

14.0 LANDSCAPING AND IRRIGATION

The following landscape policies and procedures are based on the requirements provided within the City of Highland Municipal Code Chapter 16.40.390 and the 2015 State of California Model Water Efficient Landscape Ordinance.

14.1 GENERAL REQUIREMENTS

NUMBER OF PLANS AND SUBMITTAL PROCEDURE

- a. Initial Submittal: Three (3) hard copies of Landscape Irrigation and Planting plans shall be submitted to the City of Highland Planning Division along with payment of the appropriate current Landscape Plan Review Fee. Upon deposit of sufficient funds, the plans will be routed to Public Works/Engineering Department as well as the City's Landscape Architect for review. For projects containing water quality basins or other BMP's, as well as projects where notable topography is present, a copy of the grading plans and other relevant details shall be provided for reference in the Landscape review.
- b. Resubmittal after receipt of redlined comments: Two (2) hard copies of corrected landscape and irrigation plans, along with previous check redlined plans, shall be submitted directly to the City's Landscape Architect. Electronic submittal of plans in PDF format is encouraged in lieu of hard copy re-submittal.

14.2 LANDSCAPE DESIGN PLANS

1. ALL SHEETS

A landscape design plan meeting the following criteria shall be submitted as part of the Landscape Documentation Package.

NOTE: The name, address, telephone number, along with signature of the person(s) preparing the design shall be on the plans. Licensed landscape architects shall include current license numbers and expiration date.

- a. Landscape plans shall be prepared under the direct supervision of a Licensed Landscape Architect, with current, active registration in the State of California.
- b. Plans shall be legibly drawn to scale on double matte three-mil thick mylar no smaller than 24" x 36" and no larger than 30" X 42".
- c. Plans shall show the name, address, and telephone number of property owner or developer.
- d. Plans shall show location of the property/ properties by vicinity map and nearest cross streets and give the property address or assessor's parcel number.
- e. Plans shall show location of existing and proposed utilities - above ground and underground, including but not limited to water, sewer, electrical, telecom, cable, etc. All street lights, cabinets, hydrants shall be shown on the plans.

CITY OF HIGHLAND
Public Works Policies, Procedures and Standards

- f. Plans shall show all applicable drawing scales and northerly directional arrow. Landscape plan sheets shall be drawn at 20 scale unless otherwise directed.
- g. All sheets shall include the City signature block in the lower right corner of each sheet:

CITY OF HIGHLAND	
APPROVED BY:	
_____	_____
PLANNING DIVISION	DATE
_____	_____
CITY'S LANDSCAPE ARCHITECT	DATE
LICENSE NO. _____	

- h. City Standard Landscape details shall be used on all projects that will be maintained by the City of Highland.
- i. On the Cover Sheet of the Landscape plan set, the following statement shall be provided: "I have complied with the criteria of the City of Highland Water Efficient Landscape Ordinance and applied them for the efficient use of water in the landscape design plan." Applicant's Landscape Architect shall sign and date immediately below the aforementioned statement, also providing the signer's current State of California Landscape Architect license number.
- j. Provide the Total Landscape Area in square feet on the Cover Sheet of the Landscape Plan Set.
- k. Identify all special landscape areas, including areas dedicated solely to edible plants, recreation areas, etc. on the Cover Sheet of the Landscape Plan Set.
- l. Identify all Best Management Practices (BMP's) containing landscape elements on the Cover Sheet of the Landscape Plan Set.

2. PLANTING PLAN

The City of Highland consists of several overlapping biomes, including but not necessarily limited to urban, alluvial fan sage scrub, riparian, and foothill chaparral. Accordingly, plant materials shall be selected to complement the specific microclimate present at the project site. For the efficient use of water, each landscape shall be carefully designed and planned for the intended function of the project. The City encourages the protection and preservation of native species and natural vegetation, as well as mature trees.

CITY OF HIGHLAND
Public Works Policies, Procedures and Standards

While 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, selection of water-conserving plant, tree and turf species is encouraged, with an emphasis on locally native, non-invasive species, disease and pest resistance, and minimal maintenance.

- a. Plans shall contain plant legends for all existing and proposed plant material. Planting legend shall provide the following:
 - i. Plant symbol
 - ii. Plant name, botanical and common
 - iii. Plant size (nursery container)
 - iv. Plant quantities
 - v. Plant Spacing (feet on center, 100% coverage, etc.)
 - vi. Water Use Classification (WUCOLS)
- b. Plans shall show existing trees to remain, with current trunk caliper and canopy drawn to scale.
- c. Plans shall show proposed plant material drawn to scale at their anticipated mature, maintained size at 10 years from planting.
- d. Plans shall contain landscape specifications and details.
- e. Plant selection shall adhere to Fuel Modification Plan Guidelines in projects that interface with hillsides and/or open space.
- f. The use of turfgrass is limited to parks and active play areas only, of which areas must not exceed 25% slope gradient (4:1). Use of turfgrass in any other application will be reviewed on a case-by-case basis.
- g. All required turf areas (at special landscape areas only) shall be protected from other landscape areas i.e. groundcover beds, shrub planters by a 6" concrete mow curb. Mow curb shall be 1" above finished grade. Mowcurbs shall also be used to delineate the limits of Landscape Maintenance District (LMD) planter areas, especially at the interface of private homeowner lots and LMD areas.
- h. High water use plants, characterized by a plant factor of 0.7 or greater, are prohibited in street medians.
- i. A minimum 3" layer of mulch shall be provided on all exposed soil surfaces of planting areas except in turf areas.
- j. Plantings shall be grouped by water use hydrozone, which shall be reflected consistently in the irrigation plan.
- k. Landscaped 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 as required in the City Development Code.
 - i. Trees 20%, 24" box; 50%, 15 gallon; 15%, 36" box; 15%, 48" box
 - ii. Shrubs 80%, 5 gallon; 20% 1 gallon
 - iii. Groundcover 100% coverage within one (1) year

CITY OF HIGHLAND

Public Works Policies, Procedures and Standards

- iv. Fifteen (15) gallon trees shall have a 1" to 1/2" diameter caliper - 5 inches above the top of the rootball. They shall be 8' to 10' in height, with a 2' to 3' spread. Twenty-four inch (24") box trees shall have a 1 3/4" to 2" diameter caliper - 5 inches above the rootball. They shall be 9' to 10' feet in height, with a 4' to 5' spread.
- l. Slope landscape requirements: To protect against damage by erosion and negative visual impact, surfaces of all slopes more than three (3) feet in height shall be protected by landscaping. Slopes exceeding ten (10) feet in vertical height shall also be landscaped with shrubs spaced at not to exceed 10 feet on center and trees spaced at not to exceed 20 feet on center. Plant material selected and planting method used shall be suitable for the soil and climatic conditions on the site.
- m. Plant sizes on slopes shall be as follows:
 - i. Trees 100% - 15 gallon
 - ii. Shrubs 40% - 5 gallon; 60% - 1 gallon
 - iii. Groundcover 100% - coverage within one (1) year.
- n. The maintenance of graded slopes and landscaped areas shall be the responsibility of the developer until the transfer to individual ownership.
- o. Street trees: Street trees shall be required. Tree varieties and exact location will be determined by the Public Works Department, under the direction of the City's Landscape Architect. The applicant shall mark locations and inspect plant material on site for City approval, prior to planting. A 24-hour notice is required for inspection. The size of the street trees shall be 24" box specimens unless otherwise directed by the Public Works Department and City's Landscape Architect. The 24" box trees shall be planted as street trees within public parkway or City property. For the latest list of street trees, please contact the City's Landscape Architect (Community Works Design Group) at (951) 369-0700.
- p. All required setbacks around the perimeter of the property shall be landscaped (except for walks and driveways which bisect or encroach upon the required landscape area). The required setbacks shall be landscaped with trees, shrubs and groundcover. Landscaped earth berms shall be erected and maintained within the setback. Bermed areas shall have a maximum of 4:1 slope and be planted with 1 gallon groundcover material or other approved landscaping. A minimum width of 5 feet of landscaping shall be placed on the exterior of perimeter building walls.
- q. Gravel and decorative rock are permitted for use as groundcover in no greater than 50% of the total landscape area, and the location of the rock material is compatible with adjacent land use.

CITY OF HIGHLAND
Public Works Policies, Procedures and Standards

3. SOIL MANAGEMENT PLAN

In order to reduce runoff and encourage healthy plant growth, a soil management report shall be completed by the project applicant, including the following items:

- a. At the completion of rough grading activities (as applicable), submit soil samples representative of the pre-conditioned site soils to a City-approved laboratory for analysis and recommendations. The soils analysis shall include:
 - i. Soil texture
 - ii. Infiltration rate determined by laboratory test or soil texture infiltration rate table
 - iii. pH
 - iv. Total soluble salts
 - v. Sodium
 - vi. Percent Organic Matter
 - vii. Recommendations for amending soil

In projects with multiple landscape installations, such as production lots for housing tracts, a soil sampling rate of 1 in 7 lots or approximately 15% will satisfy this requirement.

- b. The soils report shall be made available, in a timely manner, to the professionals preparing the landscape design plans to make any necessary adjustments to the design plans.
- c. The project applicant, or his/her designee, shall submit documentation verifying implementation of soil analysis report recommendations to the local agency with Certificate of Completion.
- d. Prior to the planting of any materials, compacted soils shall be transformed to a friable condition. On engineered slopes, only amended planting holes need to meet this requirement.
- e. Soil amendments shall be incorporated according to the recommendations of the soil report and what is appropriate for the plants selected.
- f. For landscape installations, compost at a rate of four cubic yards per 1,000 square feet of permeable area shall be incorporated to a depth of six inches into the soil. Soils with greater than 6% organic matter in the top 6 inches of soil are exempt from adding compost and tilling.
- g. Stabilizing mulching products shall be used on slopes that meet current engineering standards.
- h. Organic mulch materials made from recycled or post-consumer products shall take precedence over inorganic materials or virgin forest products unless the recycled post-consumer organic products are not locally available. Organic mulches are not required where prohibited by local Fuel Modification Plan Guidelines or other applicable local ordinances.

CITY OF HIGHLAND
Public Works Policies, Procedures and Standards

4. IRRIGATION PLANS

For the efficient use of water, an irrigation system shall meet all the requirements listed in this section and the manufacturer's recommendations. The irrigation system and its related components shall be planned and designed to allow for proper installation, management, and maintenance.

- a. All required landscaping shall be irrigated with an automatic irrigation controller that utilizes either evapotranspiration or soil moisture sensor data with non-volatile memory for scheduling in all irrigation systems.
 - i. For City maintained areas, Controller shall be Hunter ICore or Weathermatic SL; final selection shall be determined by City Public Works on a project-specific basis.
 - ii. Sensors (rain, freeze, wind, etc.) either integral or auxillary, that suspend or alter irrigation operation during unfavorable weather conditions shall be required on all irrigation controllers.
- b. Irrigation plans shall be submitted with, attached to, and the same size as landscape plans.
- c. Project applicant shall complete the Water Efficient Landscape Worksheet (see appendix) which contains information on the plant factor, irrigation method, irrigation efficiency, and area associated with each hydrozone. Calculations are then made to show that the evapotranspiration adjustment factor (ETAF) for the landscape project does not exceed a factor of 0.55 for residential areas and 0.45 for non-residential areas, exclusive of special landscape areas. The ETAF for a landscape project is based on the plant factors and irrigation methods selected. The Maximum Applied Water Allowance (MAWA) is calculated based on the maximum ETAF allowed (0.55 for residential, 0.45 for non-residential) and is expressed as annual gallons required. The Estimated Total Water Use (ETWU) is calculated based on the plants used and the irrigation method selected for the landscape design. ETWU must be below the MAWA.

In calculating the MAWA and ETWU, project applicant shall use the ETo values from the Reference Evapotranspiration factor provided by the California Irrigation Management Information System (CIMIS), available online at www.cimis.water.ca.gov.

Water budget calculations shall adhere to the following requirements:

- i. The plant factor used shall be from WUCOLS; The plant factor ranges from 0 to 0.1 for Very Low water use plants; 0.1 to 0.3 for Low water use plants; 0.4 to 0.6 for Moderate water use plants; and 0.7 to 1.0 for High water using plants.
- ii. All water features shall be included in the high water use hydrozone and temporarily irrigated areas shall be included in the low water use hydrozone.

CITY OF HIGHLAND

Public Works Policies, Procedures and Standards

- iii. All special landscape areas shall be identified and their water use calculated.
 - iv. ETAF for new and existing (non-rehabilitated) Special Landscape Areas shall not exceed 1.0.
-
- d. Median irrigation systems, and irrigation systems within landscape maintenance district easements maintained by the City, shall be installed with a separate electric meter and pedestal, water meter, controller and pedestal, and backflow preventer and tamper resistant enclosure.
 - e. Irrigation electric meter enclosures for City maintained irrigation systems shall Caltrans Type III-BF or approved equal.
 - f. Electric meter pedestals, controller pedestals, and backflow preventers shall be installed in flat accessible areas. Retaining walls shall not be constructed to provide the flat areas required for these facilities.
 - g. Landscape water meters, defined as either a dedicated water service meter or private submeter, shall be installed for all non-residential irrigated landscapes of 1,000 square feet, and all residential irrigated landscapes of 5,000 square feet or more.
 - h. Irrigation system within landscape maintenance district easements which are not maintained by the City shall be designed for easy isolation from on-site private irrigation systems in the event the City assumes maintenance of the irrigation and landscaping within the landscape maintenance district.
 - i. If the static pressure is above or below the required dynamic or operating pressure, then 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.
 - j. 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.
 - k. As addressed in Landscape Design Guidelines of the Municipal Code, plans shall address conservation of water and energy to include:
 - i. System components - low gallonage and low precipitation heads, drip systems and other sub-surface techniques, mini-jet heads, moisture sensing devices, controllers with ability of variable programming.
 - ii. Irrigation facilities within the public right-of-way and landscape maintenance district easements, including controllers and controller pedestals, electric remote control valves, spray heads, and bubblers, shall be manufactured by Hunter.
 - iii. Efficiency - velocity shall be as close as possible to 5 feet per second. Plant material with different water requirements shall be on separate valves. Slopes shall be on separate valves. System design shall eliminate overthrow and runoff.

CITY OF HIGHLAND
Public Works Policies, Procedures and Standards

- I. Plans shall show:
 - i. Static P.S.I. at proposed point of connection
 - ii. Service Main - type, size and length
 - iii. Water Meter - location and size
 - iv. All locations of controller(s), pipe, valves and heads, (includes emitters, etc.), moisture sensing devices, rain switches, quick couplers, pressure regulators, and backflow prevention devices.
 - v. Approved Backflow Prevention Device - location and size, with vandal-resistant enclosure mounted on a concrete pad

- m. Slopes required to be planted with efficient and water conserving irrigation systems (over watering should be avoided).
- n. All sprinklers shall be installed with approved swing joints
- o. All sprinklers along pathways, driveways and any other area where foot traffic occurs shall be the pop-up type, installed flushed with the soil. Irrigation heads on risers are permitted where no foot traffic will occur.
- p. Overhead irrigation shall not be permitted within 24 inches of any non-permeable surface. Allowable irrigation within the setback area may include drip, dripline, or other low-flow non-spray technology. The surfacing of the setback may be mulch, gravel, or other porous material. These restrictions may be modified if the landscape area is adjacent to permeable surfacing and no runoff occurs, or the adjacent non-permeable surfaces are designed and constructed to drain entirely to landscaping.
- q. Lateral irrigation pipe shall be Class 200 or better. Mainline shall be Schedule 40 or better. Irrigation sleeves to be Schedule 40 and 2 1/2 times the diameter of lateral or mainline.
- r. All irrigation lines shall be buried. Mainline at least 18" and laterals 12" deep. Browline is permitted on slopes only.
- s. Plans shall contain irrigation legends, including but not limited to identifying all system component by manufacturer, model, description, operating pressure (PSI) and precipitation rate (as applicable). Pipe sizing shall also be shown at each section of pipe, (mains and laterals).
- t. All valves shall be numbered.
- u. Slopes greater than 25% shall not be irrigated with an irrigation system with an application rate exceeding 0.75 inches per hour.

14.3 CERTIFICATE OF COMPLETION

The Certificate of Completion shall be prepared by the Applicant's Landscape Architect and shall contain the following items:

- a. Project information sheet with date, project name, applicant name/ telephone number/ mailing address/ email address
- b. Certification by either the signer of the landscape design plans

CITY OF HIGHLAND

Public Works Policies, Procedures and Standards

- c. Where there have been significant changes made in the field during construction, the “as-builts” shall be included with the certification.
- d. Provide a diagram of the irrigation plan showing hydrozones shall be kept with the irrigation controller for subsequent management purposes.
- e. Provide irrigation scheduling parameters used to set the controller
- f. Provide Landscape and irrigation maintenance schedule; maintenance shall include (but not limited to): routine inspection, auditing, adjustment and repair of the irrigation system and its components; replenishing mulch; fertilizing; pruning; weeding in all landscape areas, removing obstructions to emission devices.
- g. Provide Irrigation Audit report
- h. Provide Soil Analysis report

Upon City’s review of the Certificate of Completion, the City shall:

- a. Receive the signed Certificate of Completion from the project applicant
- b. Approve or deny the Certificate of Completion. If the Certificate of Completion is denied, the City shall provide information to the project applicant regarding reapplication, appeal, or other assistance.

14.4 IRRIGATION AUDIT, IRRIGATION SURVEY, and IRRIGATION WATER USE ANALYSIS

All landscape irrigation audits shall be conducted by a local agency landscape irrigation auditor or a third party certified landscape irrigation auditor. Landscape audits shall not be conducted by the person who designed the landscape or installed the landscape.

- a. In large projects, or projects with multiple landscape installations (such as production lots in housing tracts), an auditing rate of 1 in 7 lots or approximately 15% will satisfy this requirement.
- b. For new construction and rehabilitated landscape projects, 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:
 - i. Inspection
 - ii. System tune-up
 - iii. System test with distribution uniformity
 - iv. Reporting overspray or runoff that causes overland flow
 - v. Soil types
 - vi. Plant factors
 - vii. Slope
 - viii. Exposure and other factors necessary for accurate programming

CITY OF HIGHLAND
Public Works Policies, Procedures and Standards

14.5 INSPECTIONS

1. IRRIGATION SYSTEM

- a. Inspections shall be performed by the City's Landscape Architect at the following:
 - i. Depth of irrigation trenching, sleeving, mainline, lateral lines (prior to burial), valve installation and irrigation head assembly.
 - ii. Pressure test of irrigation mainline (150 PSI for 2 hours).
 - iii. Coverage test and final acceptance.
- b. Do not allow or cause the above items to be buried prior to inspection and approval of the City representative. A 24-hour notice shall be given prior to anticipated inspections. Contact the City's Landscape Architect (Community Works Design Group) at (951) 369-0700.
- c. The maintenance of landscape areas shall be the responsibility of the developer until all required inspections have been completed by the City of Highland and the "yellow" inspection record signed.

2. PLANTING AND HARDSCAPE

- a. Inspection shall be performed by the City's Landscape Architect at the following:
 - i. Upon completion of finished grade, soil preparation and final rake out.
 - ii. When trees and shrubs are spotted for planting, with one example of planting hole for trees and shrubs. Provide samples of plant fertilizer.
 - iii. Final inspection when planting and all other specified work has been completed.
- b. A 24-hour notice shall be given prior to anticipated inspections. Contact the City's Landscape Architect (Community Works Design Group) at (951) 369-0700.

14.6 GENERAL REQUIREMENTS

- 1. Notify the Public Works Department or Planning Division of commencement of landscaping. Give anticipated time line (start-to-finish).
- 2. All landscaping, irrigation and street trees shall be installed and maintained in accordance with the City of Highland Municipal Code, ordinances and standard requirements.
- 3. Weed Control: Pre-emergence control, post-emergence control and cultural control of weeds shall be addressed on the landscape plans submitted by the landscape architect.
- 4. Material requirements for all planting material shall be number one (1) grade of the California Nursery Industry Certificate as issued by the Agricultural Commissioner of the County of origin.

CITY OF HIGHLAND

Public Works Policies, Procedures and Standards

5. Upon completion, City inspection, and sign-off by City Landscape Inspector, the Contractor shall be responsible for ninety (90) day plant establishment and maintenance period. If landscape is not acceptable, the maintenance period will be extended by the Park Projects Coordinator to insure the proper horticulture establishment.
6. All landscape material, irrigation equipment, irrigation components and workmanship shall be guaranteed for a period of not less than one (1) year from date of final approval by the City Public Works Department or his/her designee. The conditions of the guarantee will be to insure, but not limited to all plant material being in healthy condition and free from abnormal conditions which may have occurred during or after planting, such as defoliation or structure dieback.