Auditor Program.
- G. “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.
- H. “Common interest developments” means community apartment projects, condominium projects, planned developments, and stock cooperatives per Civil Code Section 1351.
- I. “Conversion factor (0.62)” means the number that converts acre-inches per acre per year to gallons per square foot per year.
- J. “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.

- K. “Ecological restoration project” means a project where the site is intentionally altered to establish a defined, indigenous, historic ecosystem.
- L. “Effective precipitation” or “Usable rainfall” (Eppt) means the portion of total precipitation which becomes available for plant growth.
- M. “Emitter” means a drip irrigation emission device that delivers water slowly from the system to the soil.
- N. “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.
- O. “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.
- P. “Estimated Total Water Use” (ETWU) means the total water used for the landscape as described in Section 19.28.110(6)(B).
- Q. “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.
- A combined plant mix with a site-wide average of 0.5 is the basis of the plant factor portion of the calculation. For purposes of the ETAF, the average irrigation efficiency is 0.71. Therefore, the ET Adjustment Factor is  $(0.7) \div (0.5/0.71)$ . ETAF for a Special Landscape Area shall not exceed 1.0. ETAF for existing non-rehabilitated landscapes is 0.8.
- R. “Evapotranspiration rate” means the quantity of water evaporated from adjacent soil and other surfaces and transpired by plants during a specific time.
- S. “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.
- T. “Hardscapes” means any durable material (pervious and non-pervious).
- U. “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 the 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.
- V. “Hydrozone” means a portion of the landscaped area having plants with similar water needs. A hydrozone may be irrigated or non-irrigated.

- W. “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).
- X. “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 agriculture 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.
- Y. “Irrigation audit” means an in-depth evaluation of the performance of an irrigation system conducted by a Certified Landscape Irrigation Auditor. AN irrigation audit includes, but is not limited to: inspection, system tune-up, system test with distribution uniformity or emission uniformity, reporting overspray or runoff that causes overland flow, and preparation of an irrigation schedule.
- Z. “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.
- AA. “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.
- BB. “Irrigation water use analysis” means an analysis of water use data based on meter readings and billing data.
- CC. “Landscape architect” means a person who holds a license to practice landscape architecture in the state of California Business and Professions Code, Section 5615.
- DD. “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, or other pervious or non-pervious hardscapes, and other non-irrigated areas designated for non-development (e.g., open spaces and existing native vegetation.)
- EE. “Landscape contractor” means a person licensed by the state of California to construct, maintain, repair, install, or subcontract the development of landscape systems.
- FF. “Landscape Documentation Package” means the documents required under Section 19.28.110(6).

- GG. “Landscape project” means total area of landscape in a project as defined in “landscape area” for the purposes of this Ordinance, meeting requirements under Section 19.28.110(2).
- HH. “Lateral line” means the water delivery pipeline that supplies water to the emitters or sprinklers from the valve.
- II. “Local agency” means a city or county, including a charter city or charter county, that is responsible for adopting and implementing the ordinance. The local agency is also responsible for the enforcement of this ordinance, including but not limited to, approval of a permit and plan check or design review of a project.
- JJ. “Local water purveyor” means any entity, including a public agency, city, county, or private water company that provides retail water service.
- KK. “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.
- LL. “Main line” means the pressurized pipeline that delivers water from the water source to the valve or outlet.
- MM. “Maximum Applied Water Allowance” (MAWA) means the upper limit of annual applied water for the established landscaped area as specified in Section 19.28.110(6)(B). It is based upon the area’s reference evapotranspiration, the ET Adjustment Factor, and the size of the landscaped area. The Estimated Total Water Use shall not exceed the Maximum Applied Water Allowances. Special Landscape Areas, including recreation areas, area 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.
- NN. “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.
- OO. “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.
- PP. “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.
- QQ. “New construction” means, for the purpose of this Ordinance, a new building with a landscape or other new landscape, such as a park, playground, or greenbelt without an associated building.

- RR. “Operating pressure” means the pressure at which the parts of an irrigation system are designed by the manufacturer to operate.
- SS. “Overhead sprinkler irrigation systems” means systems that deliver water through the air (e.g., spray heads and rotors).
- TT. “Overspray” means the irrigation water which is delivered beyond the target area.
- UU. “Permit” means an authorizing document issued by local agencies for new construction and rehabilitated landscapes.
- VV. “Pervious” means any surface or material that allows the passage of water through the material and into the underlying soil.
- WW. “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”.
- XX. “Precipitation rate” means the rate of application of water measured in inches per hour.
- YY. “Project applicant” means the individual or entity submitting a Landscape Documentation Package required under Section 19.28.110(6), to request a permit, plan check, or design review from the City. A project applicant may be the property owner or his or her designee.
- ZZ. “Rain sensor” or “rain sensing shutoff device” means a component which automatically suspends an irrigation event when it rains.
- AAA. “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.
- BBB. “Recreational area” means areas dedicated to active play such as parks, sports fields, and golf courses where turf provides a playing surface.
- CCC. “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.
- DDD. “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 as represented in the sample materials referenced in Section 19.28.110(6)(B), 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.

- EEE. “Rehabilitated landscape” means any re-landscaping project that requires a permit, plans check, or design review, meets the requirements of Section 19.07.020, 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.
- FFF. “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.
- GGG. “Soil moisture sensing g 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.
- HHH. “Soil texture” means the classification of soil based on its percentage of sand, silt, and clay.
- III. “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 pan such as parks, sports fields, golf courses, and where turf provides a playing surface.
- JJJ. “Sprinkler head” means a device which delivers water through a nozzle.
- KKK. “Static water pressure” means the pipeline or municipal water supply pressure when water is not flowing.
- LLL. “Station” means an area served by one valve or by a set of valves that operate simultaneously.
- MMM. “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.
- NNN. “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.
- OOO. “Valve” means a device used to control the flow of water in the irrigation system.

- PPP. “Water conserving plant species” means a plant species identified as having a low plant factor.
- QQQ. “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.
- RRR. “Watering window” means the time of day irrigation is allowed.
- SSS. “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 (Ord. MC-1320, 01-04-10)

### **19.28.130 APPLICABLE REGULATIONS**

All landscape plans shall be subject to the applicable regulations of the Development Code, including, but not limited to, Article IV, Administration provisions.