



JERRY SANDERS
MAYOR

December 16, 2009

Mr. Simon Eching
California Department of Water Resources
Water Use and Efficiency Branch
Post Office Box 942836
Sacramento, CA 94236-0001

Dear Mr. Eching:

RE: City of San Diego's Water Efficient Landscape Ordinance

Please find enclosed a copy of the City of San Diego's (City) Landscape Ordinance, Landscape Standards and related grading and water reclamation ordinances. On October 6, 2009 the City amended its Landscape Regulations (Municipal Code Chapter 14, Article 2, Division 4) and its Landscape Standards to be at least as efficient in conserving water as the State's updated Model Water Efficient Landscape Ordinance (State Model). The effective date for the amended ordinance and standards was November 27, 2009.

The City first adopted a Landscape Ordinance in 1986 to improve the appearance, quality and quantity of landscaping visible from public rights-of-way and adjacent properties. In 1997 Landscape Regulations were expanded and a manual of Landscape Standards was created. The purpose of the Landscape Regulations was expanded to:

- to conserve water through low-water-using planting and irrigation design;
- minimize the erosion of slopes and disturbed lands through revegetation;
- conserve energy by the provision of shade trees over streets, sidewalks, parking areas, and other paving;
- to reduce the risk of fire through site design and the management of flammable vegetation; and
- improve the appearance of the built environment by increasing the quality and quantity of landscaping visible from public rights-of-way, private streets, and adjacent properties, with the emphasis on landscaping as viewed from public rights-of-way.

The Landscape Standards of the Land Development Manual is the technical manual that implements the Landscape Regulations. All landscape plans and installations are required to be in compliance with the Landscape Standards of the Land Development Manual. The Landscape standards address all aspects of implementing the entire landscape ordinance. With regard to

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water conservation, it includes water conserving standards primarily in the sections on Plant Material Guidelines and Irrigation Systems and to a lesser extent within sections devoted to Revegetation and Erosion Control, and Street Rights-of-Way and Open Spaces.

The enclosed amended Landscape Regulations and Landscape Standards were modified to address the elements of the State's model ordinance that were applicable to the City and not already addressed by the City's previous regulations. The major components of the amendment are the addition of the maximum applied water allowance (water budget), requirements for dedicated landscape irrigation meters, and landscape irrigation audit as required in the State Model. Additional City resources that address the requirements for water conservation and the requirements of the State Model include the Grading Regulations (Chapter 14, Division 2, Article 1) the Water Reclamation and Ocean Monitoring Regulations (Chapter 6, Article 4, Division 8), and the City's public outreach on water conservation including City webpage information and information disseminated through the public media.

In order to be at least as efficient as the State Model, the City adopted a package of regulations including requirements that are more stringent than the State Model. Specifically, the City reduced the landscape area threshold for triggering the water budget. The 2,500 square foot threshold of the State Model was reduced to 1,000 square feet in all development other than new single family development. For new single-family homes, all developer installed landscape, regardless of landscape area must comply with the water budget. Additionally, all new single family development with over 1,000 square feet of landscape area is required to install a landscape irrigation submeter prior to receiving occupancy. The reduced landscape area threshold will increase the number of developments that will be subject to the water budget. A copy of the report to the City Council is enclosed to provide additional background on the ordinance the City adopted.

The City's recent amendments to our Landscape regulations and standards, combined with our existing regulations and policies, ensures the City is in compliance with the state mandate to implement a landscape ordinance at least as effective as the State Model. If you have any questions about the City's regulations or policies, please contact Dan Joyce, Senior Planner at 619-446-5388 or DJoyce@sandiego.gov.

Sincerely,


JERRY SANDERS
Mayor
City of San Diego

Enclosures: 1. Amended Landscape Ordinance

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2. Land Development Manual - Landscape Standards
3. Grading Regulations
4. Water Reclamation and Ocean Monitoring Regulations
5. Web Information Page - <http://www.sandiego.gov/water/conservation/>
6. Report to City Council dated September 30, 2009



San Diego Municipal Code
Land Development Code

Landscape Standards



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This information, or this document (or portions thereof), will be made available in alternative formats upon request.

LANDSCAPE STANDARDS AMENDMENTS

The following amendments have been incorporated into this posting of this plan:

Amendment	Date Effective Administratively	Date Adopted by City Council	Resolution Number
Landscape Standards Adopted.		11-18-97	R-289460
Revisions for Water Conservation and Related Items	11-27-09		

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INTRODUCTION

The Landscape Standards establish the minimum plant material, irrigation, brush management, and landscape related standards for work done in accordance with requirements of Land Development Code. They provide guidelines and alternative methods to meet regulations based on various site conditions. Additionally, the Landscape Standards provide the technical standards to create and maintain landscapes that conserve and efficiently use water. Applicants proposing landscape work should also obtain copies of the Submittal Requirements in the Land Development Manual. These establish the materials and information that must be submitted with an application for review by the City and establish applicable drafting standards for landscape drawings.

SECTION I: PLANT MATERIALS GUIDELINES

1.1 LOCATIONAL CRITERIA

The following general standards establish criteria for the location of all landscape improvements. Refer to **Section V** for additional restrictions and requirements governing landscape improvements in public rights-of-way.

1.1-1 Landscape improvements in all areas shall be located to permit the proper operation of irrigation systems and the effective use of mowers and other power equipment in lawn areas.

1.1-2 Plant locations and spacing shall permit normal plant development without undue crowding or trimming.

1.1-3 Plant materials are to be grouped into hydrozones with plant species having similar water demand and by their, soil, sun, and shade requirements. A hydrozone may mix plants of moderate and low water use or mix plants of high water use and moderate water use. If hydrozones contain mixed water use plants, the higher water use plant classification shall be used for the estimated total water use ETWU calculations (see Section 2.6-2.)

1.2 SCREENING CRITERIA

When plant materials, in conjunction with or in lieu of fencing, are used to satisfy the screening requirements established by the Land Development Code, the plantings shall be evergreen and spaced to ensure 100 percent screening within two years of installation.

1.3 PLANT SELECTION CRITERIA

1.3-1 General Guidelines

Plants shall be selected based on the water budget requirements in Section 2.6 (Water Budget). With regard to the Landscape Regulations, there are three general categories of plants: Preferred, Acceptable, and Prohibited.

1.3-1.01 Preferred plants are essentially those most suited to the actual site conditions. However, there are innumerable combinations of factors affecting the selection of appropriate plants. The water needs of a plant are, however, a critical factor. For the purposes of this document, preferred plants are water conserving plants which are easily maintained and have no known history of problems. **Appendix 'A'** is a list of reference materials which discuss and identify water conserving plants.

- 1.3-1.02 Acceptable plants are those which satisfy minimum performance standards for the special site area in question and are easily maintained. For example, to be acceptable for Brush Management Zone 2, the plant must meet the performance standards for that zone.
- 1.3-1.03 Prohibited plants are those which do not satisfy the minimum performance standards for the site area in question. In addition, there are a number of invasive species that are not allowed in any required landscape area. The use of these materials elsewhere on a site is strongly discouraged. Where existing, these plants shall be eradicated. **Table 1** contains a list of Prohibited Plants.

**TABLE 1
PROHIBITED SPECIES**

Botanical Name	Common Name
<i>Ailanthus altissima</i>	Tree-of-Heaven
<i>Arundo donax</i>	Giant Reed
<i>Broussonetia papyrifera</i>	Paper Mulberry
<i>Cortaderia selloana</i>	Pampas Grass
<i>Nicotiana glauca</i>	Tree Tobacco
<i>Pennisetum setaceum</i>	Fountain Grass
<i>Spartium junceum</i>	Spanish Broom
Tamarix spp	Tamarisk
<i>Ricinus communis</i>	Castor Bean

- 1.3-1.04 Plant material used for erosion control on disturbed soil areas and slopes should achieve 100 percent soil coverage within two years of being installed.
- 1.3-1.05 Palm tree sizes are based on brown trunk height using the following methods for measurement for the type of palm shown:
- Fan Palms - Measured from the ground line to the base of the first living frond.
 - Feather Palms - Measured from the ground line to the base of the heart leaf where the heart leaf breaks away from the trunk.

- 1.3-1.06 Plant material used adjacent to coastal bluffs shall be native or naturalized to minimize the need for irrigation beyond initial plant establishment. Existing exotic and other plant materials that require regular irrigation should be removed and replaced with native or naturalized plant material.
- 1.3-1.07 Plant material are to be selected to be less than or equal to the maximum applied water allowance (MAWA) as determined by the water budget formula and specifications in Section 2.3-13.10.

1.3-2 Lawns

- 1.3-2.01 Areas of lawn shall be minimized and concentrated where used
- 1.3-2.02 Lawn areas shall not exceed 10 percent of the planting area on a premises, excluding required common areas, active recreation areas, areas located within the public right-of-way between the curb and public sidewalk, and areas of turf used for bioretention and infiltration basins. This restriction does not apply to single dwelling unit residential uses in residential zones.
- 1.3-2.03 The minimum dimension of a lawn bounded by impervious surfaces on two or more sides is 8 feet in all directions unless subsurface or low volume irrigation is used (low pressure irrigation through tubing or lateral lines and low volume emitters such as drip lines or bubblers).
- 1.3-2.04 Lawn areas located on slopes, where the toe of slope is adjacent to hardscape (as defined in Section 113.0103 of the Land Development Code), shall not exceed a gradient of 25 percent (4:1).

1.3-3 Vehicular Use Areas Not Within Street Rights-of-Way

- 1.3-3.01 Landscape improvements, including, but not limited to, plants, berms, signs, and structures shall be selected, positioned, and maintained to avoid obstructing views of motorists near intersections of aisles, drives, and pedestrian walkways.
- 1.3-3.02 Trees shall be selected and maintained such that scaffold branches are a minimum of 60 inches above the finish grade as measured at the trunk.
- 1.3-3.03 Plant materials with known surface root problems shall not be used in vehicular use areas.

1.4 SITE PREPARATION CRITERIA

- 1.4-1 When so indicated on the approved landscape plans, soils testing by a certified agronomic soil testing laboratory and/or 24 hour percolation tests (see **Sec. 2.3-13.08**) shall be conducted and report recommendations implemented prior to the installation of plants and irrigation systems.

- 1.4-2 Certified soil test and percolation test results and any proposed construction document revisions shall be submitted to the City. Written approval of revised construction documents is required prior to the installation of plantings and irrigation systems.
- 1.4-3 Soil amendments are to be used when needed to improve water retention in the soil, to improve the functional structure of the soil for greater water infiltration and percolation, to balance pH, and to optimize plant growth.

1.5 INSTALLATION CRITERIA

- 1.5-1 All drainage shall comply with the Storm Water Standards of the Land Development Manual.
 - 1.5-5.01 All planting areas shall be designed to effectively handle all drainage onsite.
 - 1.5-5.02 Concentrated flows shall be handled on-site using low impact development practices.
- 1.5-2 Only trees which are not self-supporting shall be staked or guyed.
- 1.5-4 Herbaceous groundcovers shall be planted with triangular spacing at a distance that will typically ensure 100 percent coverage within one-year of installation.
- 1.5-5 For irrigated areas, the rate of seed application shall be sufficient to typically provide 100 percent coverage within six months of installation.
- 1.5-6 All required planting areas shall be covered with mulch (organic or inorganic) to a minimum depth of 2 inches, excluding slopes requiring revegetation. All exposed soil areas without vegetation shall also be mulched to this minimum depth.

1.6 MAINTENANCE CRITERIA

- 1.6-1 Trees shall be watered deeply, but infrequently, to promote deeper rooting, and shall be fertilized as required by sound horticultural practices.
- 1.6-2 Plants shall be pruned in accordance with professional trimming standards to maintain their intended shapes and sizes, and to insure the health of the specimen and the safety of the public.
- 1.6-2 Tree guys and stake ties shall be inspected and adjusted periodically, and removed when necessary, to insure that they are adequately surrounding the tree without girdling trunks or branches.
- 1.6-4 Plants shall be pruned to avoid blocking walks, passageways and sight distance views for vehicular traffic.

- 1.6-5 Dead plants shall be replaced, damaged branches shall be removed, and overgrown areas shall be thinned by the selective removal of unnecessary plants.
- 1.6-6 Shrubs and vines used for screening trash enclosures and service areas shall be pruned to maximize screening while allowing access to the storage/service areas.
- 1.6-7 Shrubs, trees, and vines for screening adjacent properties shall be kept pruned so they do not interfere with pedestrian traffic and do not encroach excessively onto the adjacent property.
- 1.6-8 Trees shall be selected based upon the site characteristics including soil type, soil area, drainage, and adjacent improvements. Trees selected should grow to maturity without impacts to sidewalks, curbs, and other public improvements.

1.7 STREETS RIGHTS-OF-WAY AND OPEN SPACES MATERIAL GUIDELINES

All planting in street rights-of-way and those in open space areas that are to be maintained by the City, either directly or by administered contract shall comply with this section.

1.7-1 Plant Selection

- 1.7-1.01 In areas of existing development without an approved street tree plan¹, the tree selection(s) shall match the existing, permitted, predominate species unless the species is not listed in the Street Tree Selection Guide (www.sandiego.gov/street-div/pdf/treeguide.pdf).
- 1.7-1.02 In newly developing areas without an approved street tree plan, tree selection shall be coordinated to achieve continuity.
- 1.7-1.03 Plant selection shall be limited to those species which are considered relatively disease and pest-free and require minimal trimming to be maintained in a safe and attractive condition.
- 1.7-1.04 Substitutions of plant material in the street rights-of-way must be approved by the City Manager.
- 1.7-1.05 The planting of trees such as Cinnamomum, Ficus, Fraxinus, Schinus and other species with surface root systems that tend to damage sidewalks shall not typically be used in public rights-of-way. They will only be considered under appropriate site conditions and where maintenance responsibilities have been assigned to the satisfaction of the City Manager.

¹ Street tree plans, if adopted, are located in the applicable community plan. If there is no adopted street tree plan contact the City Arborist for the appropriate tree.

1.7-2 Installation Criteria

1.7-2.01 Per Section 1.4, Site Preparation Criteria, a soil percolation test shall be performed by filling a 12"x 12"x 12" square hole with water, waiting 12 hours, and then completely refilling. All percolation test operations shall be conducted in the presence of a licensed landscape architect, contractor, civil engineer or related professional. If all the water is not absorbed within 12 hours of the second filling, tree installations shall include the following:

- 150 cubic feet of topsoil to a maximum depth of three feet.
- A four-inch minimum diameter perforated drain line connected to a storm drain or sump. When connecting to a storm drain, a cleanout shall be installed at the connection to allow inspection of sources of non-storm water discharges caused by excessive irrigation.
- Sumps when approved, shall be a minimum 12 inches in diameter and extend four feet below the planting trench depth. A minimum three-inch diameter pipe with removal cap on top shall be extended to the surface for inspection.
- A subsurface irrigation system.

1.7-2.02 Non-biodegradable root barriers shall be installed around new trees in the public right-of-way to direct tree root growth downward and away from adjacent sidewalks, curbs, gutters, driveways, and other public improvements. Root barriers may be eliminated where the combination of tree species, soil type, soil area, and drainage conditions can be shown to afford equivalent protection against tree root damage to public improvements.

1.7-3 Maintenance Criteria

1.7-3.01 Trees with a low spreading branch structure shall typically not be used in the street rights-of-way, and individual specimens shall be selected, planted, and pruned, if necessary, such that major scaffold branches are at least 8 feet above the finish surface or finish grade, as measured at the trunk.

1.7-3.02 Trees shall be positioned and kept maintained so that any branches that extend out over dedicated street rights-of-way have a minimum of 14 feet 6 inches of clearance above the surface of the street.

1.7-4 Public Improvements Adjacent to Existing Trees

1.7-4.01 Sidewalk, curb, gutter or driveway renovation or replacement within four feet of an existing tree shall be performed following procedures that would protect the existing tree. These procedures could include root pruning, modification

to the alignment of the proposed public improvement, erecting temporary barriers during construction, or modification to the construction detail of the improvement. Where the combination of existing conditions and the proposed public improvement would preclude tree preservation, trees that are removed should be replaced with new street trees.

- 1.7-4.02 Public improvement work adjacent to existing trees shall be performed in accordance with the provisions of the public right-of-way permit.

SECTION II: IRRIGATION SYSTEMS

2.1 GENERAL REQUIREMENTS

Irrigation systems shall be designed, constructed, and managed to maximize overall irrigation efficiency within the limits established by the maximum applied water allowance (MAWA). The following standards establish the minimum requirements for irrigation systems.

- 2.1-1 The minimum design, installation and maintenance criteria herein shall not be considered as specifications.
- 2.1-2 Material or processes other than those indicated herein may be used if sufficient data is presented to show that the material or process is equivalent or better in performance and intent, and meets or exceeds all design and performance tests with all equivalent features.
- 2.1-3 All required irrigation systems and all irrigated areas shall be automatically controlled. Temporary systems may be an exception.
- 2.1-4 All required irrigation systems shall be maintained in working condition as approved. Any equipment or material needing replacement is to be replaced immediately with equipment or material of the same type and performance standards as the originally approved irrigation system.
- 2.1-5 Irrigation systems (valve systems, piping and pressure regulators) shall be designed to deliver water to hydrozones based on the moisture requirements of the plant grouping.
- 2.1-5 Water meters. Dedicated (separate) landscape water meters shall be installed for all new development as listed in Table 2 prior to occupancy or final inspection approval.
- 2.1-6 Submeters. A landscape irrigation submeter shall be installed for development as listed in Table 2 prior to a certificate of occupancy or final inspection approval.

**TABLE 2
LANDSCAPE WATER METER
APPLICABILITY**

Type of Water Meter	Type of Development Proposal	Landscape Area ² Threshold
Dedicated Landscape Irrigation Meter	New development (excluding single dwelling unit development and commercial production of crops and livestock)	5,000 s.f. and greater
Landscape irrigation Submeter	New single-dwelling unit development	All
	Improvements to the following existing development, that do not have a dedicated landscape irrigation meter, that require a building permit and landscape review consistent with Section 142.0402: <ul style="list-style-type: none"> • Multiple-dwelling units development - common landscape area only • Commercial • Industrial 	1,000 s.f. and greater

2.2 TYPES OF SYSTEMS

2.2-1 Temporary Systems

Temporary systems shall operate for a period sufficient to establish plant material and to provide vegetative cover that prevents soil erosion. The amount of irrigation must be adjusted when warranted by site conditions.

2.2-2 On-Grade Systems

2.2-2.01 On-grade piping shall not be allowed where subject to adjacent pedestrian traffic or vandalism.

2.2-2.02 On-grade piping is allowed for temporary systems and irrigation in the brush management zones.

2.2-2.03 Permanent on-grade systems in brush management zones shall utilize metal pipe and fittings. Irrigation heads and nozzles may be plastic.

² For purposes of this calculation the landscape area means the entire premises less the area of building footprints, non-irrigated portions of parking lots, driveways, hardscapes (as defined in §113.0103 of the Land Development Code), and areas designated for habitat preservation or brush management Zone 2.

2.2-2.04 Selective watering of introduced native materials in native areas, irrigation of highly erosive or extremely rocky soils, and areas where trenching would disturb or loosen unstable material may be approved for on-grade installation by the City Manager.

2.2-2.05 All on-grade lines shall be secured to slopes every 10 feet. The ends of all laterals shall also be staked. Stakes shall be installed so as not to create a safety hazard.

2.2-3 Spray Systems

2.2-3.01 Spray heads of different manufacturers or of different basic types (bubbler, stream, standard, low gallonage, impact, etc.) shall have consistent operating characteristics on any single lateral circuit.

2.2-3.02 Spray heads on the same lateral circuit shall be balanced for matched precipitation rates within five percent from the average for any different arcs of coverage or operating radii.

2.2-3.03 Specially designed, adjustable nozzles shall be used for odd shaped areas, while still maintaining even application rates.

2.2-4 Drip Systems

2.2-4.01 All components shall be of non-corrosive materials.

2.2-4.02 Except for temporary installations, all lateral piping shall be installed below the finish grade of the planting area. Emitter distribution tubing (downstream of emitters) may be installed on finish grade if covered by mulch.

2.2-4.03 System equipment shall be installed below grade in locking access sleeves or meter boxes.

2.2-4.04 Drip tubing systems with embedded, factory installed, or integral bi-wall small orifice type emitters shall be designed such that there is a maximum emission rate differential of no more than five percent along the entire length of tubing.

2.2-4.05 The design of drip systems shall provide balanced water supply to plant materials of different sizes irrigated by a common lateral line.

2.2-4.06 All drip systems shall be adequately filtered and regulated per the manufacturer's recommended specifications.

2.2-4.07 All systems shall be capable of flushing out accumulated particulate matter. System designs shall provide a means for servicing such flushing

requirements with a minimum of erosion or disruption to the surrounding landscape.

2.2-4.08 Pressure gauges shall be included in the design at critical points such as filtration equipment, fertilization equipment, regulators, or pressure compensating valves.

2.2-4.9 Systems shall be designed for the mature size of plant material to be irrigated, including the eventual rooting pattern of the planting. A minimum of 50 percent of the root structure of the plant material is to be irrigated at all stages of growth, up to and including full mature size. All necessary equipment for mature plant size irrigation shall be installed initially. Future outlets for tubing shall be capped or otherwise sealed until needed.

2.2-4.10 Emitters shall be protected from soil or root incursion and easily accessible. Metal rods may be required at emitters for easy location with a metal detector.

2.2-5 Special Systems

Special systems shall be allowed at the discretion of the City Manager.

2.3 DESIGN STANDARDS

2.3-1 Water Supply

Water supply shall be clean, free of suspended particles, algae, or chemicals that may form insoluble precipitates in the equipment or may be detrimental to plantings.

2.3-2 Water Service

2.3-2.01 Individually assessed areas and lots that will be individually owned shall have separately metered and controlled irrigation systems. Irrigation shall be confined to the individual areas without overspray onto adjacent areas or across property lines.

2.3-2.02 City approved backflow prevention units are required on all irrigation systems. Installation shall comply with all applicable health and safety codes.

2.3-3 Electrical Service

Electrical service point of connection for the irrigation system controllers shall be indicated and referenced on the irrigation plans.

2.3-4 Scheduling and Circuiting

2.3-4.01 Each circuit shall be capable of meeting the minimum needs of the mature plant material during peak demands within a weekly irrigation schedule.

- All irrigation systems shall include a weather-based or soil moisture-based irrigation controller.
- Overhead irrigation shall be scheduled between 8:00 p.m. and 10:00 a.m. unless weather conditions prevent.

2.3-4.02 Lateral systems shall be divided by exposure (sun vs. shade, etc.), elevation, and by type of irrigation application equipment (drip, spray, etc.).

2.3-4.03 Where the plant material has differing watering needs, such as low, medium, and high water use plants, separate systems shall be designed to give each plant-type area adequate minimum amounts of water. Where feasible, trees shall be placed on separate valves from shrubs, groundcovers, and lawns.

2.3-5 Control Systems

2.3-5.01 Automatic control systems shall accommodate all aspects of the design, including multiple schedules, repeat cycles, and moisture sensing and rain sensing override devices (or weather based adjustment) as required.

2.3-5.02 Control mechanisms for moisture-sensing systems shall be accommodated within the controller enclosure.

2.3-5.03 Controller units shall be enclosed in secure, weather and vandal resistant, locking housings manufactured expressly for that purpose or located within a structure. Controller cabinets shall not be installed within an irrigation spray pattern.

2.3-6 Valves

2.3-6.01 Emergency Shutoff Valves

- Globe or ball valves shall be provided at points of connection and loop or zone isolation points.
- For manifold remote control valves, the globe or ball valve shall equal the size of the largest control valve in the manifold.
- For all slope areas, globe or ball valves shall be located on the main line upstream from the control valves and adjacent to the slope area. Valve box lids shall be marked "Emergency Shutoff."
- Main line flow sensors should be installed as necessary to prevent irrigation runoff resulting from system damage, broken irrigation lines, or faulty valves.

2.3-6.02 Zone Control Valves

- Globe or ball valves shall be installed to divide the irrigation system into controllable units, and to avoid draining long runs of piping for system repairs.
- Globe or ball valves shall isolate all looped portions of mainline networks.

2.3-6.03 Remote Control Valves

- Control valves shall be manifold where feasible, and installed in individual valve boxes.
- Valves shall be of slow-closing design, and automatically close in the event of power failure.
- Valves shall be sized to provide adequate pressure differential for proper operation.

2.3-6.04 Quick Coupling Valves/Hose Bibs

Quick coupler valves or hose bibs shall be spaced at 100-foot intervals, maximum, and as needed to logically service areas.

2.3-6.05 Special Valves

- Anti-drain valves shall be installed on all irrigation systems without integral check valves on any areas where the cross-slope gradient of the lateral system exceeds ten feet. If any portion of the lateral system requires anti-drain valves, the lateral system shall be designed to maintain consistent operating pressures.
- Excess flow shutoff valves shall be installed with all irrigation spray heads located at the top of permanently revegetated slopes and within two feet of a public sidewalk.

2.3-7 Piping Only

The materials in Table 3 may be used for required landscape irrigation systems.

**TABLE 3
ACCEPTABLE PIPE MATERIALS**

LOCATION	USE	MATERIAL	TYPE	NOTES
Below Grade	Pressure Mains	Copper	Type "L"	Any Size
		P.V.C.	Class 315	2"
		P.V.C.	Sch. 40	1-1/2"
		Red Brass		Threaded
	Lateral Lines	Copper	Type "L"	Any Size
		* Galvanized Iron	Sch. 40	Threaded
		Polyethylene	Uv-resistant	Drip Systems
		P.V.C.	Class 315	1/2"
		P.V.C.	Class 200	3/4"
		P.V.C.	Sch. 40	Any Size
		Red Brass		Threaded
	Fittings	Cast Iron	Class 250	Short Body
		Copper	Type "L"	Any Size
		* Galvanized Iron	Sch.40	Threaded
		Nylon or A.B.S.	Specialty	Drip Systems
P.V.C.		Sch.40	Any Size	
Red Brass			Threaded	
Above Grade	Pressure Mains	* Copper	Type 'L'	Any Size
		* Galvanized Iron	Sch. 40	Threaded
		* Red Brass		Threaded
	Lateral Lines	Copper	Type "L"	Any Size
		Galvanized Iron	Sch. 40	Threaded
		Polyethylene	Uv-resistant	Drip Systems Mulch Required
		* P.V.C.	Uvr-sch. 40	Any Size
		* P.V.C.	Class 315	2"
		* P.V.C.	Sch. 40	<2"
		Fittings	Copper	Type "L"
	Galvanized Iron		Sch. 40	Any Size
	Molded Plastic		Uv-resistant	Drip Systems
	Above Grade	Fittings	* P.V.C.	Uvr-sch. 40
* P.V.C.			Sch. 40	Any Size
Red Brass				Threaded

* Temporary Systems Only.

2.3-8 Runoff and Overspray

All irrigation systems shall be designed to avoid runoff, seepage, and overspray onto adjacent property, non-irrigated areas, walks, roadways, or structures. Systems requiring flushing shall accommodate flushing without erosion, disturbance to planting areas, or discharge into the storm drain system

2.3-9 Pressure Constraints

2.3-9.01 Irrigation systems shall be designed to operate correctly at the lowest available operational pressure expected during the year and shall withstand water system surges.

2.3-9.02 Pressure differential within lateral piping circuits shall not exceed 20 percent of the designed operating pressure of the equipment on that circuit.

2.3-9.03 Pressure regulating devices shall be installed on any systems with a static inlet pressure at the point of connection greater than 80 psi unless specifically approved by the City Manager. Pressure shall be regulated to a pressure adequate to operate the equipment at designed pressures with all incidental and line losses included.

2.3-9.04 Where the pressure within the system exceeds 80 psi (due to elevation drops, etc.), a pressure reducing valve shall be used to reduce pressure to design levels.

2.3-10 Velocity Constraints

Irrigation system piping shall be sized such that velocities remain below five feet per second.

2.3-11 Coverage

2.3-11.01 Spray heads in turf areas and all stream, strip or square spray type heads shall be spaced 50 percent of the maximum rated diameter of coverage (Figure 2-2).

FIGURE 2-1
SPRAY DIAMETER IN
SHRUBS/GROUND COVER

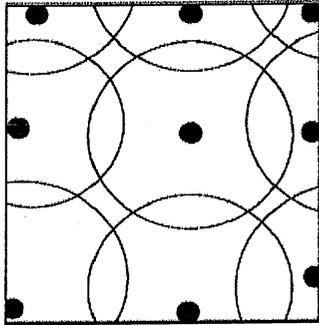
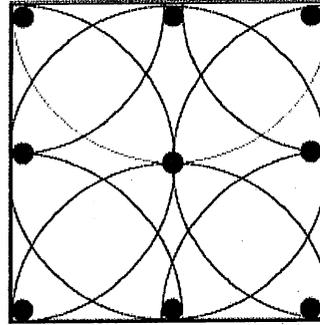


FIGURE 2-2
SPRAY DIAMETER IN
TURF AREA



- 2.3-11.02 Only low volume irrigation or subsurface irrigation shall be used to irrigate turf areas that are within 24 inches of an impermeable surface unless the surface is constructed to allow the water to drain entirely into a landscaped area.

2.3-12 Equipment Protection

- 2.3-12.01 Any irrigation equipment located within 12 inches of pedestrian and vehicular use areas shall be located entirely below grade or otherwise adequately protected from potential damage.
- 2.3-12.02 All heads located within 12 inches of pedestrian and vehicular use areas shall be pop-up type.
- 2.3-12.03 Pop-up heads shall be installed with swing joints or other flexible assembly.
- 2.3-12.04 In-line wire splices shall be made only in pull boxes, with waterproof sealing packets.
- 2.3-12.05 Swing joints shall be installed in lines at all abrupt changes of grade.

2.3-13 Water Conservation Performance Standards and Requirements

The following standards apply to all projects for which landscaping is required and to special landscape situations such as slopes, fire hazard areas, and transitional landscapes:

- 2.3-13.01 For all areas, the water delivery rate of the irrigation system shall be matched to the slope gradient and the percolation rate of soil.
- 2.3-13.02 Slopes with a gradient of 3:1 or steeper and greater than 6 feet in height that are irrigated with an overhead spray system must have a precipitation rate no greater than 0.65 inches per hour.

- 2.3-13.03 The irrigation system shall deliver water efficiently and uniformly and shall be appropriate to the needs of the plant materials. Recommended reference materials for irrigation systems design are listed in **Appendix "A"**.
- 2.3-13.04 Over watering as evidenced by soggy soils, continually wet pavement, standing water, runoff in street gutters and other similar conditions shall be prevented.
- 2.3-13.05 All devices such as tensiometers, moisture sensors and rain sensing devices are subject to City approval.
- 2.3-13.06 Moisture sensors shall be installed per manufacturer's recommendations.
- 2.3-13.07 All automatic irrigation controllers and moisture sensing systems shall be adjusted seasonally and as weather and plant conditions warrant.
- 2.3-13.08 Twenty-four hour pressure recording information and the date of the recording shall be indicated on the irrigation plans.
- 2.3-13.09 When the pressure reading is either less than 40 psi, more than 5 years old or is not available, the pressure shall be calculated from the hydraulic grade line zone (contact Water Utilities) and the site elevation. The calculated pressure, meter elevation and hydraulic gradient shall be indicated on the plans.
- 2.3-13.10 When the actual measured or calculated minimum pressure is below 40 psi, irrigation systems, except for drip and other low flow systems, shall include compensating design or equipment modifications.
- 2.3-13.11 New development, in areas where reclaimed water is available and suitable for irrigation, shall provide a separate water distribution system so that only reclaimed water is used for irrigation.
- 2.3-13.12 Systems requiring flushing shall accommodate flushing without discharge into the storm drain system.
- 2.3-13.13 Alternative irrigation systems that may be used to augment water for landscape purposes include:
- Graywater systems may be used when installed consistent with the Department of Water Resources Graywater Guide and upon permit approval and inspection by San Diego County Department of Environmental Health.
 - Rain water harvesting may be used to augment irrigation systems provided that the systems used to harvest and store the water are designed to prevent intrusion of trash, insects, and animals.

2.4 INSTALLATION STANDARDS

2.4-1 Trench Widths

Trenches for irrigation pressure lines shall be excavated wide enough to allow a minimum of four inches between parallel pipe lines and eight inches from lines of other trades. Lines shall not be installed parallel and directly over one another. Maintain three inches vertical clearance between crossing irrigation lines; minimum transverse angle is 45 degrees.

2.4-2 Pipe Depths

**TABLE 4
PIPE DEPTHS**

LINE TYPE	LOCATION	SIZE	DEPTH	ZONE		
				COM	IND	RES
Pressure Main	Within Landscape	<3" I.D.	18 inches	•	•	•
		3" I.D.	24 inches	•	•	•
		4" I.D.	30 inches	•	•	•
Pressure Main	Under Vehicular Paving	<3" I.D.	30 inches			•
		<3" I.D.	36 inches	•	•	
		3" I.D.	36 inches	•	•	•
Non-Pressure Lateral	Within Landscape	<3" I.D.	12 inches	•	•	
		3" I.D.	18 inches	•	•	
Non-Pressure Lateral	Under Vehicular Paving	<3" I.D.	24 inches			•
Non-Pressure Lateral	Under Vehicular Paving	<3" I.D.	30 inches	•	•	
		3" I.D.	30 inches	•	•	

2.4-3 Sleeving

- 2.4-3.01 All pipe and wire under vehicular paving shall be installed in PVC Schedule 40 sleeves. Sleeves shall be at least twice the diameter of the pipe or wire bundle to be enclosed, with a minimum two-inch size, and shall extend 12 inches beyond each edge of pavement.

2.4-3.02 Sleeving shall be marked at each end at the time of installation with a painted spot on the back face of the curb or other similar marking.

2.4-4 Marking Tape

Metallic backed locating tape shall be installed along the entire length of the sleeve, 12 inches directly above the sleeve. Tape shall be marked "IRRIGATION" in two inch capital letters every three feet along the tape.

2.4-5 Backfill

2.4-5.01 Backfill material shall be clean and free of debris, large rocks and objects with sharp edges.

2.4-5.02 Finish grade of all trenches must conform to adjacent grades without dips, sunken areas, humps or other irregularities.

2.4-6 Landscape Irrigation Submeter

2.4-6.01 A landscape irrigation submeter shall be installed after the domestic water meter in development required to install the submeter in Table 2 (Landscape Water Meter Applicability).

2.4-6.02 An irrigation mainline from the landscape irrigation submeter shall be extended to the rear yard of new single dwelling unit development.

2.5 STREET RIGHTS-OF-WAY AND OPEN SPACE IRRIGATION SYSTEMS

2.5-1 Water Services

2.5-1.01 Center islands, open space areas and street rights-of-way shall have separate meters and services unless they are part of the same maintenance assessment district, whereby, they may share the same meter and service.

2.5-1.02 All water services shall have a City-approved backflow device installed above ground. A guard fence or steel enclosure will be installed if the device is located within five feet of a pedestrian travel way.

2.5-1.03 There shall be no sharing of water with private property.

2.5-1.04 Street water mains shall be shown and identified along with the water meter and service connection. The meter address and I.D.# shall be shown on the irrigation plan.

2.5-2 Electrical Services

2.5-2.01 The location of the following must be shown on the construction drawings:

- Source of electrical power;
- Service entry pedestal with approved detail;
- Conduits and wire conductors with sizes;
- Electrical meter;
- Safety-socket box;
- Circuit breaker enclosure;
- Irrigation controller and enclosure.

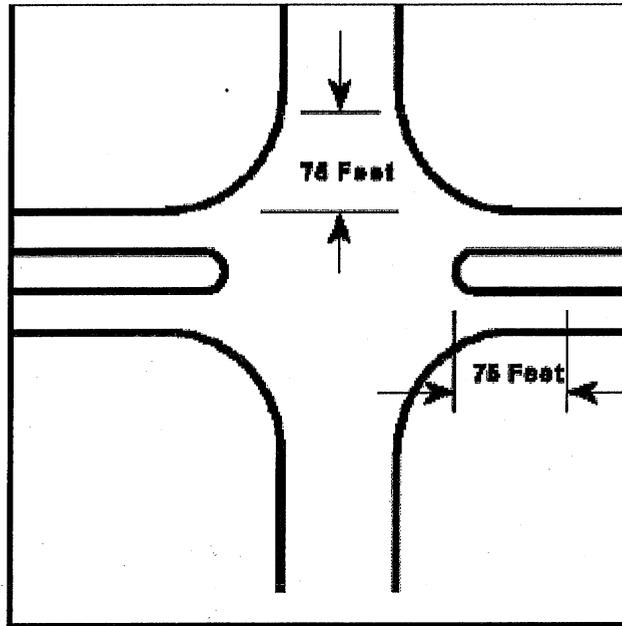
2.5-2.02 In cases where the electric power service is unknown at time of plan check, a note must be added stating that it will be placed on the plans during the "As Built" phase.

2.5-2.03 Center islands, open space areas and rights-of-way shall have their own irrigation controllers unless they are part of the same maintenance assessment district, whereby, they may share the same controller. The controller shall not be located in the center island.

2.5-3 Only materials and equipment that are on the Park and Recreation Department's Approved Irrigation Materials List" (**Appendix "D"**) shall be used. Installation shall be per the San Diego Regional Standard Drawings unless otherwise approved.

2.5-4 Mainline and lateral piping may cross public streets as long as they are placed in sleeves and do not cross within 75 feet of any intersection (**Figure 2-3**).

**FIGURE 2-3
MAINLINE & LATERAL PIPING CROSSING PUBLIC STREETS**



- 2.5-5 Heads with low precipitation rates shall be used whenever possible.
- 2.5-6 Non-spray type irrigation systems shall be used whenever practical for all plantings in the street right-of-way.
- 2.5-7 Drip systems, when approved for use in the street right-of-way, shall use rigid PVC laterals installed below grade with schedule 80 risers and access caps/sleeves for servicing the emitters, and with self-flushing type emitters.
- 2.5-8 Pressure reducing valves shall be installed above grade in conjunction with the backflow unit, or below grade in valve boxes.
- 2.5-9 Check valves shall be installed where lateral piping rises in grade from the control valve.
- 2.5-10 Remote control valves are to be installed in manifold wherever possible. Each remote control valve will have a straight through globe valve (of the same size) installed with it upstream. Remote control valves installed in manifold will have one globe valve (of the same size as the largest remote control valve) installed upstream of the manifold. All manifold connections are to be red brass (see San Diego Regional Standard Drawing SDI-103).
- 2.5-11 One-inch size quick coupling valves, each with its own one-inch straight through globe valve installed upstream, will be installed and spaced no further than 200 feet apart. The

need for quick coupler systems in the open space areas shall be determined on a case-by-case basis. The smallest diameter pipe to serve a quick coupler shall be 1 1/2 inches.

- 2.5-12 In-line globe valves will be used to allow sectional shutdown of the systems. All globe valves are to be labeled as to size and with an arrow leader pointing to the symbol (Example: 1 1/2" G.V.).
- 2.5-13 All irrigation controllers are to be installed in steel enclosures. Controllers will be installed "freestanding" as per San Diego Regional Standard Drawing I-17 (not bolted to the enclosure wall). Enclosure shall be located at a prime observation area with good access and free from irrigation overspray. While the electric power service and controller enclosure may be shared between different assessment districts, each district shall have their own controller(s). Controllers are not to be interconnected.
- 2.5-14 A minimum of two spare wires are to be installed from the controller to the furthest single valve or cluster of valves in each separate wire run. Pull boxes will be shown and labeled wherever wire splicing is necessary. All control wires shall be color coded as per Supplemental Irrigation Specifications (**Appendix "C"**).
- 2.5-15 Each and every sprinkler head (except for drip-type systems) shall have an anti-drain/excess flow valve installed below the head as part of the riser assembly unless the sprinkler head is equipped with an internal check valve.
- 2.5-16 All pressure pipe to be installed underground shall be Schedule 40 P.V.C. for 1 1/2-inch diameter and smaller, and PVC Class 315 for 2-inch diameter and larger.
- 2.5-17 All pressure pipe installed above ground in open space areas shall be galvanized steel Schedule 40 pipe or Schedule 40 UV resistant pipe.
- 2.5-18 All lateral, non-pressure pipe shall be Schedule 40 PVC, 3/4-inch minimum.

2.6 WATER BUDGET

- 2.6-1 Developments listed in Table 5 shall be subject to a Water Budget - Maximum Applied Water Allowance (MAWA) unless exempted in Section 2.6-2
- 2.6-2 The following developments are exempt from the requirements of Section 2.6-1
 - 2.6-2.01 Landscape that is part of a registered historic site (local, state or federal);
 - 2.6-2.02 Ecological restoration projects without permanent irrigation;
 - 2.6-2.03 Botanical gardens and arboretums open to the public; and
 - 2.6-2.04 Mined-land reclamation projects without permanent irrigation.

**TABLE 5
WATER BUDGET (MAWA)
APPLICABILITY**

Type of Development Proposal	Landscape Area ³ Threshold
New nonresidential development	1,000 s.f. and greater
New multiple dwelling unit development	1,000 square feet and greater
New single dwelling unit development Subdivisions	All subdivider installed landscape*

All model homes shall be landscaped consistent with the principles of a water-efficient landscape. Signs shall be used to identify the model as an example of a water efficient landscape, featuring elements such as hydrozones, irrigation equipment, plant materials and other elements that contribute to the water-efficiency. Information shall be provided within the model about designing, installing, and maintaining water efficient landscapes; and using irrigation submeters.

2.6-3 The maximum applied water allowance is calculated as follows⁴:

$$\text{MAWA} = (\text{ETo})(0.62) [(0.7)(\text{LA}) + (0.3)(\text{SLA})]$$

Where:

ETo = Evapotranspiration (inches per year)(see Table 6)

0.62 = Conversion factor (to gallons)

0.7 = Evapotranspiration Adjustment Factor

LA = Landscaped Area (square feet)(see footnote 3)

0.3 = Evapotranspiration Adjustment Factor for Special Landscape Area and Reclaimed Water

SLA = Special Landscape Area⁵

³ For purposes of this calculation the landscape area means the entire premises less the area of building footprints, non-irrigated portions of parking lots, driveways, hardscapes (as defined in §113.0103 of the Land Development Code), and areas designated for habitat preservation or brush management Zone 2.

⁴ See Appendix E Water Requirements Worksheets for assistance in calculating water use.

⁵ An Evapotranspiration Adjustment Factor of 1.0 (0.3 additional) is used for Special Landscape Areas. Special Landscape Areas are active and passive recreation areas, areas solely dedicated to the production of fruits and vegetables, and areas irrigated with reclaimed water.

Table 6
EVAPOTRANSPIRATION (ET_o) TABLE
BY COMMUNITY PLANNING AREA

Community Planning Area	Average Annual ET _o (inches/year)	Community Planning Area	Average Annual ET _o (inches/year)
Barrio Logan	41	North City FUA Subarea II	47
Black Mountain Ranch	47	Ocean Beach	41
Carmel Mountain Ranch	51	Old San Diego	47
Carmel Valley	47	Otay Mesa	51
Centre City	41	Otay Mesa-Nestor	41
City Heights	47	Pacific Beach	41
Clairemont Mesa	47	Pacific Highlands Ranch	47
College Area	51	Peninsula	41
Del Mar Mesa	47	Rancho Bernardo	57
East Elliott	51	Rancho Encantada	57
Eastern Area	51	Rancho Penasquitos	51
Encanto	51	Sabre Springs	51
Fairbanks Country Club	47	San Pasqual	57
Greater Golden Hill	47	San Ysidro	47
Greater North Park	47	Serra Mesa	47
Kearney Mesa	47	Scripps Miramar Ranch	51
Kensington-Talmadge	51	Skyline-Paradise Hills	51
La Jolla	41	Southeastern San Diego	47
Linda Vista	47	Tierrasanta	51
Midway-Pacific Highway Corridor	41	Tijuana River Valley	41
Mira Mesa	47	Torrey Highlands	47
Miramar Ranch North	51	Torrey Hills	47
Mission Beach	41	Torrey Pines	41
Mission Valley	47	University	47
Navajo	51	Uptown	47
Normal Heights	47	Via De La Valle	47

2.6-4 The estimated total water use (ETWU) shall not exceed the water budget as calculated in Section 2.6-2.

2.6-5 The estimated total water use is calculated as follows (see worksheets in Appendix E) :

$$ETWU [(ET_o)(0.62)][(\underline{PF \times HA/IE}) + SLA]$$

Where:

ETWU = Estimated total water use per year (gallons)

ET_o = Reference Evapotranspiration (inches)

PF = Plant Factor from WUCOLS⁶

HA = Hydrozone Area⁷ (high, medium, and low water use areas) (square feet)

SLA = Special Landscape Area (square feet)

0.62 = Conversion Factor

IE = Irrigation Efficiency (minimum 0.71)

2.7 LANDSCAPE IRRIGATION AUDIT

Development subject to Section 2.6 - Water Budget, shall be subject to the following audit requirements.

2.7-1 A landscape irrigation audit is intended to verify that all irrigation systems, plant materials, and landscape features have been installed and operate as approved

2.7-2 All landscape irrigation audits shall be conducted by a California registered landscape architect, a licensed landscape contractor, or other professional licensed by the State to perform this work.

2.7-3 The professional that conducts the landscape irrigation audit shall certify that all irrigation systems, plant materials, and landscape features have been installed and operate as approved, and shall submit that certification to the City prior to occupancy and use.

⁶ The California Department of Water Resources 1999 publication by U.C Cooperative Extension employee Larry Costello. beginning on page 45 of the following link (www.owue.water.ca.gov/docs/wucols00.pdf).

⁷ The surface area of water features (swimming pools, spas, ponds, lakes, fountains and similar features) are included in the high water use hydrozone and the surface area of artificial turf is included in the low water use hydrozone.

SECTION III: BRUSH MANAGEMENT

3-1 BRUSH MANAGEMENT – DESCRIPTION

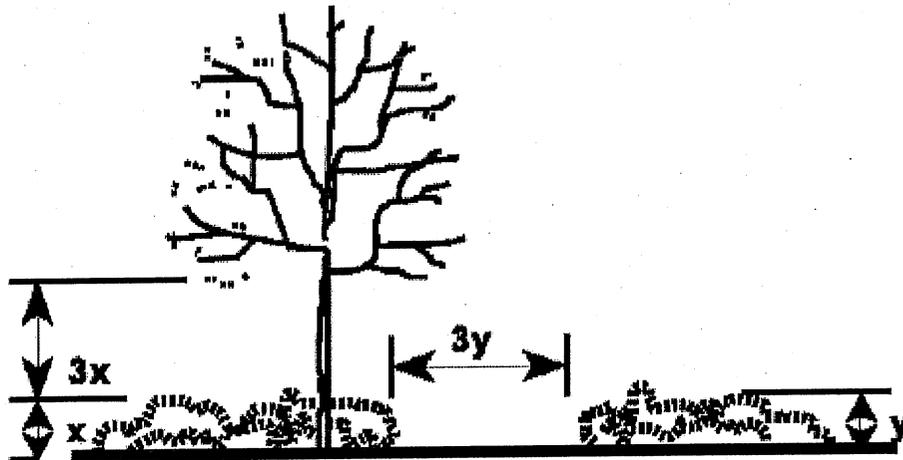
Fire safety in the landscape is achieved by reducing the readily flammable fuel adjacent to structures. This can be accomplished by pruning and thinning of native and naturalized vegetation, revegetation with low fuel volume plantings or a combination of the two. Implementing brush management in an environmentally appropriate manner requires a reduction in the amount and continuity of highly flammable fuel while maintaining plant coverage for soil protection. Such a transition will minimize the visual, biological and erosion impacts while reducing the risks of wildland fires.

3-2 BRUSH MANAGEMENT- REQUIREMENTS

3.2-1 Basic requirements – All Zones

- 3.2-1.01 For zone two, plants shall not be cut below six inches.
- 3.2-1.02 Debris and trimmings produced by thinning and pruning shall be removed from the site or if left, shall be converted into mulch by a chipping machine and evenly dispersed, non-irrigated, to a maximum depth of 6 inches.
- 3.2-1.03 Trees and large tree form shrubs (e.g., Oaks, Sumac, Toyon) which are being retained shall be pruned to provide clearance of three times the height of the under story plant material or six feet whichever is higher (**Figure 3-1**). Dead and excessively twiggy growth shall also be removed.

FIGURE 3-1
PRUNING TREES TO PROVIDE CLEARANCE FOR BRUSH MANAGEMENT



3.2-1.04 All plants or plant groupings except cacti, succulents, trees and tree-form shrubs shall be separated by a distance three times the height of the tallest adjacent plants (**Figure 3-1**).

3.2-1.05 Maximum coverage and area limitations as stated herein shall not apply to indigenous native tree species (i.e., Pinus, Quercus, Platanus, Salix and Populus).

3.2-2 Zone 1 Requirements - All Structures

3.2-2.01 Do not use, and remove if necessary, highly flammable plant materials (see **Appendix "B"**).

3.2-2.02 Trees should not be located any closer to a structure than a distance equal to the tree's mature spread.

3.2-2.03 Maintain all plantings in a succulent condition.

3.2-2.04 Non-irrigated plant groupings over six inches in height may be retained provided they do not exceed 100 square feet in area and their combined coverage does not exceed 10 percent of the total Zone 1 area.

3.2-3 Zone 2 Requirements – All Structures

3.2-3.01 Individual non-irrigated plant groupings over 24 inches in height may be retained provided they do not exceed 400 square feet in area and their combined coverage does not exceed 30 percent of the total Zone 2 area.

SECTION IV: REVEGETATION AND EROSION CONTROL GUIDELINES

4.1 PERMANENT REVEGETATION

4.1-1 Revegetation Adjacent to Native Vegetation

Revegetation of manufactured slopes and other disturbed areas adjacent to areas of native vegetation shall be accomplished in a manner so as to provide visual and horticultural compatibility with the indigenous native plant materials. The following guidelines are in addition to the guidelines and criteria for slope revegetation and brush management. Further restrictions may apply in natural preserve areas such as Tecolote Canyon and Penasquitos Canyon or as required as part of environmental mitigation efforts. Transitional landscape treatments between non-native landscapes and undeveloped areas may be required or considered by the City Manager. When so required, the following guidelines shall apply:

- 4.1-1.01 The plant palettes for transitional landscapes shall typically consist of a combination of appropriate and compatible native and nonnative species.
- 4.1-1.02 The mix of native and non-native plant materials should generally vary. Areas contiguous to existing native vegetation shall be planted with native materials exclusively.
- 4.1-1.03 Invasive (i.e., those readily capable of reproducing and spreading into native, non-irrigated areas) non-native plant species including but not limited to those listed on **Table 1** are prohibited in all transitional landscapes.
- 4.1-1.04 Noxious weeds and invasive plants (e.g., Pampas Grass) that sprout in transition areas shall be promptly removed.
- 4.1-1.05 Permanent irrigation is prohibited in the portions of transition areas contiguous to the existing native vegetation.
- 4.1-1.06 Required mulching and hydroseeding as specified in the landscape regulations, shall follow the guidelines in **Sections 4.3** and **4.4** of the Landscape Standards.
- 4.1-1.07 Required slope revegetation shall follow the guidelines in **Section 4.2** of the Landscape Standards.

4.1-2 General Revegetation

- 4.1-2.01 Revegetation on manufactured slopes and other disturbed areas that are not adjacent to native vegetation shall be accomplished to provide a stable soil cover that prevents erosion.

4.1-2.02 Required mulching and hydroseeding as specified in the landscape regulations, shall follow the guidelines in **Sections 4.3** and **4.4** of the Landscape Standards.

4.1-2.03 Required slope revegetation shall follow the guidelines in **Section 4.2** of the Landscape Standards.

4.2 SLOPE REVEGETATION GUIDELINES

These guidelines establish the acceptable standards for the design and installation of slope revegetation.

4.2-1 Requirements for revegetation may be waived by the City Manager where cut slopes are not subject to erosion due to their rocky character or where the slopes are protected against erosion and instability to the satisfaction of the City Engineer.

4.2-2 A minimum of 50 percent of the total slope area shall be planted with deep rooting groundcovers, (i.e. those with a typical root depth of 5 feet or greater). For seeded plantings, at least 50 percent of the viable seed count shall be deep rooting species.

4.2-3 All the plant materials shall be appropriate to the site conditions, water conserving and appropriately spaced to control soil erosion.

4.3 MULCHING PROCEDURES

The following procedures will be followed when mulching is required by the landscape regulations or when proposed by the applicant.

4.3-1 Jute netting and other approved geotextile materials shall be installed and secured per manufacturer's specifications and in a manner precluding sheet flows and rilling below the material surface.

4.3-2 Straw Stabilization:

- Straw mulch shall be uniformly spread at the rate of two tons per acre.
- Straw on all cut slopes shall be "tacked" with binder at a minimum rate of 160 pounds per acre. The binder shall be an organic derivative or processed organic adhesive.
- Straw on all fill slopes shall be incorporated into the soil with a bladed roller so that the straw will not support combustion or blow away and will leave a uniform surface.

4.3-3 Wood Products:

- Shredded wood products shall be uniformly spread to a minimum depth of two inches.
- When used in conjunction with indigenous native container stock, the mulch shall be applied at the conclusion of the initial 90-day maintenance period.

4.4 HYDROSEEDING PROCEDURES

- 4.4-1 Seed mixes shall be specified by the pure live seed of each species.
- 4.4-2 Fiber mulch shall be applied at a minimum rate of 2,000 pounds per acre except when used in conjunction with straw mulch, when it shall be applied at a minimum rate of 400 pounds per acre.
- 4.4-3 A wetting agent consisting of 95 percent alkyl polyethylene glycol ether shall be applied as per manufacturers' recommendations.
- 4.4-4 Equipment used for the application of slurry shall have a built-in agitation system to suspend and homogeneously mix the slurry. The slurry mix shall be dyed green. The equipment must have a pump capable of applying slurry uniformly.

4.5 MAINTENANCE REQUIREMENTS

- 4.5-1 Permanently irrigated slopes shall be maintained for a period no less than 90 days.
- 4.5-2 Nonpermanently irrigated areas shall be maintained for a period not less than 25 months.
- 4.5-3 All revegetated areas shall be maintained by the Permittee until final approval by the City Manager. The maintenance period begins on the first day following acceptance and may be extended at the determination of the City Manager.
- 4.5-4 Prior to final approval, the City Manager may require corrective action including but not limited to, replanting, the provision or modification of irrigation systems, and the repair of any soil erosion or slope slippage

SECTION V: STREET RIGHTS-OF-WAY AND OPEN SPACES

5.1 INTRODUCTION

All landscape improvements in street rights-of-way and those in open space areas that are to be maintained by the City, either directly or by administered contract, shall comply with all relevant sections of the landscape standards except as superseded or modified by the requirements of this section. Additional restrictions on the location of landscape improvements may be required per the Street Design Manual under "Additions/Design Criteria - Sight Distance." These additional restrictions do not apply to trees maintained per the criteria of this section.

5.2 CENTER ISLAND LANDSCAPING

5.2-1 All center island paving shall be integral colored, stamped concrete (**Appendix "C"**) unless otherwise approved by the City Manger. Colors shall be limited to those in **Appendix "C."**

5.2-2 Planted areas shall have a minimum width of two feet and shall have a minimum inside diameter (i.d.) of four feet and a height no greater than six inches above the median curb. A two-foot maintenance walk shall be provided around the perimeter of medians, inclusive of curbing (refer to standard drawing SDG-112).

5.2-3 Areas greater than 100 square feet in size shall be level or graded to drain to their centers with any runoff resulting from precipitation collected through a system of drain inlets and appropriately sized pipes to carry it to a storm drain system.

5.2-4 Turf shall not be used in medians.

5.3 DEDICATED OPEN SPACE AREAS

5.3-1 All disturbed open space areas shall be revegetated according to the guidelines in Sections 3 and 4, the Brush Management Guidelines and the Slope Revegetation Standards. These areas shall be maintained by the permittee for a minimum of 25 months before the open space can be accepted for maintenance by the Park and Recreation Department.

5.3-2 To reestablish vegetation in disturbed areas, a temporary irrigation system shall be installed. This system may be removed at the City's discretion, prior to acceptance of maintenance for the areas in question at the end of the maintenance period.

San Diego Municipal Code

Land Development Code

Landscape Standards

Appendix A

**Reference Materials For
Water-Conserving Plants &
Irrigation Systems**

REFERENCES

WATER-CONSERVING PLANTS – BOOKS

- Clark, D.E *Western Garden Book*, Menlo Park CA: Lande Publishing Co. 1979
- Schmidt, M.G. *Growing California Native Plants*, Los Angeles CA: University of California Press, 1980
- Robie, Ronald. *Plants for California Landscapes*, Sacramento CA: Department of Water Resources, 1979
- Duffield, and Jones. *Plants for Dry Climates*, Tucson AZ: H.P. Books, 1981
- Perry, Bob. *Trees and shrubs for Dry California Landscapes*, San Dimas: Land Design Publishing, 1981
- *Selected California Native Plants With Commercial Sources*, Saratoga CA: Saratoga Horticultural Foundation, Third Edition

IRRIGATION SYSTEMS – BOOKS

- Pair, H. and Hinz, W. and Reid, C. and Fronst, K., ed. *Irrigation*. Maryland: Irrigation Association, Fifth Edition, 1983
- Sarsfield, Chet, *Book of Tables*. California: Irrigation Technical Services, P.O. box 268, Lafayette, CA 94549
- Simon, A. *Basic Hydraulics*. New York: John Wiley & Sons, 1981
- Watkins, James A. *Turf Irrigation Manual*, Telsco Industires, 1987

OTHER REFERENCE MATERIALS

-
- AB 325 Model Water Efficient Landscape Ordinance
<http://www.owue.water.ca.gov/docs/WaterOrdSec490.cfm>
- AB 1881 Water Conservation in Landscaping
<http://www.owue.water.ca.gov/landscape/ord/updatedOrd.cfm#dwr>
- California Landscape Contractor Association (CLCA) <http://www.clca.org>
- California Integrated Waste Management Board – Commercial Landscapes,
www.ca.gov/organics/landscaping
- <http://www.cdflmu.org/4291.pdf>
- California Stormwater Quality Association (CASQA) Stormwater Best Management Practice Handbook – <http://www.cabmphandbooks.com>
- Education Resources www.clca.org, www.irrigation.org, www.thegarden.org,
www.miracosta.cc.ca.us, www.cuyamaca.edu, www.swc.cc.ca.us, www.bewaterwise.org
- Environmentally Friendly Landscapes <http://www.beyondpesticides.org/pesticidefreelawns/>,
www.beyondpesticides.org
- Evapotranspiration Data www.cimis.water.ca.gov
- Fire Safe Council – <http://www.firesafecouncil.org/education/index.cfm>
- Firewise Communities – <http://firewise.org>
- “General Guidelines for Creating Defensible Space”

- State Board of Forestry and Fire Protection and California Department of Forestry and Fire Protection, February 2006 – http://www.bof.fire.ca.gov/pdfs/copyof4291finalguidelines9_29_06.pdf
- Gray Water www.owue.water.ca.gov/docs/graywater_guide_book.pdf
- Gray Water Permits http://www.sdcounty.ca.gov/deh/inspections_permits.html#land
- Home Landscaping for Fire – University of California, Division of Agriculture and Natural Resources – <http://www.anrcatalog.ucdavis.edu/pdf/8228.pdf>
- Integrated Pest Management (IPM) – University of California, Cooperative Extension
- <http://www.anrcatalog.ucdavis.edu/pdf/8228/pdf>
- Invasive Plants www.cal-ipc.org
- Irrigation Audits
- Irrigation Association (IA) <http://www.irrigation.org/certification>
- Irrigation and Maintenance BMPs
www.irrigation.org/gov/default.aspx?pg=BMPs.htm&id+104
- Low Impact Development Handbook, County of San Diego
- Mosquito Control www.co.san-diego.ca.us/deh/chd/wmv/index.html
- Natural Resources Conservation Service Soil Surveys for California
<http://www.websoilsurvey.nrcs.ucda.gov/app/WebSoilSurvey.aspx>
- Professional Landscape Network (PLANET)– <http://www.landcarenetwork.org>
- Rain Water Harvesting www.twdb.state.tx.us
- Regional Water Quality Control Board www.swrcb.ca.gov/rwqcbp
- San Diego County Evapotranspiration Map www.sdcwa.org
- Smart Water Application Technologies (SWAT)
<http://www.irrigation.org/SWAT/Industry/ia-tested.asap>
- Soil www.healthysoil.org
- State Water Resources Control Board Stormwater Program
<http://www.waterboards.ca.gov/stormwtr.index.html>
- Storm Water www.projectcleanwater.org/pdf/watershed-ordinance.pdf, www.casqa.org
- Water Conservation www.sdcwa.org
- Water sense, EPA - <http://www.epa.gov/watersense>
- Water Use of Common Ornamental Landscape Species, WUCOLS,
www.wucols.water.ca.gov

**NATIONAL XERISCAPE COUNCIL, Inc, 940 E. 51 Street, Austin, TX 78751-2241.
(512) 454-8626**

- Proceedings, Xeriscape 85. 1985, 1986, 1987, 1988, & 1989 Editions
- Fry, A. and Gray, A. *Sprinkler Irrigation Handbook*. Rainbird Sprinkler Mfg. Corp. California, 1969
- Manufacturer's Literature. Rainbird Sprinkler Mfg. Corp., 1987
- Manufacturer's Literature. Toro company, 1987
- *Saving Water in Landscape Irrigation*. University of California, division of Agricultural Sciences. Leaflet No. 2976. 1977

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Appendix B

**Brush Management
Implementation Guidelines**

(TO BE ADDED AT A FUTURE DATE.)

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Appendix C

**Improvements For Street
Rights-of-Way and Open Space
To Be Maintained By the City**

APPROVED COLORS FOR CONCRETE CENTER ISLAND PAVING (Refer to Section 5.2)

L.M. Scoffield Company or approved equal Chromix Admixtures™

- C-11 Desert Sand
- C-12 Mesa Beige
- C-13 Tawny Pink
- C-15 Coachella Sand
- C-20 Limestone
- C-21 Adobe Tan
- C-22 Coral Red
- C-25 Sombrero Bluff
- C-26 Antique Cork
- C-28 Riverside Buff

SUPPLEMENTAL IRRIGATION SPECIFICATIONS

(The Supplemental Irrigation Specifications shall be incorporated in the design and provided within the written irrigation specifications for all Street Rights-of-Way and Open Space projects that will be maintained by the City.)

SUPPLEMENTAL IRRIGATION SPECIFICATIONS

1. **GENERAL:** All materials and equipment used in sprinkler irrigation work shall be new and without flaws of defects and of quality and performance as specified. Prior to installation of any irrigation work, the contractor shall submit for approval by the city, a list of all proposed materials and equipment. Should the contractor propose to use material(s) or equipment other than those as listed as "approved", the contractor shall submit in writing, to the city, a request to deviate from the approved list. Samples of the material(s) or equipment should accompany the request to assist in the evaluation of the proposed substitution. The burden of proof shall be borne by the contractor.
2. **MAIN LINE PIPE CONNECTIONS:** Shall be made horizontally per standard drawings i-28 and I-29.
3. **PIPE THRUST BLOCKS:** All pressure pipe 4" and smaller, polyvinyl chloride or asbestos cement shall have the correct sized concrete thrust block installed at every abrupt change of alignment; at globe or gate valves, at tees, elbows and crosses, and at ends of pipe runs; or wherever the field engineer deems one to be necessary. Thrust blocks are to be installed as per standard drawings w-17, w-18 and w-19 and sdw-100, sized as for 4" pipe.
4. **PIPE SLEEVES:** Shall be sch. 40 pvc, two times the pipe size diameter and extend 12" beyond each side of pavement. The letters "e" for electrical or "w" for water shall be stamped or chiseled on the pavement directly above the sleeve.

5. **TRENCH MARKER TAPE FOR ALL PRESSURE PIPE:** Shall have a continuous blue colored trench marker metallic tape placed nine inches (9") below finished grade and directly above the buried pipe.
6. **SAND ENCASEMENT FOR PIPES:** For all irrigation pipe, direct burial control wire and electrical conduit shall be plaster or mortar sand as per section 200 of the standard specifications, with a minimum sand equivalent of 50.
7. **REMOTE CONTROL VALVE BOXES:** Shall be concrete with a cast iron locking lid. The contractor shall paint the identification number of the valve box. The paint shall be white or yellow aluminum asphaltic-base waterproof paint. In addition, weatherproof, plastic identification tags shall be affixed to the colored conductor in the valve box.
8. **VALVE BOX LOCKING LIDS:** The contractor shall rework the locking toggles of the concrete valve boxes by replacing the existing clevis pin and sheet metal clip with a marine-type stainless steel machine bolt and self-locking unit. Apply oil to lubricate and to prevent rust.
9. **ANTI-DRAIN/EXCESS-FLOW VALVE:** Shall be installed under each sprinkler head which is not equipped with an internal check valve (as anti-geyser device as well as a low head anti-drain valve).
10. **ALTERNATE PIPE SLEEVE LOCKING CAP FOR VALVES:** Shall be per standard drawing i13, heavy duty red brass locking cap threaded to fit 2" diameter sch. 40 pvc pipe.
11. **MULTIPLE CONTROLLER INSTALLATIONS:** Enclosures shall be sized accordingly. No 110 volt wire runs shall pass from controller cabinet to cabinet. Each controller shall have a separate electrical service through a raceway. Provide one power off-on switch for each controller.
12. **DIRECT BURIAL CONTROL WIRES:** Shall be solid copper, 600 volt, type uf, conforming to the standard specifications and drawings, special provisions and the following wire colors and installation requirements.

NEUTRAL WIRES: White (#12 awg), do not interconnect neutral wires between controllers.

PILOT WIRES: (#14 awg), use as many as necessary.

<u>VALVE NO.</u>	<u>VALVE NO.</u>
1/19*. Yellow	10. White w/ red stripe
2/20*. Orange	11. Yellow w/ red stripe
3/21*. Blue	12. Blue w/ stripe
4/22*. Black	13. Orange w/ red stripe
5/23*. Brown	14. Purple w/ white stripe
6/24*. Purple	15. Brown w/ white stripe
7. Yellow w/ black stripe	16. Yellow w/ white stripe

- 8. Orange w/ black stripe
- 9. Red w/ black stripe
- 17. Blue w/ white stripe
- 18. Red w/ white stripe

SPARE WIRES: Two (2) red (#14 awg) from furthest valve or manifold to each controller.

*colors repeat for valves beyond 18.

- 13. **WIRE CONNECTIONS:** Neutral, pilot and spare wires shall be installed with a 2' - 0" coiled excess wire length at each end enclosure. Each and every wire splice shall be soldered together (using 60-40 solder), then encased in the waterproof epoxy connectors. Wire splices shall be made only in valve or pull boxes.
- 14. **WIRE BUNDLES:** Each individual controller clock's control wires shall be bundles and taped together with colored tape at intervals not exceeding 10'-0". Controller identification tape colors shall be as follow: (use as many as necessary).

CONTROLLER COLOR

- "A" BLACK
- "B" RED
- "C" WHITE
- "D" BLUE
- "E" GREEN
- "F" YELLOW

- 15. **WIRES IN PULL BOXES:** Shall be loose and shall not come within three (3") inches from lid. Boxes shall be sized accordingly to accommodate this requirement.
- 16. **TRENCH MARKER TAPE FOR WIRES:** All direct burial wires shall be marked with a continuous red colored trench marker plastic tape placed nine inches (9") below finished grade and directly above the buried wires. Tape shall be three inches (3") wide.
- 17. **WIRE TESTING:** Shall be tested for continuity, open circuits, and unintentional grounds prior to connecting to equipment. The minimum insulation resistance to ground shall be fifty (50) megohms. Any wiring not meeting this requirement shall be replaced, at the contractor's expense.
- 18. **GUARANTEE:** The contractor's guarantee shall consist of section 308-7 of the standard specifications and the following:

The entire irrigation system shall be guaranteed against defects in materials and workmanship for a period of one (1) year from the date of acceptance of work. Should the contractor fail during the guarantee period to expeditiously correct a defect upon written notification by the city, the city shall cause the work to be corrected and bill the actual costs incurred to the contractor. Defect corrections shall include the complete restoration of existing improvements that were damaged as a result of the defect.

- 19. **AS BUILT IRRIGATION PLANS:** A reduced copy of the approved as-built irrigation plan(s), color coded by stations and laminated in plastic, shall be mounted on the inside of each controller enclosure for maintenance personnel at the time of the final acceptance.

**TABLE
IRRIGATION LEGEND FOR PUBLIC PROJECTS**

IRRIGATION LEGEND FOR PARK & RECREATION CONSULTANTS					
IRRIGATION LEGEND					
SYMBOL	DESCRIPTION	RADIUS	GPM	MANUFACTURER/ MODEL NO.	
• •	<i>Consultant to describe type of heads and assign identification numbers - special symbols may be used for drip and other special heads with prior approval by Park and Recreation Department</i>				I-1 thru I-3
• •					
• •					
M	Water Motor				
	Pressure Regulating Valve				Similar to I-14
	Remote Control Valve				I-14
	Gate Valve w/ alternate pipe sleeve installation				I-13
	Globe Valve w/ alternate pipe sleeve installation				I-12
	Quick Coupling Valve (1" - size minimum)				I-5
	Automatic Controller				I-17 or I-18
-----	Direct Burial Control Wire (Solid Copper - Color Coded)				I-16
	Pull Box (Low Voltage - Locking Lid / High Voltage - Bolt Down Lid)				I-15
	2" and larger Mainline - Class 315 PVC w/Sch 80 fittings or ball gasket fittings for 3" and larger				I-25 or I-26
	1 1/2" and smaller Mainline - Sch. 40 PVC				I-25
	Lateral Lines - Sch. 40 PVC, 3/4" Minimum Size				I-25
<u>G.I.</u>	Galvanized Pipe Sch. 40				I-20 thru I-24
<u>CU</u>	Copper Pipe Type "L"				I-25
	Reduced Pressure Backflow Preventer				W-27
-----	Potable Water				
	Hose Bibb (Garden Valve)				I-6

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Appendix D

**Approved Irrigation Materials
List**

1. REDUCED PRESSURE BACKFLOW PREVENTERS AND ENCLOSURES:

1.1 Reduce Pressure Backflow Preventers

(Assemblies shall include all necessary Test Cocks with Full Port Valves included.) Febco #825Y BV; #825YAR Febco #880 'N' Shape Febco #880V Vertical Wilkins #575 RP Hershey Beeco FRP-11/6 CM Series Watts 009 Series; 909 Series **1.2 Backflow Enclosures**

(Sharp edges are not allowed on enclosures)

Rain Man #117371A (Zinc Plated, with 2 Coats Black Polyurethane Baked –On Paint)

Strong Box #SBBC - Al or Ali (Aluminum)

Le Meur (Stainless Steel Mesh)

All-Spec (Stainless Steel Mesh)

2. IRRIGATION CONTROLLERS AND ENCLOSURES:

2.1 Irrigation Controllers

Irritrol MC-Plus

Rainbird ISC

Rainmaster RME Series

Cal Sense 2100/et-1

2.2 Controller Enclosures

(Stainless Steel only)

All Spec

La Max

Strong Box

Rain Man

3. MASTER CONTROL VALVES:

(24 volt, Electric, Bronze, Normally Open)

Griswold 2160

Superior 3100

4. FLOW SENSORS DEVICES:

Data Industrial Flow Sensor 220P

Data Industrial Meter 600

Cal Sense FM Series

5. PRESSURE REDUCING VALVES:

(Pilot Operated, Stainless Steel Trim)

CLA-VAL #90-01BS (1 1/4" - 3" Size)

CLA-VAL #90-01BS (4" and Larger)

(With Stainless Steel Trim for Manual and Pilot Valves)

Bailey #400

Wilkins #500

Watts 25 AUB Series

6. ISOLATION VALVES:

6.1 Globe Valves - 3" and Smaller Bronze

Wilkins #215
Champion #100
Buckner #22000

6.2 Gate Valves - 4" and Larger Cast Iron

Clow
Mueller
I.O.W.A.

6.3 Locking Cap for Globe/Gate Valve Sleeves

Rainbird #63100 with #2049 Key
Buckner #72

7. REMOTE CONTROL VALVES:

(24-volt Electric, Bronze, Normally Closed)

Rainbird EFB-CP Series
Superior 950-DW; 4000 (Reclaimed)
Griswold DWS and DW-PRS Series
Toro 216 Series

8. QUICK COUPLING VALVES:

8.1 Quick Coupling Valves - Two Piece with Locking Cover

Rainbird #44 LRC
Buckner #25016

8.2 Quick Coupling Valve Keys - Single Lug

Rainbird #44K
Buckner #25011

8.3 Reclaimed Water Quick Coupling Valves - One Piece, Red Brass Acme - Thread with Locking Lavender Cover

Toro #474-44
Nelson #7645

8.4 Reclaimed Water Quick Coupling Valve Key - Acme-thread

Toro #464-03
Nelson #7641

9. IRRIGATION BOXES:

9.1 Remote Control Valve Boxes and Pull Boxes with Cast Iron Locking Lid

Concrete: Brooks #3-HL
Concrete: Christy #B3-3 with B3TL
Concrete: San Diego Precast
Concrete: J & R 3HL

9.2 Quick Coupling Valve Boxes with Concrete Lid

Concrete: Brooks #1-RD
Concrete: Christy #F-8 with F8D
Concrete: San Diego Precast #1A

10. IRRIGATION HEADS:

- 10.1 Pop-Up Rotor Heads, Oversize - Full Circle With 50' - 60' Radius**
Rainbird #41-51A SAM-RC, R-70FC, Talon TA-80-FC w/S.S. Riser Buckner #11360-06 Hunter #I-40, I-25 (With Factory Installed Nozzles) Toro 640, S2001
- 10.2 Pop-Up Rotor, Heads Oversize - Part Circle With 50' - 60' Radius**
Rainbird #47A SAM-RC, R-70FC, Talon TA-85-PC w/S.S. Riser Hunter #I-40 Ads, I-25 ADV/ADS (With Factory-installed Nozzles) Toro 640, S2001
- 10.3 Shrub & Pop-Up Rotor Heads, Standard - Full Circle With 40' - 50' Radius**
Rainbird #31A RC, Falcon, T-Bird
Buckner #10060-06
Hunter #I-20, I-25 (With Factory-installed Nozzles)
Toro 640, S700C
- 10.4 Shrub & Pop-Up Rotor Heads, Standard - Part Circle With 40' - 50' Radius**
Rainbird #37A RC, Falcon w/stainless steel riser, T-Bird Buckner #10061-06 or #17061-06 Hunter #I-20 ADS, I-25 ADV/ADS (With Factory-installed Nozzles)
Toro 640, S700C
- 10.5 Shrub & Pop-Up Rotor Heads Undersize - Full Circle With 30' - 40' Radius**
Rainbird #21A RC
Buckner #11330-06
Hunter #I-20 (With Factory-installed Nozzles)
Toro S700C
- 10.6 Shrub & Pop-Up Rotor Heads Undersize - Part Circle With 30' - 40 Radius**
Rainbird #27A RC
Buckner #11300-06 Series
Hunter #I-20 ADS (With Factory-installed Nozzles)
Toro S700C
- 10.7 Shrub & Pop-Up Rotor Heads Short Range - Full or Part Circle With 16' - 30' Radius**
Rainbird T-Bird
Hunter G Series, Stainless Steel
Toro S700C
- 10.8 Brass Impact Rotor Heads (Riser Mount) Oversize - Full or Part Circle With 60' - 70' Radius**
Rainbird #35 PJADT-TNT (With 1/4" Nozzle)
Buckner AI-103 or AI-123
Standard - Full or Part Circle With 45' - 50' Radius
Rainbird #35 PJADJ-TNT (With 3/16" Nozzle)
Buckner AI-73 BU
Undersize - Full or Part Circle With 30' - 40' Radius
Rainbird #25 BPJDA-TNT (With 5/32" Nozzle)
Buckner AI-53SB-AB
- 10.9 Shrub Spray Heads -Fixed - Full or Part Circle**
Rainbird #B Series with PA-8S Adapter,
Rainbird 1800 Series with PA-8S PRS (Pressure Regulating Riser)
Hunter #I-10 and "R" Type (90,180, and 360 Degrees Only; with factory-installed

nozzles)

Thompson #460 Series

Toro #570S with Adapter

10.10 Shrub Spray Heads - Plastic Pop Ups Full or Part Circle

Rainbird #1800 Series, 1800 Sam, 1800 Sam PRS,

Rainbird 1800 with Microsprays

Toro #570

Hunter "S" or "R" Type (90, 180, and 360 Degrees Only)

10.11 Shrub Bubblers Pressure Compensating Flood Type

Rainbird #1400 Series

Buckner #13000 and #13001

Thompson #700A

10.12 Shrub Bubblers Pressure Compensating Stream Type

Rainbird #1500 Series

Buckner #13010

11. ANTI-DRAIN/EXCESS FLOW VALVES:

Valcon #ADV-XS, #ADV

King Brother's KBI

12. PIPE AND FITTINGS:

12.1 Cast Iron Fittings/ Ductile Iron Fittings for Mainline (AWWA-C110) Short Body/Cement Lined

Dayton Foundry Tyler Pipe and Foundry Leemco-Slant Bell Fittings

12.2 Cast Iron Joint Restraints:

Leemco

12.3 Polyvinyl Chloride Pipe (PVC):

EPCO

Pacific Plastic

PW Pipe

J-M Mfg.

Finn

Apache

Browline

Alertline (Reclaimed Water)

Waterwarn (Reclaimed Water)

12.4 Polyvinyl Chloride Pipe (PVC) Fittings:

Dura

Lasco

Sloan

Plastiline

Spears

12.5 Swing Joints/Height Adjusters

Dura

Toro 850 Series

Olson TSR-1

13. TRENCH MARKER TAPE:
Allen Marking Tape Paul Potter Warning Tape, Inc. 'Alarmatape'

14. WIRE CONNECTORS:
Pen-Tite
Dry Splice

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Appendix E

Water Requirements Worksheets

LANDSCAPE WATER REQUIREMENTS WORKSHEET

This project worksheet is to be submitted to the City when the proposed development is subject to the water budget requirement in Chapter 14, Article 2, Division 4 (Landscape Regulations).

Project Name: _____ Project #: _____

Project Address: _____

Individual/Business Completing the Worksheet _____

Phone Number _____

1. DEFINITIONS:

ET Adjustment Factor: A factor that when applied to reference evapotranspiration adjusts for plant water requirements and irrigation efficiencies, two major influences on the amount of water that is required for a healthy landscape.

Evapotranspiration: The quantity of water evaporated from adjacent soil surfaces and transpired by plants during a specific time period. Evapotranspiration data may be found at www.cimis.water.ca.gov. You may obtain a free pass word from the Department of Water Resources. The site also holds an abundance of informational links and complete instructions.

Hydrozone: A section or zone of the landscaped area having plants with similar water needs that are served by a valve or set of valves with the same schedule. A hydrozone may be irrigated or non-irrigated.

Landscape Area: The entire premises less the area of building footprints, non-irrigated portions of parking lots, driveways, hardscapes (as defined in §113.0103 of the Land development Code) , and areas designated for habitat preservation.

Plant Factor: A factor that when multiplied by reference evapotranspiration, estimates the amount of water used by plants. Plant water use calculations are based on the list in WUCOLS III (www.owue.water.ca.gov/docs/wucols00.pdf). The average plant factor are as follows:

- *Low water using plants* is less than 0.2;
- *Medium water using plants* is 0.5; and
- *High water using plants* is 0.8.

Factors for non plant material are as follows:

- **Water Features.** The surface area of man made water features (pools, ponds, spas and similar features) are calculated using the co-efficient for high water using plants.
- **Artificial Turf.** The surface area of artificial turf is calculated using the co-efficient for low water using plants with a distribution uniformity (DU) of 1.0.

Special Landscape Area: Areas used for active and passive recreation areas, areas solely dedicated to the production of fruits and vegetables, and areas irrigated with reclaimed water.

2. DETERMINE THE WATER BUDGET

Water Budget Calculation

The water budget is to be calculated using the following formula.

$$\text{Water Budget} = (\text{ETo})(0.62) [(0.7)(\text{LA}) + (0.3)(\text{SLA})]$$

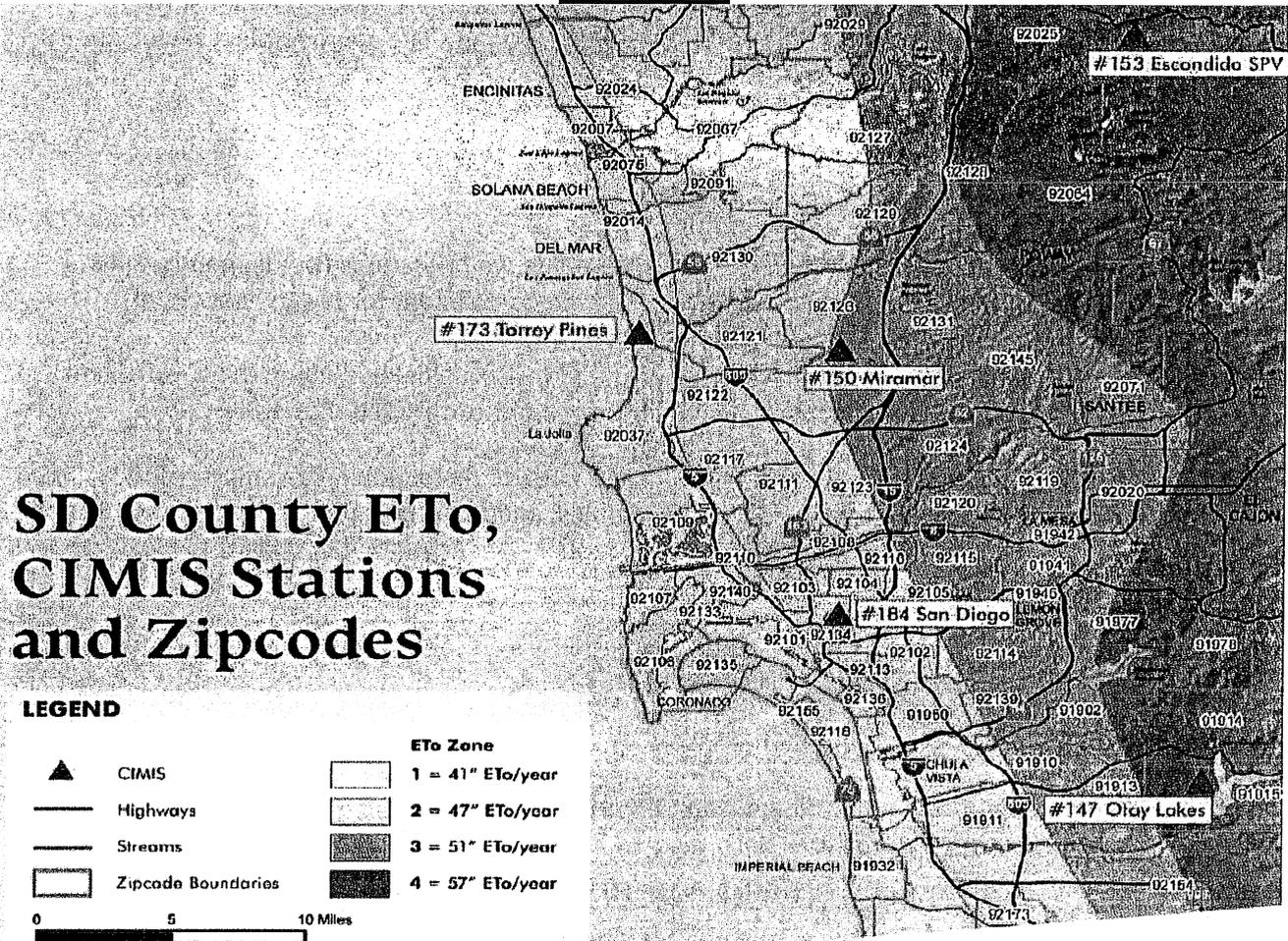
Where:

- ETo = Evapotranspiration (inches per year)(see Table 6 and ETo Map)
- 0.62 = Conversion factor (to gallons)
- 0.7 = Evapotranspiration Adjustment Factor
- LA = Landscape Area (square feet)
- 0.3 = Additional Evapotranspiration Adjustment Factor for Special Landscape Areas
- SLA = Special Landscape Area (square feet)

In the calculation below provide the values for the water budget calculation used for the proposed project. The ETo for the calculation may be based on the precise location of the project using the ETo Map or based on the ETo for the Community Planning Area in Table 6 of the Landscape Standards each of which follows.

$$\left(\frac{\quad}{\text{ETo}} \right) (0.62) \left[(0.7) \left(\frac{\quad}{\text{LA}} \right) + (0.3) \left(\frac{\quad}{\text{SLA}} \right) \right] = \quad \text{Gal./Yr.}$$

ETo Map



**Table 6
EVAPOTRANSPIRATION (ET_o) TABLE
BY COMMUNITY PLANNING AREA**

Community Planning Area	Average Annual ET _o (inches/year)	Community Planning Area	Average Annual ET _o (inches/year)
Barrio Logan	41	North City FUA Subarea II	47
Black Mountain Ranch	47	Ocean Beach	41
Carmel Mountain Ranch	51	Old San Diego	47
Carmel Valley	47	Otay Mesa	51
Centre City	41	Otay Mesa-Nestor	41
City Heights	47	Pacific Beach	41
Clairemont Mesa	47	Pacific Highlands Ranch	47
College Area	51	Peninsula	41
Del Mar Mesa	47	Rancho Bernardo	57
East Elliott	51	Rancho Encantada	57
Eastern Area	51	Rancho Penasquitos	51
Encanto	51	Sabre Springs	51
Fairbanks Country Club	47	San Pasqual	57
Greater Golden Hill	47	San Ysidro	47
Greater North Park	47	Serra Mesa	47
Kearney Mesa	47	Scripps Miramar Ranch	51
Kensington-Talmadge	51	Skyline-Paradise Hills	51
La Jolla	41	Southeastern San Diego	47
Linda Vista	47	Tierrasanta	51
Midway-Pacific Highway Corridor	41	Tijuana River Valley	41
Mira Mesa	47	Torrey Highlands	47
Miramar Ranch North	51	Torrey Hills	47
Mission Beach	41	Torrey Pines	41
Mission Valley	47	University	47
Navajo	51	Uptown	47
Normal Heights	47	Via De La Valle	47

3. DETERMINE THE ESTIMATED TOTAL WATER USE (ETWU)

The Estimated Total Water use is calculated using the following formula.

$$ETWU = [(ET_o)(0.62)][(PF \times HA \div IE) + SLA]$$

Where:

- ET_o = Reference Evapotranspiration (inches)
- 0.62 = Conversion facto to gallons
- PF = Plant Factor from WUCOLS
- HA = Hydrozone Area (s.f)
- IE = Irrigation Efficiency

(6-2000)

Article 4: Sewers**Division 8: Water Reclamation and Ocean Monitoring**
("Water Reclamation" added 7-24-1989 by O-17327 N.S.)
(Retitled to "Water Reclamation And Ocean Monitoring"
*and amended 9-11-1995 by O-18206 N.S.)***§64.0801 Findings, Purpose and Intent**

The Council of The City of San Diego finds that:

(the people of the State of California have a primary interest in the development of facilities to reclaim water containing waste to supplement existing surface and underground water supplies and to assist in meeting the future water requirements of the state; (California Water Code section 13510); and

- (b) conservation of all available water resources requires the maximum reuse of wastewater for beneficial uses of water (Water Code section 461); and
- (c) continued use of potable water for irrigation of greenbelt areas and for other uses where the use of reclaimed water is suitable may be an unreasonable use of such water where reclaimed water is available; and
- (d) the state policies described above are in the best interest of the City. The majority of jurisdictions in San Diego County have adopted measures to promote water reclamation. This ordinance is necessary to protect the common water supply of the region which is vital to public health and safety, and to prevent endangerment of public and private property. San Diego County is highly dependent on limited imported water for domestic, agricultural and industrial uses. The reliability of the supply of imported water is uncertain. By developing and utilizing reclaimed water, the need for additional imported water can be reduced. In light of these circumstances, certain uses of potable water may be considered unreasonable or to constitute a nuisance where reclaimed water is available or production of reclaimed water is unduly impaired.

("Findings, Purpose and Intent" added 7-24-1989 by O-17327 N.S.)

(6-2000)

§64.0802 Water Reclamation Policy

It is the policy of the City that reclaimed water shall be used within its jurisdiction wherever feasible, and consistent with legal requirements, preservation of public health, safety and welfare, and the environment.

("Water Reclamation Policy" added 7-24-1989 by O-17327 N.S.)

§64.0803 Definitions

The following terms are defined for purposes of this ordinance:

- (a) **Agricultural Purposes:** Agricultural purposes include the growing of field and nursery crops, row crops, trees, and vines and the feeding of fowl and livestock.
- (b) **Artificial Lake:** A human-made lake, pond, lagoon, or other body of water that is used wholly or partly for a landscape impoundment, a restricted recreational impoundment or a non-restricted recreational impoundment.
- (c) **Commercial Office Building:** Any building for office or commercial uses with water requirements which include, but are not limited to, landscape irrigation, toilets, urinals and decorative fountains.
- (d) **Greenbelt Areas:** A greenbelt area includes, but is not limited to, golf courses, cemeteries, parks and landscaping.
- (e) **Industrial Process Water:** Water used by any industrial facility with process water requirements which include, but are not limited to, rinsing, washing, cooling and circulation, or construction, including any facility regulated by the industrial waste water discharge ordinance of the City. (Municipal Code, Chapter 6, Article 4).
- (f) **Off-site Facilities:** Water (or reclaimed water) facilities from the source of supply to the point of connection with the on-site facilities, normally up to and including the water meter.
- (g) **On-site Facilities:** Water (or reclaimed water) facilities under the control of the owner, normally downstream from the water meter.

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- (h) Potable Water: Water which conforms to the federal, state and local standards for human consumption.
- (i) Reclaimed Water: Water which, as a result of treatment of wastewater, is suitable for a direct beneficial use or controlled use that would not otherwise occur. (See Water Code section 13050(n).)
- (j) Reclaimed Water Distribution: A piping system intended for the delivery of reclaimed water separate from any potable water distribution system.
- (k) Waste Discharge: Waste discharge means water deposited, released or discharged into a sewer system from any commercial, industrial or residential source which contains levels of any substance which may cause substantial harm to any water treatment or reclamation facility or which may prevent any use of reclaimed water authorized by law, provided levels exceed those found in water actually delivered to the source of the waste discharge by the water purveyor.

("Definitions" added 7-24-1989 by O-17327 N.S.)

§64.0804 Administration

- (a) General. The City Manager shall administer, implement and enforce the provisions of this ordinance. Any powers granted to or duties imposed upon the City Manager may be delegated by the City Manager to persons in the employ of the City.
- (b) Regulations. The City Manager shall make and enforce regulations necessary to the administration of this ordinance. The Manager may amend such regulations from time to time as conditions require. These regulations shall be consistent with the general policy established herein by the City Council.

("Administration" added 7-24-1989 by O-17327 N.S.)

§64.0805 Penalty for Violation

- (a) Public Nuisance: Discharge of wastes or the use of reclaimed water in any manner in violation of this ordinance or of any permit issued hereunder is hereby declared a public nuisance and shall be corrected or abated as directed by City. Any person creating such a public nuisance is guilty of a misdemeanor.

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- (b) Injunction: Whenever a use of reclaimed water is in violation of this ordinance or otherwise causes or threatens to cause a condition or nuisance, the City may seek injunctive relief as may be appropriate to enjoin such discharge or use.
- (c) Permit Revocation: In addition to any other statute or rule authorizing termination of reclaimed water service, the City Manager may revoke a permit issued hereunder if a violation of any provision of this ordinance is found to exist or if use of reclaimed water causes or threatens to cause a nuisance.
- (d) Penalty: Any owner and/or operator who violates any penal provision of this ordinance shall, for each day of violation, or portion thereof, be subject to a fine not exceeding \$1,000. In addition, water service to the property may be discontinued.

("Penalty for Violation" added 7-24-1989 by O-17327 N.S.)

§64.0806 Water Reclamation Master Plan

- (a) General: Upon adoption of this ordinance, the City shall prepare and adopt a Water Reclamation Master Plan to define, encourage, and develop the use of reclaimed water within its boundaries. The Master Plan shall be updated every five years. The Master Plan may be one or more documents covering specific portions of the planning area.
- (b) Contents of the Reclamation Master Plan: The Master Plan shall include, but not be limited to, the following:
 - (1) Plants and Facilities. Evaluation of the location and size of present and future reclamation treatment plants, distribution pipelines, pump stations, reservoirs, and other related facilities, including cost estimates and potential financing methods.
 - (2) Reclaimed Water Service Areas. A designation, based on the criteria set forth in Section 64.0802 and the information derived from Sections 64.0806(b)(1) and (b)(2) of the areas within the City that can or may in the future use reclaimed water in lieu of potable water. Reclaimed water uses can include, but are not limited to, the irrigation of greenbelt and agricultural areas, filling of artificial lakes, and appropriate industrial and commercial uses.
 - (3) Tributary Areas. A designation of proposed tributary areas for each water reclamation facility identified in the Master Plan, providing

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maps showing locations of major sewers tributary to an existing or proposed plant site, and the tributary area served by the facility.

- (4) **Quality of Water to Be Reclaimed.** An evaluation of water quality with respect to the effect on anticipated uses of reclaimed water to be served by each treatment facility. An evaluation of sources of waste discharge and sewer inflow that may, directly or cumulatively, substantially contribute to adverse water quality conditions in reclaimed water. In the event that sufficient data is not available, recommendations on an enhanced sampling and monitoring program to provide additional data for further development of reuse options or necessary discharge regulation.
- (5) **Tributary Protection Measures.** Recommendations of control measures and management practices for each designated tributary area to maintain or improve the quality of reclaimed water. Such control measures may include capital improvements to the sewer collection system and waste discharge restrictions for industrial, commercial and residential discharges.
- (6) **Schedule.** A schedule for implementation, including additional planning and pre-design steps, institutional arrangements, permits, land acquisition, design, construction, startup, and facility phasing for each reclaimed water service area.

("Water Reclamation Master Plan" added 7-24-1989 by O-17327 N.S.)

§64.0807 Water Reclamation Master Plan

- (a) **General.** No person or public agency, as used in California Water Code section 13551, shall use water from any source or of quality suitable for potable domestic use for the irrigation of greenbelt areas, or other uses where the use of reclaimed water is suitable, when reclaimed water is available.
- (b) **Identification of Users.** Persons or agencies who are mandated to use reclaimed water are to be identified and permitted as described in this section.
- (c) **Existing Potable Water Service:**
 - (1) **Preliminary Determination.** Based upon the Master Plan, upon the designation of each reclaimed water service area or the commencement of the design of new reclaimed water facilities, the

City shall make preliminary determinations as to which existing potable water customers shall be converted to the use of reclaimed water. Each water customer shall be notified of the basis for a determination that conversion to reclaimed water service will be required, as well as the proposed conditions and schedule for conversion.

- (2) Notice. The notice of the preliminary determination, including the proposed conditions and time schedule for compliance, and a reclaimed water permit application shall be sent to the water customer by certified mail.
 - (3) Objections. The water customer may file a notice of objection with the City Manager within thirty (30) days after any notice of determination to comply is delivered or mailed to the customer, and may request reconsideration of the determination or modification of the proposed conditions or schedule for conversion. The objection must be in writing and specify the reasons for the objection. The preliminary determination shall be final if the customer does not file a timely objection. The City Manager shall appoint a panel of three (3) staff members who shall review the objection and shall confirm, modify or abandon the preliminary determination. The panel shall make a final determination within thirty (30) days of the filing of the notice of objection.
- (d) Development and Water Service Approvals:
- (1) Conditions. Upon application by a developer, owner or water customer (herein referred to as "applicant") for a tentative map, subdivision map, land use permit, or other development project as defined by Government Code section 65928, the City Manager shall review the Master Plan and make a preliminary determination whether the current or proposed use of the subject property requires it to be served with reclaimed water or to include facilities designed to accommodate the use of reclaimed water in the future, due to its location within an existing or proposed reclaimed water service area. Based upon such determination, a permit for such use may be required as a condition of approval of any such application, in addition to any other conditions of approval or service.

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- (2) Alterations and Remodeling. On a case by case basis, upon application for a permit for the alteration or remodeling of multi-family, commercial or industrial structures, the City Manager shall review the Master Plan and make a preliminary determination whether the subject property is within a reclaimed water service area (existing or proposed) and shall be served with reclaimed water or include facilities designed to accommodate the use of reclaimed water in the future. Based upon such determination that use of reclaimed water and provision of reclaimed water distribution systems or other facilities for the use of reclaimed water is appropriate, a permit for such use may be required as a condition of approval of the application.
 - (3) Requested Service. On a case by case basis, upon application for a permit to use reclaimed water on a property not covered by Sections 64.0807 (d)(1) and (d)(2) above, the City Manager shall review the Master Plan and make a determination whether the subject property shall be served with reclaimed water. Based upon such determination, the application for the permit shall be accepted and processed subject to Section 64.0807(e).
 - (4) Notice of Determination. A notice of the basis for the preliminary determination, proposed conditions of approval and schedule for compliance shall be provided to the applicant prior to approval of the development application, or application for water service.
- (e) Reclaimed Water Permit Process: Upon a final determination by the City that a property shall be served with reclaimed water or adoption of a condition of development approval or water service requiring use or accommodation of the use of reclaimed water, the water customer, owner or applicant shall obtain a reclaimed water permit.
- (1) Permit Conditions. The permit shall specify the design and operational requirements for the applicant's water distribution facilities and schedule for compliance, based on the rules and regulations adopted pursuant to Section 64.0808(a) and shall require compliance with both the California Department of Health Services Wastewater Reclamation Criteria (see California Code of Administrative Regulations, Title 22), and requirements of the Regional Water Quality Control Board.

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- (2) Plan Approval. Plans for the reclaimed and non-reclaimed water distribution systems for the parcel shall be reviewed by the City and a field inspection conducted before the permit is granted.
- (3) Permit Issuance. Upon approval of plans the permit shall be issued. Reclaimed water shall not be supplied to a property until inspection by the City determines that the applicant is in compliance with the permit conditions.
- (f) Temporary Use of Potable Water. At the discretion of the City, potable water may be made available on a temporary basis, until reclaimed water is available. Before the applicant receives temporary potable water, a reclaimed water permit, as described in Section 64.0807(c), must be obtained for new on-site distribution facilities. Prior to commencement of reclaimed water service, an inspection of the on-site facilities will be conducted to verify that the facilities have been maintained and are in compliance with the reclaimed water permit and current requirements for service. Upon verification of compliance, reclaimed water shall be served to the parcel for the intended use. If the facilities are not in compliance, the applicant shall be notified of the corrective actions necessary and shall have at least thirty (30) days to take such actions prior to initiation of enforcement proceedings.
- (g) Reclaimed Water Rate: The rate charged for reclaimed water shall be established by resolution of the City.
(*"Water Reclamation Master Plan" added 7-24-1989 by O-17327 N.S.*)

§64.0808**Implementation Program**

- (a) Rules and Regulations. The City Manager shall establish general rules and regulations governing the use and distribution of reclaimed water.
- (b) Public Awareness Program. The City Manager shall establish a comprehensive water reclamation public awareness program.
- (c) Coordination among Agencies. The City Manager shall coordinate efforts between the City and other regional agencies to share in the production and utilization of reclaimed water, where the potential exist.

Article 2: General Development Regulations
(Added 12-9-1997 by O-18451 N.S.; effective 1-1-2000.)

Division 1: Grading Regulations
(Added 12-9-1997 by O-18451 N.S.; effective 1-1-2000.)

§142.0101 Purpose of Grading Regulations

The purpose of these regulations is to address slope stability, protection of property, erosion control, water quality, and landform preservation and to protect the public health, safety, and welfare of persons, property, and the environment.
(Added 12-9-1997 by O-18451 N.S.; effective 1-1-2000.)

§142.0102 When Grading Regulations Apply

This division applies to all *grading* work, whether or not a permit or other approval is required.
(Added 12-9-1997 by O-18451 N.S.; effective 1-1-2000.)

§142.0103 When a Permit Is Required for Grading

- (a) A Grading Permit is required for any *grading* work specified in Section 129.0602.
- (b) A Site Development Permit is required for any *grading* that results in the creation of a slope with a gradient steeper than 25 percent (4 horizontal feet to 1 vertical foot) and a height of 25 feet or more in accordance with Chapter 12, Article 6, Division 5 (Site Development Permits).
(Added 12-9-1997 by O-18451 N.S.; effective 1-1-2000.)

§142.0130 Development Standards for Grading

All *grading* shall be designed and performed in conformance with applicable City Council policies and the standards established in the Land Development Manual.
(Added 12-9-1997 by O-18451 N.S.; effective 1-1-2000.)

EDITORS NOTE: The Land Development Manual includes:
Coastal Bluffs and Beaches Guidelines
Biology Guidelines
Historical Resources Guidelines
Submittal Requirements for Deviations within the Coastal Overlay Zone

See RR-292248 for the Coastal Bluffs and Beaches Guidelines of the Land Development Code; RR-292249 for the Biology Guidelines of the Land Development Code; RR-292250 for the Historical Resources Guidelines of the Land Development Code; RR-292251 for the Submittal Requirements for Deviations within the Coastal Overlay Zone of the Land Development Code.

§142.0131 Geotechnical Report Requirements

- (a) All *grading* shall be designed to incorporate the recommendations of any required *geotechnical reports*.
- (b) All *geotechnical reports* shall be prepared in accordance with the standards established in the Land Development Manual.
(Added 12-9-1997 by O-18451 N.S.; effective 1-1-2000.)

§142.0132 Uncontrolled Embankment Regulations

- (a) The construction of an uncontrolled embankment may be permitted only when, in the opinion of the City Engineer, the construction would not endanger the public health, safety, and welfare.
- (b) The *grading* plans shall clearly indicate the limits of the uncontrolled embankment to be constructed.
- (c) The property owner shall enter into a maintenance agreement that contains the following provisions and any other provisions that may, in the opinion of the City Engineer, afford protection to the property owner, adjacent properties, and the City:
 - (1) The *grading* work is an uncontrolled embankment and shall be constructed in accordance with plans approved by the City Engineer;
 - (2) The property owner acknowledges that as an uncontrolled embankment, a Building Permit shall not be issued on the site unless a soils analysis of the uncontrolled embankment and a foundation design are submitted and approved; and
 - (3) The *grading* work shall be done and maintained in a safe and sanitary manner at the sole cost, risk, and responsibility of the property owner and his or her successors in interest, who shall hold the City harmless.

- (d) Maintenance agreements for uncontrolled embankment shall be recorded in the office of the County Recorder.
(Added 12-9-1997 by O-18451 N.S.; effective 1-1-2000.)

§142.0133 Slope Gradient

- (a) All constructed slopes shall be designed for proper stability considering both geological and soil properties.
- (b) Cut and *fill* slopes less than 10 feet in height shall not exceed a gradient of 66 percent (1-½ horizontal feet to 1 vertical foot).
- (c) Cut and *fill* slopes greater than 10 feet in height shall not exceed a gradient of 50 percent (2 horizontal feet to 1 vertical foot).
- (d) Where extraordinary conditions exist to the extent that compliance with the standards of this section would be infeasible, the City Engineer may authorize slopes steeper than those specified in Section 142.0133(b) and (c). A determination that such steeper slopes are warranted shall be based upon the required geotechnical report that clearly demonstrates that the steeper slope will be stable and not endanger the public health, safety, and welfare. Such slopes shall be revegetated in accordance with a plan prepared by a landscape architect authorized to prepare landscape plans by the State Business and Profession Code.

(Amended 1-9-2001 by O-18910 N.S.; effective 8-8-2001.)

§142.0134 Retaining Walls

Retaining walls shall comply with the height limits and construction material requirements in Chapter 14 Article 2, Division 3 (Fence Regulations).

(Retitled from "Retaining Walls and Structurally Enhanced Fill" and amended 1-9-2001 by O-18910 N.S.; effective 8-8-2001.)

§142.0135 Grading Within the Special Flood Hazard Area

Grading within the *Special Flood Hazard Area* shall comply with Chapter 14, Article 2, Division 2 (Drainage Regulations) and Chapter 14, Article 3, Division 1 (Environmentally Sensitive Lands Regulations).

(Amended 4-22-2002 by O-19051 N.S.; effective 10-8-2002.)

§142.0144 Grading Within Environmentally Sensitive Lands

*Grading within environmentally sensitive lands shall comply with Chapter 14, Article 3, Division 1 (Environmentally Sensitive Lands Regulations).
(Added 12-9-1997 by O-18451 N.S.; effective 1-1-2000.)*

§142.0145 Performance of Grading

All persons performing *grading* work shall be responsible to provide safe and stable slopes and to protect water quality.
(Added 12-9-1997 by O-18451 N.S.; effective 1-1-2000.)

§142.0146 Erosion , Sedimentation, and Water Pollution Control

- (a) All *grading* work shall incorporate erosion and siltation control measures in accordance with Chapter 14, Article 2, Division 4 (Landscape Regulations) and the standards established in the Land Development Manual.
- (b) All *development* shall be conducted to prevent erosion and stop sediment and pollutants from leaving the work site. The property owner is responsible to implement and maintain temporary and permanent erosion, sedimentation, and water pollution control measures to the satisfaction of the City Manager, whether or not such measures are a part of approved plans. The property owner shall install, monitor, maintain, and revise these measures, as appropriate, to ensure their effectiveness. Controls shall include measures outlined in Chapter 14, Article 2, Division 2 Storm Water Runoff Control and Drainage Regulations) that address the *development's* potential erosion and sedimentation impacts.
- (c) *Grading* of properties within the Coastal Overlay Zone that drain into Los Penasquitos Lagoon or San Dieguito Lagoon shall comply with the Erosion Control Measures for North City Areas Draining to Los Penasquitos or San Dieguito Lagoons, on file in the office of the City Clerk as Document No. OO-17068.

(Retitled from "Erosion and Siltation Control" and amended 9-10-2001 by O-18976 N.S.; effective 10-10-2001 outside the Coastal Overlay Zone; effective 11-16-2001 within the Coastal Overlay Zone.)

§142.0147 Revegetation Requirements

All graded areas including manufactured slopes and disturbed areas other than manufactured slopes shall be revegetated in accordance with Chapter 14, Article 2, Division 4 (Landscape Regulations).
(Added 12-9-1997 by O-18451 N.S.; effective 1-1-2000.)

§142.0148 Protection of Adjacent Properties and Public Rights-of-Way

During *grading*, the property owner shall take all necessary measures to protect adjacent property and public rights-of-way from damage that may result from the work. The property owner shall provide *fences* or barricades needed to eliminate any hazard to the public in their normal use of the property or *public right-of-way* as follows:

- (a) Where a temporary *excavation* is adjacent to an existing developed public right-of-way or other public property and the slope gradient is 50 percent (2 horizontal feet to 1 vertical foot) or steeper or the height of the *excavation* is more than 6 feet, temporary *fences* or barricades shall be provided adjacent to the *excavation* satisfactory to the City Engineer. The *fences* or barricades shall be constructed and maintained as long as the hazard resulting from the *excavation* exists.
- (b) Where a permanent *excavation* is adjacent to an existing developed *public right-of-way* or other public property and the slope gradient is 50 percent (2 horizontal feet to 1 vertical foot) or steeper, the height of the *excavation* is more than 6 feet, and the top of the slope is within 10 feet of the *public right-of-way*, the property owner shall construct a permanent, 4-foot-high *fence* adjacent to the *public right-of-way*, satisfactory to the City Engineer.
- (c) The City Engineer may modify the requirements of this section where it is evident that the *grading* work will present no hazard to the adjacent property or *public rights-of-way*.

(Added 12-9-1997 by O-18451 N.S.; effective 1-1-2000.)

§142.0149 Replacement for Damages

If the City or a *public utility* needs to place, replace, or maintain a facility within a *public right-of-way*, *public service easement*, or public property over which private *grading* has been done, the party responsible for the private *grading* shall pay that portion of the cost of placement, replacement, or maintenance caused by the construction or existence of the private *grading* work. The costs of placing, replacing, or maintaining the facility shall include the cost of obtaining any alternate *public right-of-way* if the facility needs to be relocated because of the private *grading* work.

(Added 12-9-1997 by O-18451 N.S.; effective 1-1-2000.)

§142.0150 Site Restoration

Restoration of *grading* undertaken without a permit is required and shall occur prior to any further development on the site. Restoration requires:

- (a) Submittal to and acceptance by the Permit Issuing Authority of a restoration plan which may include necessary monitoring by the City or a City designated party, both at the cost of the violator;
- (b) Obtaining a grading permit and receiving inspection approval from the Permit Issuing Authority; and
- (c) Compliance with any other reasonable requirements of the Permit.
(Added 11-28-2005 by O-19444 N.S.; effective 2-9-2006.)

Article 2: General Development Regulations

Division 4: Landscape Regulations

(Added 12-9-1997 by O-18451 N.S.; effective 1-1-2000.)

§142.0401 Purpose of Landscape Regulations

The purpose of these regulations is to minimize the erosion of slopes and disturbed lands through revegetation; to conserve energy by the provision of shade trees over *streets*, sidewalks, parking areas, and other paving; to conserve water through low-water-using planting and irrigation design; to reduce the risk of fire through site design and the management of flammable vegetation ; and to improve the appearance of the built environment by increasing the quality and quantity of landscaping visible from *public rights-of-way*, private streets, and adjacent properties, with the emphasis on landscaping as viewed from *public rights-of-way*.

(Added 12-9-1997 by O-18451 N.S.; effective 1-1-2000.)

§142.0402 When Landscape Regulations Apply

- (a) This division applies to all proposed planting and irrigation work.
- (b) Table 142-04A provides the applicable regulations and type of permit required by this division for the landscaping required in conjunction with the specific types of *development* proposals. Any project that proposes more than one of the types of *development* shown is subject to all of the regulations for each type of *development*.

Table 142-04A
Landscape Regulations Applicability

Type of Development Proposal			Applicable Regulations	Required Permit Type/ Decision Process
Column A	Column B	Column C ⁽¹⁾		
1. New structures that equal or exceed the gross floor area shown (Column B), and are proposing the type of development shown (Column C)	1,000 square feet	Multiple Dwelling Unit Residential Development or Commercial Development	142.0403-142.0407, 142.0409, and 142.0413	Building Permit/ Process One
	5,000 square feet	Industrial Development		
2. Additions to structures or additional structures on developed properties that exceed the gross floor area shown or that increase the gross floor area by the percent shown (Column B), and are proposing the type of development shown (Column C)	1,000 square feet or a 20 percent increase in gross floor area	Multiple Dwelling Unit Residential Development	142.0403-142.0407, 142.0409, 142.0410(a), and 142.0413	Building Permit/ Process One
	1,000 square feet or a 10 percent increase in gross floor area	Commercial Development		
	5,000 square feet or a 20 percent increase in gross floor area	Industrial Development		
3. New permanent parking and vehicular use area for four or more vehicles including access to the spaces, excluding parking for single dwelling unit uses on a single lot in single dwelling unit zones			142.0403, 142.0406-142.0409, and 142.0413	Building Permit/ Process One
4. New temporary parking and vehicular use area for four or more vehicles including access to the spaces, excluding parking for single dwelling unit uses on a single lot in single dwelling unit zones			142.0403, 142.0408, 142.0409, and 142.0413	Building Permit/ Process One

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Type of <i>Development Proposal</i>	Applicable Regulations	Required Permit Type/ Decision Process
5. Additions or modifications to existing permanent or temporary parking and <i>vehicular use area</i> that increase the number of parking spaces by four or more	142.0403, 142.0408, 142.0409, 142.0410(b), and 142.0413	Building Permit/ Process One
6. <i>Single dwelling unit</i> residential use projects proposing new private or <i>public rights-of-way</i>	142.0403, 142.0409, and 142.0413	Building Permit/ Process One
7. Projects proposing slopes with gradients steeper than 4:1 (4 horizontal feet to 1 vertical foot) that are 5 feet or greater in height	142.0403, 142.0411, and 142.0413	Building Permit/ Process One
8. Projects creating disturbed areas of bare soils, or projects with existing disturbed areas	142.0403, 142.0411, and 142.0413	No permit required by this division
9. All City owned property, dedicated in perpetuity for park or recreation purposes, within 100 feet of a structure.		No permit required by this division if work is performed in accordance with applicable regulations
10. Publicly or privately owned <i>premises</i> , that are within 100 feet of a <i>structure</i> , -and contain native or naturalized vegetation.	142.0403, 142.0412, and 142.0413	No permit required by this division if work is performed in accordance with applicable regulations
11. New <i>structures</i> , additions to <i>structures</i> , or subdivisions that create <i>lots</i> where new <i>structures</i> could be located on <i>premises</i> adjacent to native or naturalized vegetation	142.0403, 142.0412, and 142.0413	Building Permit/ Process One
12. New Trees or shrubs planted in the <i>public right-of-way</i>	62.0603, 129.0702, 142.0403, and 144.0409	Public Right-of-Way Permit or Street Tree Permit/ Process One
13. <i>Condominium Conversions</i>	142.0403, 142.0404, 142.0405(b)(1), 142.0409(a), 142.0412, and 142.0413	No permit required by this division

Footnote to Table 142-04A

¹ Refer to Section 131.0112 for a description of the types of uses that fit into each *development* category.

(Added 12-9-1997 by O-18451 N.S.; effective 1-1-2000.)
 (Amended 9-19-2005 by O-19413 N.S.; effective 10-19-2005)

(Amended 11-28-2005 by O-19444 N.S.; effective 2-9-2006.)
(Amended 7-5-2006 by O-19505 N.S.; effective 8-5-2006.)
(Amended 1-15-2008 by O-19698 N.S.; effective 2-14-2008.)
(Amended 11-13-08 by O-19800 N.S.; effective 12-13-2008.)

§142.0403 General Planting and Irrigation Requirements

All planting, irrigation, brush management, and landscape-related improvements required by this division must comply with the regulations in this section and with the Landscape Standards in the Land Development Manual.

(a) Plant Point Schedule

Table 142-04B assigns plant points based on plant type and size and applies where plant points are required by this division.

**Table 142-04B
Plant Point Schedule**

Proposed Plant Material		Plant Points Achieved per Plant
Plant Type	Plant Size	
Proposed Shrub	1-gallon	1.0
	5-gallon	2.0
	15-gallon or larger	10.0
Proposed Dwarf Palm	Per foot of brown trunk height	5.0
Proposed Tree	5-gallon	5.0
	15-gallon	10.0
	24-inch box	20.0
	36-inch box	50.0
	48-inch box and larger	100.0
Proposed Broad Headed Feather Palm Tree	Per foot of brown trunk height	5.0
Proposed Feather Palm Tree	Per foot of brown trunk height up to 20 feet in height	3.0
	each feather palm tree over 20 feet in height	60.0
Proposed Fan Palm Tree	Per foot of brown trunk height up to 20 feet in height	1.5
	each fan palm tree over 20 feet in height	30.0

Existing Plant Material		Plant Points Achieved per Plant
Plant Type	Plant Size	
Existing Shrub	12-inch to 24-inch spread and height	4.0
	24-inch and larger spread and height	15.0
Existing Native Tree	2-inch caliper measured at 4 feet above <i>grade</i>	100.0
	each additional inch beyond 2 inches	50.0
Existing Non-Native Tree	2-inch caliper measured at 4 feet above <i>grade</i>	50.0
	each additional inch beyond 2 inches	25.0
Existing Broad Headed Feather Palm Tree	Per foot of brown trunk height	5.0
Existing Feather Palm Tree	Per foot of brown trunk height up to 20 feet in height	3.0
	each feather palm tree over 20 feet in height	60.0
Existing Fan Palm Tree	Per foot of brown trunk height up to 20 feet in height	1.5
	each fan palm tree over 20 feet in height	30.0

(b) Plant Material Requirements

- (1) Planting of invasive plant species, as described in the Landscape Standards of the Land Development Manual, is not permitted.
- (2) All existing, invasive plant species, including vegetative parts and root systems, shall be completely removed from the *premises* when the combination of species type, location, and surrounding environmental conditions provides a means for the species to invade other areas of native plant material that are on or off of the *premises*.
- (3) Plant material species shall be used that will continue to meet the requirements of this division after installation.
- (4) Tree locations shall be measured horizontally from the centerline of the tree trunk at *proposed grade*.
- (5) A minimum root zone of 40 square feet in area shall be provided for all trees. The minimum dimension for this area shall be 5 feet. This minimum dimension and root zone area may be reduced with the use of structural soil or where the combination of soil conditions, root zone area, adjacent improvements, and selected tree species can be demonstrated to provide conditions for healthy tree growth that will not damage adjacent improvements.

- (6) Plant material shall be maintained in a healthy, disease-free, growing condition at all times.
- (7) All pruning shall comply with the standards of the National Arborist Association.
- (8) Any plant material required by this division that dies within 3 years of installation shall be replaced within 30 calendar days of plant death with the same size and species of plant material shown on the approved plan. Required shrubs that die 3 years or more after installation shall be replaced with 15-gallon size, and required trees that die 3 years or more after installation shall be replaced with 60-inch box size material. The City Manager may authorize adjustment of the size and quantity of replacement material where material replacement would occur in inaccessible areas or where the existing plant being replaced is larger than a 15 gallon shrub or 60-inch box tree.
- (9) Trees required by this division shall be self-supporting, woody plants with at least one well defined trunk and shall normally attain a mature height and spread of at least 15 feet.
- (10) Trees required by this division shall be maintained so that all branches over pedestrian walkways are 6 feet above the walkway *grade* and so that all branches over vehicular travel ways are 16 feet above the *grade* of the travel way.
- (11) Shrubs required by this division shall be woody or perennial plants that are low branching or have multiple stems.
- (12) Tree root barriers or structural soil shall be installed where trees are placed within 5 feet of *public improvements* including walks, curbs, or *street* pavement or where new public improvements are placed adjacent to existing trees. The City Manager may waive this requirement where the combination of soil conditions, root zone area, adjacent improvements, and selected tree species can be demonstrated to provide conditions for healthy tree growth that will not damage public improvements.
- (13) Native plants shall be locally indigenous.
- (14) Naturalized plant material shall be plantings that can survive without irrigation after initial plant establishment.
- (15) Plant materials shall be grouped into hydrozones that consist of plant species having similar water demand and by their soil, sun, and shade requirements.

(16) Plant material shall be selected to meet a maximum applied water allowance as determined by the water budget formula and specifications in Section 142.0413(d).

(c) Irrigation Requirements

(1) All required plant material shall be irrigated with a permanent, below-grade irrigation system unless specified otherwise in this division.

(2) All required irrigation systems shall be automatic, electrically controlled, and designed to provide water to all required plantings to maintain them in a healthy, disease-resistant condition.

(3) Irrigation systems shall meet the following design requirements:

(A) No irrigation runoff or overspray shall cross *property lines* or paved areas;

(B) The velocity of water flowing in irrigation system piping or supply pipes shall not exceed 5 feet per second downstream of the water meter;

(C) Irrigation systems shall be designed to minimize system maintenance requirement after installation. Above-ground irrigation system equipment that is exposed to potential damage shall be designed to be damage-resistant; and

(D) An approved rain sensor shutoff device is required for all systems and a moisture-sensing device that regulates the irrigation system for all lawn areas is required.

(d) Planting Area Requirements

(1) Planting areas required by this division shall consist of the following:

(A) Low-growing woody or herbaceous groundcover, turf, shrubs, or trees;

(B) Unattached unit pavers, loose organic or inorganic materials, or *hardscape*; or

(C) Built improvements including water features, overhead *structures* (such as gazebos, trellis *structures*, etc.), or fixed seating.

(2) Planting areas may be counted toward the planting area required by this division if they are greater than 30 square feet in size with no dimension less than 3 feet.

- (3) All required planting areas shall be maintained free of weeds, debris, and litter.

(Added 12-9-1997 by O-18451 N.S.; effective 1-1-2000.)

(Amended 9-19-2005 by O-19413 N.S.; effective 10-19-2005.)

(Amended 11-13-08 by O-19800 N.S.; effective 12-13-2008.)

(Amended 10-28-2009 by O-19903 N.S.; effective 11-27-2009.)

EDITORS NOTE: The Land Development Manual includes:

Coastal Bluffs and Beaches Guidelines

Biology Guidelines

Historical Resources Guidelines

Submittal Requirements for Deviations within the Coastal Overlay Zone

See RR-292248 for the Coastal Bluffs and Beaches Guidelines of the Land Development Code; RR-292249 for the Biology Guidelines of the Land Development Code; RR-292250 for the Historical Resources Guidelines of the Land Development Code; RR-292251 for the Submittal Requirements for Deviations within the Coastal Overlay Zone of the Land Development Code.

§142.0404 Street Yard and Remaining Yard Planting Area and Point Requirements

When new *structures* or additions to *structures* are subject to this section in accordance with Table 142-04A, the planting area required and the plants necessary to achieve the number of plant points required in Table 142-04C shall be provided. The required planting area is determined by multiplying the total square footage of the *street yard* or *remaining yard* area on the *premises*, by the percentage shown in Table 142-04C, unless stated otherwise in the table. The required planting points are determined by multiplying the total square footage of the *street yard* or *remaining yard* area on the *premises*, by the points shown in the table. The required planting area and plant points for the *street yard* shall be located within the *street yard*. The required planting area and plant points for the *remaining yard* shall be located within the *remaining yard*.

Table 142-04C
Street Yard and Remaining Yard Planting Requirements

Type of Development Proposal ⁽⁶⁾	Type of Yard	Planting Area Required (Percentage of total yard area unless otherwise noted below) ⁽¹⁾	Plant Points Required ⁽¹⁾
Multiple Dwelling Unit Residential Development	Street Yard	50% ⁽²⁾	0.05 points
	Remaining Yard	A minimum of 40 square feet shall be provided per required tree	60 points shall be provided for each residential building ⁽²⁾
Condominium Conversion	Street Yard	50% ⁽⁵⁾	0.05 points
	Remaining Yard	N/A	N/A
Commercial Development, or Industrial Development in Commercial Zones	Street Yard	25% ⁽³⁾	0.05 points per square foot of total street yard to be achieved with trees only ⁽³⁾
	Remaining Yard	30% ⁽³⁾	0.05 points per square foot of total remaining yard
Industrial Development in any zone other than Commercial Zones	Street Yard	25% ⁽⁴⁾	0.05 points per square foot of total remaining yard
	Remaining Yard	See Section 142.0405 (d)	0.05 points per square foot of total remaining yard
Large retail establishments in any Commercial Zone.	Street Yard	100% ⁽³⁾ of minimum building front and street side setbacks (except access points and with encroachments allowed into the landscaped area for building articulation elements as defined in section 143.0355(a)(b)) 25% of the balance of street yard	0.05 points, exclusive of palms
	Remaining Yard	30% ⁽³⁾	0.05 points
Large retail establishments in any Industrial Zone.	Street Yard	25% ⁽⁴⁾	0.05 points, exclusive of palms
	Remaining Yard	30%	0.05 points

Footnotes to Table 142-04C

- 1 See Section 142.0405(a)
- 2 See Section 142.0405(b)
- 3 See Section 142.0405(c)
- 4 See Section 142.0405(d)
- 5 See Section 142.0405(b)(1)
- 6 Refer to Section 131.0112 for a description of the types of uses that fit into each *development* category.

(Added 12-9-1997 by O-18451 N.S.; effective 1-1-2000.)
(Amended 7-5-2006 by O-19505 N.S.; effective 8-5-2006.)
(Amended 6-15-2007 by O-19624 N.S.; effective 7-15-2007.)
(Amended 11-13-08 by O-19800 N.S.; effective 12-13-2008.)

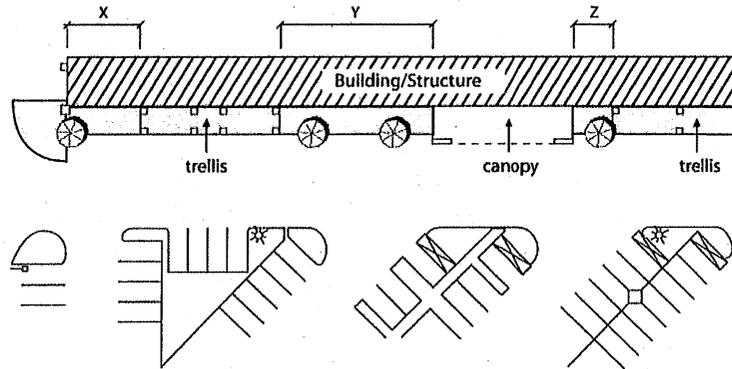
§142.0405 Additional Yard Planting Area and Point Requirements

- (a) Additional *yard* requirements for all *development*:
 - (1) Unless specified otherwise in Table 142-04C, at least one-half of the required planting points shall be achieved with trees.
 - (2) If plants and planting area are provided within a *street yard* or *remaining yard* to meet other requirements of this division, including *vehicular use area* and revegetation requirements, they may be used to satisfy the planting area and plant points required by Table 142-04C.
 - (3) A point score in excess of that required for a yard area may be used to reduce the planting area required for that yard area at a rate of one square foot of area reduction for each excess point provided. The maximum planting area reduction allowed by this section is 25 percent of that total yard area required.
- (b) Additional residential *yard* requirements:
 - (1) *Street Yard*
 - (A) A minimum separation of 5 feet shall be maintained between driveway edges located in the *street yard*.
 - (B) Up to 10 percent of the required *street yard* planting area located outside the *vehicular use area* for *multiple dwelling unit* residential *development* may consist of *hardscape* or unattached unit pavers.
 - (C) Planting area in the *public right-of-way* is not counted towards fulfillment of the required *street yard* planting area.
 - (2) *Remaining Yard*
 - (A) Residential *development* with only two *dwelling units* on a *lot* shall be subject to a minimum of 60 points in the *remaining yard* regardless of the number of buildings on the *lot*.

- (B) Planting for residential *developments* with a single building shall be provided within the *remaining yard* on the side of building access, or where no side access is provided, shall be distributed equally between each side of the building.
 - (C) A minimum distance of 6 feet shall be provided between any tree and building.
- (c) Additional commercial *yard* and *large retail establishment* requirements:
- (1) All of the required *street yard* planting area located outside the *vehicular use area* for commercial zones or commercial development except for auto service stations, may consist of *hardscape* or unattached unit pavers. This does not include the minimum planting area required for trees and the planting area necessary to provide for healthy plant growth.
 - (2) For auto service stations, the required *street yard* planting area is 15 percent of the *street yard* area, and the required plant points are 0.03 points for each square foot of the *street yard*.
 - (3) Where commercial *development* abuts a residential zone, a 5-foot wide area along the entire abutting *property line* shall be planted with trees to achieve a minimum of .05 points per square foot of area in addition to the points required in the *remaining yard*.
 - (4) Façade Planting Area for *large retail establishments*. Within the *street yard*, a façade planting area, as shown in Diagram 142-04A shall be provided between the *vehicular use area* and the *street wall*. This façade planting area shall be planted with a minimum of 20 points (trees only) at a linear rate of 30 feet of building *street wall* wherever trellises, arcades, awnings or extended covered entries do not occur which shall be a minimum of 30 percent of the length of the building *street wall*.

Diagram 142-04A

Facade Planting Area for Large Retail Establishments



$$\frac{X+Y+Z}{30} \times 20 \text{ points} = \text{Required number of points (trees only)}$$

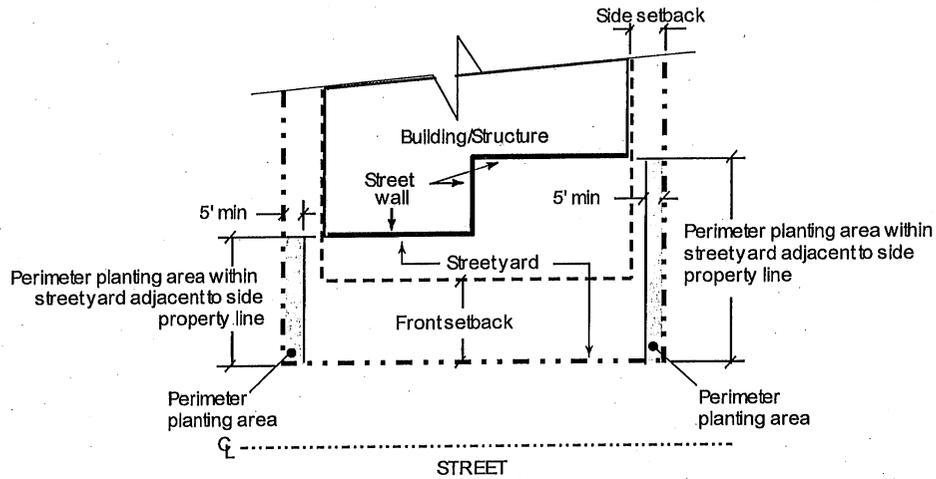
X + Y + Z = minimum of 30% of the length of the building street wall

(d) Additional industrial yard and large retail establishment requirements:

- (1) Perimeter Planting Area. Within the *street yard* for industrial zones or industrial *development*, a 5-foot-wide perimeter planting area adjacent to each side *property line*, as shown in Diagram 142-04B, shall be provided for the full depth of the *street yard* except where vehicular access (maximum 25 feet) and pedestrian access (maximum 6 feet) points cross perpendicular to a side *property line*. This planting area shall be planted with a combination of trees and shrubs that achieves 0.2 points per square foot of the required area. Where loading docks are placed along more than 25 percent of the *street wall* length in the IL and IH zones, the perimeter planting area points required shall be increased to 0.5 points per square foot of area.

Diagram 142-04B

Industrial Perimeter Planting Area



- (2) Facade Planting Area. Within the *street yard*, a facade planting area, as shown in Diagram 142-04C, shall be provided that abuts the *street wall* and is at least equal to 50 percent of the length as determined by adding the lines connecting the outermost points of the structure along the street wall as shown in Diagram 142-04D, and that has a width of at least 9 feet measured perpendicularly to the building. This requirement shall not apply to *large retail establishments*.

Diagram 142-04C

Industrial Facade Planting Areas

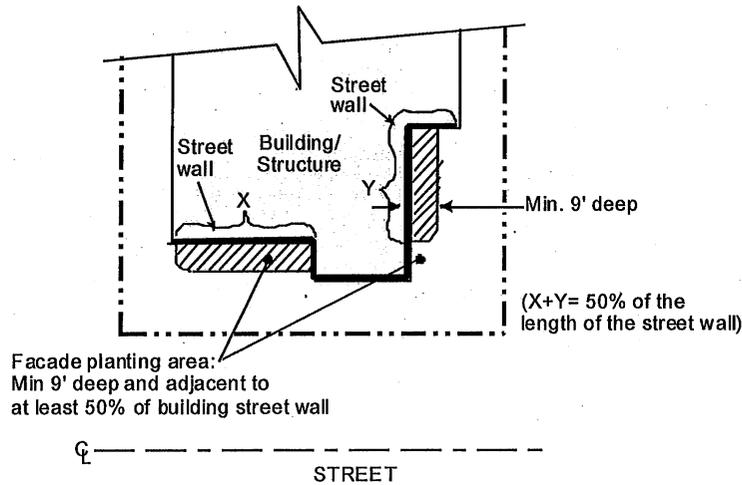
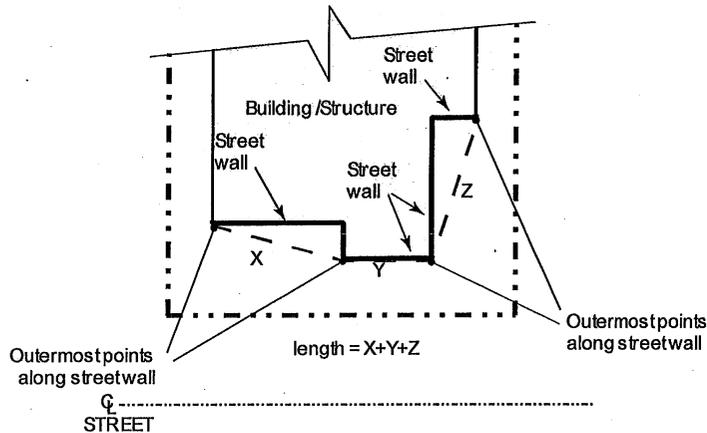


Diagram 142-04D

Industrial Facade Area Street Wall Length



The facade planting area shall be planted with a combination of trees and shrubs that achieves 0.5 points per square foot. Trees within this area must have a typical growth rate that can achieve a height of at least 20 feet within 8 years of being planted. Shrubs at maturity shall achieve a minimum height of 4 feet. In lieu of meeting the facade planting area and point requirements, the *applicant* may do one of the following:

- (A) Increase the required perimeter planting area width to 10 feet and the required *street yard* plant points to 0.1; or
 - (B) Place a minimum 6-foot-high solid wall between the *setback line* and the front of the *structure* that shall extend along the full width of the property, except at access points. The applicant shall provide tree plantings equal to one half of the required facade area planting points between the wall and the building street wall.
- (3) Where loading docks are located along more than 25 percent of the *street wall* length, all *street yard* plant points shall be increased to 0.1 per square foot of *street yard* area.
- (4) For industrial uses in industrial zones, a planting area of at least 5 feet wide shall be provided within the *remaining yard*. This area shall be measured perpendicularly to the *property lines* adjacent to the *remaining yard* and shall abut the *property line*. The required planting points shall be placed within this 5 feet wide area.

(Added 12-9-1997 by O-18451 N.S.; effective 1-1-2000; amended 6-19-2000 by O-18814 N.S.; amended 6-19-2000 by O-18814 N.S.)
(Amended 6-15-2007 by O-19624 N.S.; effective 7-15-2007.)
(Amended 11-13-08 by O-19800 N.S.; effective 12-13-2008.)

§142.0406 Vehicular Use Area Planting Area and Point Requirements

- (a) When new *vehicular use areas* are subject to this section in accordance with Table 142-04A, the planting area, the plants necessary to achieve the number of plant points, and the trees required in Table 142-04D shall be provided. The required planting area is determined by multiplying the square footage of the *vehicular use area* located within the *street yard* and outside the *street yard* by the percentage shown in Table 142-04D. The required plant points are determined by multiplying the square footage of the *vehicular use area* located within the *street yard* and outside the *street yard* by the points shown in the Table 142-04D. The required area, points, and trees shall be located within the *vehicular use area* unless listed otherwise in the table.

Table 142-04D
Vehicle Use Area Requirements

Size of Proposed <i>Vehicular Use Area</i>	Planting Area Required ^{(1), (2), (4)}		Plant Points Required ^{(1), (2)}		Tree Distribution Requirement ⁽¹⁾
	<i>Street yard</i>	<i>Outside the street yard</i>	<i>Street yard</i>	<i>Outside the street yard</i>	
Less than 6,000 square feet	40 Square Feet per Tree	40 Square Feet per Tree	0.05 points	0.05 points	1 tree within 30 feet of each parking space ⁽³⁾
6,000 square feet or greater	5% of vehicular use area located in the street yard	3% of vehicular use area located outside the street yard	0.05 points	0.03 points	1 tree within 30 feet of each parking space ⁽³⁾

Footnotes to Table 142-04D

- 1 See Section 142.0407(a)
- 2 See Section 142.0407(b)
- 3 See Section 142.0407(c)
- 4 See Section 142.0407(d)

- (b) All planting areas and plants in or adjacent to a *vehicular use area* shall be protected from vehicular damage by providing a raised curb or wheel stop of at least 6 inches in height. Where the end of parking spaces abut a planting area that is less than 5 feet in width, 6-inch-high wheel stops or curbs shall be placed within the parking spaces, 2 feet from the edge of the planting area.
- (c) A *vehicular use area* located within the *street yard* shall be separated from the curb in the *public right-of-way* by a required planting area totaling at least 8 feet in width, measured perpendicularly to the *public right-of-way*. This planting area shall meet the following requirements:
 - (1) The planting area shall extend along, and directly abut, the entire length of the *vehicular use area* except at vehicle or pedestrian access points.
 - (2) The planting area shall be planted to screen the *vehicular use area* with densely foliated, evergreen species that achieve a minimum height of 30 inches within 2 years of installation over at least 80 percent of the length of the required planting area. The *screening* may also be achieved through the use of berms, solid fencing, walls, plant material, or any combination of these that provides an equivalent *screen*.

- (3) The width of this planting area may be reduced to 3 feet if a solid wall of at least 3 feet in height is provided for the entire length of the *vehicular use area*—for sites under 5 acres. Sites that are between 5 and 10 acres are required to provide the planting area buffer that is 8 feet. For sites over 10 acres, a planting area buffer must be 12 feet in width with a potential reduction to 8 feet with a 3 feet high wall. The remaining planting area shall be located between the wall and curb within the *public right-of-way* and planted with the equivalent of 1 shrub for every 10 feet of wall length. These shrubs shall achieve at least 18 inches in height of maturity.
- (4) A point score in excess of that required for a *vehicular use area* may be used to reduce the planting area required for that *vehicular use area* at a rate of one square foot of area reduction for each excess point provided. The maximum planting area reduction allowed by this section is 25 percent of the total *vehicular use area* required.

(Added 12-9-1997 by O-18451 N.S.; effective 1-1-2000.)

(Amended 6-15-2007 by O-19624 N.S.; effective 7-15-2007.)

§142.0407 Additional Vehicular Use Area Requirements

- (a) At least one-half of the required plant points are to be achieved with trees. If planting area and plants are provided within the boundaries of the *vehicular use area* to meet other requirements of this division including revegetation, *street yard*, and *remaining yard* requirements, they may be used to satisfy the planting area and planting points required by Table 142-04D.
- (b) For a *vehicular use area* that is less than 6,000 square feet in size, the required plant points may be provided within 5 feet of the edge of the *vehicular use area*. For a *vehicular use area* 6,000 square feet or greater in size, the required planting area, points, and trees shall be located in the *vehicular use area* except for areas designated for commercial vehicle parking spaces, loading areas, and loading area accessways that are used for the distribution of materials and goods. They may be located within 5 feet of the edge of the *vehicular use area* designated for these purposes.
- (c) The minimum tree size used in a *vehicular use area* shall be 24-inch box, or if palm trees are used they shall be 8-foot brown trunk height. If palm trees are used to meet the *vehicular use area* tree requirements, a palm tree shall be within 15 feet of each parking space.

- (d) Landscaped areas may be counted toward the required planting area if they comply with the following:
 - (1) The planting area is bounded on two or more sides by parking spaces or parking accessways, or is within 10 feet of the side of any parking space, and
 - (2) The planting area is greater than 30 square feet in size and has no dimension less than 3 feet.

(Added 12-9-1997 by O-18451 N.S.; effective 1-1-2000.)

§142.0408 Temporary Vehicular Use Area Requirements

When new temporary *vehicular use areas* are subject to this section in accordance with Table 142-04A, the planting requirements of this section shall apply.

- (a) *Vehicular use areas* that have a specified time limit for discontinuance that is less than 5 years after the date of Building Permit issuance are considered temporary vehicle use areas.
- (b) Temporary *vehicular use areas* shall provide a 3-foot-wide planting area between the *public right-of-way* and the *vehicular use area*. This area shall be planted with evergreen shrubs that achieve a minimum height of 30 inches within 2 years of installation over at least 50 percent of the required planting area. The remaining area shall be covered with mulch. Vehicle access into this planting area shall be prevented by a 6-inch-high curb or wheel stops placed within the parking spaces, 2 feet from the edge of the planting area. The planting area may be paved at designated vehicle access points.
- (c) *Vehicular use areas* that do not have a specified time limit for discontinuance or that are proposed to exist more than 5 years after the date of Building Permit issuance, are subject to the requirements for a permanent *vehicular use area* contained in Sections 142.0406 and 142.0407.

(Added 12-9-1997 by O-18451 N.S.; effective 1-1-2000.)

§142.0409 Street Tree and Public Right-of-Way Requirements

(a) Street Tree Requirements

When new *structures*, additions to *structures*, *condominium conversions*, or new *vehicular use areas* are subject to this section in accordance with Table 142-04A, street trees within the *parkway* shall be provided in accordance with the following regulations.

- (1) Street Tree Quantity. Street trees shall be planted between the curb and *abutting property line*. The number of required street trees shall be calculated at the rate of one 24-inch box tree for every 30 feet of *street frontage*. The installed tree spacing may be varied to accommodate site conditions or design considerations; however, the number of trees required for each *street frontage* on a *lot* bounded by more than one *street* shall be planted along the corresponding *street frontage*. Where site conditions do not allow the installation of the street trees required by this section in the *parkway*, trees may be located on the private property within 10 feet of the property line along that street frontage. Where palm trees are proposed to satisfy this requirement in accordance with Section 142.0409(a)(3), they shall be planted at a rate of one 10-foot brown trunk height palm for each 20 feet of *street frontage*. For projects in the IL and IH zones that have loading docks along more than 25 percent of the building *street wall*, the street tree requirement shall be increased to the rate of one 24-inch box tree for every 20 feet of *street frontage* or one 10-foot brown trunk height palm for each 10 feet of *street frontage*.

(2) Street Tree Locations

- (A) Street trees shall be located 7 feet from the face of curb on *streets* classified in the applicable *land use plan* as major *streets*, primary arterials, or expressways that have a posted speed of 50 miles per hour or greater. For all other *street* classifications, street trees shall be located no closer than 30 inches to the face of curb or within median islands, no closer than four feet to the face of curb.
- (B) Street trees shall be separated from improvements by the minimum distance shown in Table 142-04E.

Table 142-04E
Minimum Tree Separation Distance

Improvement	Minimum Distance to Street Tree
Traffic signal, Stop Sign	20 feet
Underground Utility Lines (except sewer)	5 feet
Sewer Lines	10 feet
Above Ground Utility Structures (Transformers, Hydrants, Utility poles, etc)	10 feet
Driveways	10 feet
Intersections (intersecting curb lines of two streets)	25 feet

- (C) Trees shall be selected and located so that at maturity they do not cause damage or conflict with overhead utility lines.
 - (3) Street Tree Species Selection. Trees shall be selected in accordance with the landscape standards of the Land Development Manual. Palm trees may only be used to satisfy the street tree requirement where identified as an acceptable street tree species in an adopted *land use plan*.
 - (b) Additional *Public Right-of-Way* Regulations
 - (1) Areas within the *public right-of-way* that are not paved or required pedestrian walks or for vehicle access shall be planted or covered with mulch, unattached unit pavers, or other permeable material acceptable to the City.
 - (2) Plant material, other than trees, within the *public right-of-way* that is located within *visibility areas* shall not exceed 24 inches in height, measured from the top of the adjacent curb.
- (Added 12-9-1997 by O-18451 N.S.; effective 1-1-2000.)*
(Amended 7-5-2006 by O-19505 N.S.; effective 8-5-2006.)
(Amended 11-13-08 by O-19800 N.S.; effective 12-13-2008.)

EDITORS NOTE: The Land Development Manual includes:

- Coastal Bluffs and Beaches Guidelines
- Biology Guidelines
- Historical Resources Guidelines
- Submittal Requirements for Deviations within the Coastal Overlay Zone

See RR-292248 for the Coastal Bluffs and Beaches Guidelines of the Land Development Code; RR-292249 for the Biology Guidelines of the Land Development Code; RR-292250 for the Historical Resources Guidelines of the Land Development Code; RR-292251 for the Submittal Requirements for Deviations within the Coastal Overlay Zone of the Land Development Code.

§142.0410 Previously Conforming Properties Landscape Requirements

- (a) When additions to *structures* or additional *structures* on developed properties are subject to this section in accordance with Table 142-04A, they shall meet the requirements of this section. The required *street yard*, *remaining yard*, and *vehicular use area* planting areas and plant points for *previously conforming* properties are established in accordance with the following formula.
- (1) Determine the percentage of increase in *gross floor area* for the *development* by dividing the proposed additional *gross floor area* by the existing *gross floor area*.
 - (2) Where the percentage of *gross floor area* increase is:
 - (A) 100 percent or greater, the *development* is subject to the full requirements for new *development*.
 - (B) 75 to 99 percent, the *development* is subject to the full requirements for street trees, the *street yard*, and the *vehicular use area* in the *street yard* and *remaining yard* for new *development*.
 - (C) 50 to 74 percent, the *development* is subject to the full requirements for street trees, the *street yard*, and the *vehicular use area* in the *street yard* for new *development*.
 - (D) 1 to 49 percent, the *development* is subject to the full requirements for street trees and the *street yard* for new *development*.
 - (3) For properties that contain plant materials that will be retained, the planting area and number of points for the existing material will be credited towards the above requirements.
- (b) When additions or modifications to existing permanent or temporary parking and *vehicular use areas* are subject to this section in accordance with Table 142-04A they shall meet the requirements of this section. The required *vehicular use area* planting area and plant points for *previously conforming* properties is established in accordance with the following formula.
- (1) Determine the percentage of increase in parking spaces for the *development* by dividing the proposed increase in number of parking spaces by the existing number of parking spaces.

- (2) Where the percentage of parking space increase is:
 - (A) 100 percent or greater, the *development* is subject to the full requirements for new *development*.
 - (B) 75 to 99 percent, the *development* is subject to the full requirements for street trees, the *street yard*, and the *vehicular use area* in the *street yard* and *remaining yard* for new *development*.
 - (C) 50 to 74 percent, the *development* is subject to the full requirements for street trees, the *street yard*, and the *vehicular use area* in the *street yard* for new *development*.
 - (D) 1 to 49 percent, the *development* is subject to the full requirements for street trees and the *vehicular use area* requirements for the additional *vehicular use area* only.
- (3) For properties that contain plant materials that will be retained, calculate the planting area and number of points for the existing material and use this as a credit towards the above requirements.

(Added 12-9-1997 by O-18451 N.S.; effective 1-1-2000.)

§142.0411 Revegetation and Erosion Control

- (a) **Permanent Revegetation.** All graded, disturbed, or eroded areas that will not be permanently paved or covered by structures shall be permanently revegetated and irrigated as shown in Table 142-04F and in accordance with the standards in the Land Development Manual.

**Table 142-04F
Permanent Revegetation and Irrigation Requirements**

Location of Disturbed Area	Slope of Disturbed Area	Required Irrigation System	Required Revegetation or Erosion Control
Within 100 feet of areas with native or naturalized vegetation	Less than 4:1 (4 horizontal feet to 1 vertical foot)	Automatic, above grade, temporary irrigation system	Native or naturalized hydroseed mix
	4:1 or greater with a slope height of 15 feet or less	Automatic, above grade, temporary irrigation system	Native or naturalized ground cover consisting of rooted cuttings or hydroseed mix
	4:1 or greater with a slope height over 15 feet	Automatic, above grade, temporary irrigation system	Native or naturalized ground cover consisting of rooted cuttings or hydroseed mix, and native or naturalized trees and shrubs (minimum 1 gallon size) planted at a minimum rate of one plant per 100 square feet of disturbed area
100 feet or further from areas with native or naturalized vegetation	Less than 4:1 (4 horizontal feet to 1 vertical foot)	Automatic, below grade, permanent system or automatic, above grade, temporary irrigation system	Hydroseed, mulch, or equivalent
	4:1 or greater with a slope height of 15 feet or less	Automatic, below grade, permanent irrigation system	Drought tolerant groundcover consisting of rooted cuttings or hydroseed mix
	4:1 or greater with a slope height over 15 feet	Automatic, below grade, permanent irrigation system	Drought tolerant groundcover consisting of rooted cuttings or hydroseed mix, and drought tolerant trees and shrubs (minimum 1 gallon size) planted at a minimum rate of one plant per 100 square feet of disturbed area

- (b) Temporary Revegetation. Graded, disturbed, or eroded areas that will not be permanently paved, covered by *structure*, or planted for a period over 90 calendar days shall be temporarily revegetated with a non-irrigated hydroseed mix, ground cover, or equivalent material. Temporary irrigation systems may be used to establish the vegetation.
- (c) All required revegetation and erosion control shall be completed within 90 calendar days of the completion of *grading* or disturbance.

(Added 12-9-1997 by O-18451 N.S.; effective 1-1-2000.)

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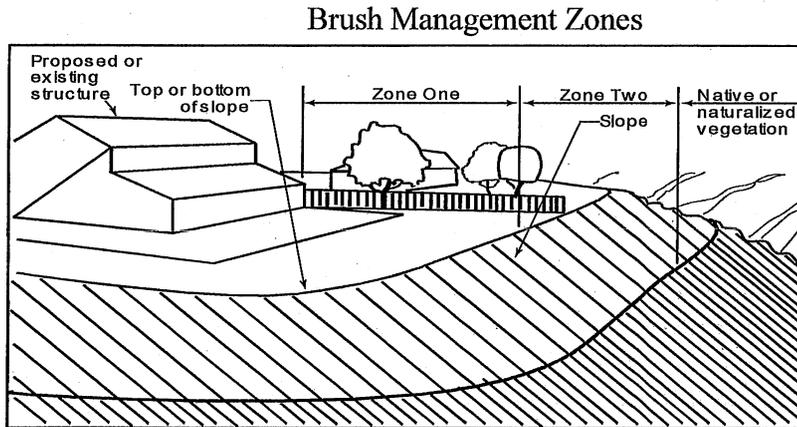
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§142.0412 Brush Management

Brush management is required in all base zones on publicly or privately owned *premises* that are within 100 feet of a *structure* and contain native or naturalized vegetation.

- (a) Brush management activity is permitted within *environmentally sensitive lands* (except for *wetlands*) that are located within 100 feet of an existing *structure* in accordance with Section 143.0110(c)(7). Brush management in *wetlands* may be requested with a *development permit* in accordance with Section 143.0110 where the Fire Chief deems brush management necessary in accordance with Section 142.0412(i). Where brush management in *wetlands* is deemed necessary by the Fire Chief, that brush management shall not qualify for an exemption under the Environmentally Sensitive Lands Regulations, Section 143.0110(c)(7).
- (b) Brush Management Zones. Where brush management is required, a comprehensive program shall be implemented that reduces fire hazards around *structures* by providing an effective fire break between all *structures* and contiguous areas of native or naturalized vegetation. This fire break shall consist of two distinct brush management areas called “Zone One” and “Zone Two” as shown in Diagram 142-04E.

Diagram 142-04E



- (1) Brush management Zone One is the area adjacent to the structure, shall be least flammable, and shall typically consist of pavement and permanently irrigated ornamental planting. Brush management Zone One shall not be allowed on slopes with gradient greater than 4:1 (4 horizontal feet to 1 vertical foot) unless the property received *tentative map* approval before November 15, 1989. However, within the Coastal Overlay Zone *coastal development* shall be subject to the *encroachment* limitations set forth in Section 143.0142(a)(4) of the Environmentally Sensitive Lands Regulations.
 - (2) Brush management Zone Two is the area between Zone One and any area of native or naturalized vegetation and typically consists of thinned, native or naturalized non-irrigated vegetation.
- (c) The width of Zone One and Zone Two shall not exceed 100 feet and shall meet the width requirements in Table 142-04H unless modified based on existing conditions pursuant to Section 142.0412(i) and the following:
- (1) The establishment of brush management Zones One and Two for new *development* shall be addressed in a site-specific plan to include all creative site and/or structural design features to minimize impacts to undisturbed native vegetation. Both Zone One and Zone Two shall be provided on the subject property unless a recorded easement is granted by an adjacent property owner to the owner of the subject property to establish and maintain the required brush management zone(s) on the adjacent property in perpetuity.
 - (2) Where Zone Two is located within City-owned property, a Right-of-Entry shall be executed in accordance with Section 63.0103 prior to any brush management activity. Zone Two brush management is not permitted in City-owned open space for new *development* proposals. For properties in the Coastal Overlay Zone, additional requirements for new *subdivisions* are found in Section 142.0412 (n).

**Table 142-04H
Brush Management Zone Width Requirements**

Criteria		
	Zone Widths	
Zone One Width	35 ft.	
Zone Two Width	65 ft.	

- (d) Brush management activities are prohibited within coastal sage scrub, maritime succulent scrub, and coastal sage-chaparral habitats from March 1 through August 15, except where documented to the satisfaction of the City Manager that the thinning would be consistent with conditions of species coverage described in the City of San Diego’s MSCP Subarea Plan.
- (e) Where Zone One width is required adjacent to the *MHPA* or within the Coastal Overlay Zone, any of the following modifications to development regulations of the Land Development Code or standards in the Land Development Manual are permitted to accommodate the increase in width:
 - (1) The required front *yard setback* of the base zone may be reduced by 5 feet,
 - (2) A sidewalk may be eliminated from one side of the *public right-of-way* and the minimum required *public right-of-way* width may be reduced by 5 feet, or
 - (3) The overall minimum pavement and *public right-of-way* width may be reduced in accordance with the Street Design Standards of the Land Development Manual.
- (f) The Zone Two width may be decreased by 1½ feet for each 1 foot of increase in Zone One width up to a maximum reduction of 30 feet of Zone Two width.
- (g) Zone One Requirements
 - (1) The required Zone One width shall be provided between native or naturalized vegetation and any *structure* and shall be measured from the exterior of the *structure* to the vegetation.

- (2) Zone One shall contain no habitable *structures*, *structures* that are directly attached to habitable *structures*, or other combustible construction that provides a means for transmitting fire to the habitable *structures*. *Structures* such as *fences*, walls, palapas, play structures, and nonhabitable gazebos that are located within brush management Zone One shall be of noncombustible construction.
 - (3) Plants within Zone One shall be primarily low-growing and less than 4 feet in height with the exception of trees. Plants shall be low-fuel and fire-resistive.
 - (4) Trees within Zone One shall be located away from *structures* to a minimum distance of 10 feet as measured from the *structures* to the drip line of the tree at maturity in accordance with the Landscape Standards of the Land Development Manual.
 - (5) Permanent irrigation is required for all planting areas within Zone One except as follows:
 - (A) When planting areas contain only species that do not grow taller than 24 inches in height, or
 - (B) When planting areas contain only native or naturalized species that are not summer-dormant and have a maximum height at plant maturity of less than 24 inches.
 - (6) Zone One irrigation overspray and runoff shall not be allowed into adjacent areas of native or naturalized vegetation.
 - (7) Zone One shall be maintained on a regular basis by pruning and thinning plants, controlling weeds, and maintaining irrigation systems.
- (h) Zone Two Requirements
- (1) The required Zone Two width shall be provided between Zone One and the undisturbed, native or naturalized vegetation, and shall be measured from the edge of Zone One that is farthest from the habitable *structure*, to the edge of undisturbed vegetation.
 - (2) No *structures* shall be constructed in Zone Two.
 - (3) Within Zone Two, 50 percent of the plants over 24 inches in height shall be cut and cleared to a height of 6 inches.

- (4) Within Zone Two, all plants remaining after 50 percent are reduced in height, shall be pruned to reduce fuel loading in accordance with the Landscape Standards in the Land Development Manual. Non-native plants shall be pruned before native plants are pruned.
- (5) The following standards shall be used where Zone Two is in an area previously *graded* as part of legal *development* activity and is proposed to be planted with new plant material instead of *clearing* existing native or naturalized vegetation:
 - (A) All new plant material for Zone Two shall be native, low-fuel, and fire-resistive. No non-native plant material may be planted in Zone Two either inside the MHPA or in the Coastal Overlay Zone, adjacent to areas containing *sensitive biological resources*.
 - (B) New plants shall be low-growing with a maximum height at maturity of 24 inches. Single specimens of fire resistive native trees and tree form shrubs may exceed this limitation if they are located to reduce the chance of transmitting fire from native or naturalized vegetation to habitable *structures* and if the vertical distance between the lowest branches of the trees and the top of adjacent plants are three times the height of the adjacent plants to reduce the spread of fire through ladder fueling.
 - (C) All new Zone Two plantings shall irrigated temporarily until established to the satisfaction of the City Manager. Only low-flow, low-gallonage spray heads may be used in Zone Two. Overspray and runoff from the irrigation shall not drift or flow into adjacent areas of native or naturalized vegetation. Temporary irrigation systems shall be removed upon approved establishment of the plantings. Permanent irrigation is not allowed in Zone Two.

- (D) Where Zone Two is being revegetated as a requirement of Section 142.0411(a), revegetation shall comply with the spacing standards in the Land Development Manual. Fifty percent of the planting area shall be planted with material that does not grow taller than 24 inches. The remaining planting area may be planted with taller material, but this material shall be maintained in accordance with the requirements for existing plant material in Zone Two.
- (6) Zone Two shall be maintained on a regular basis by pruning and thinning plants, removing invasive species, and controlling weeds.
- (7) Except as provided in Section 142.0412(i), where the required Zone One width shown in Table 142-04H cannot be provided on *premises* with existing *structures*, the required Zone Two width shall be increased by one foot for each foot of required Zone One width that cannot be provided.
- (i) In consideration of the topography, existing and potential fuel load, and other characteristics of the site related to fire protection, the Fire Chief may modify the requirements of this Section, and where applicable with the approval of the Building Official, may require building features for fire protection in addition to those required in accordance with Chapter 14, Article 5, Division 7 (Chapter 7A of the California Building Code as adopted and amended) if the following conditions exist:
- (1) In the written opinion of the Fire Chief, based upon a fire fuel load model report conducted by a certified fire behavior analyst, the requirements of Section 142.0412 fail to achieve the level of fire protection intended by the application of Zones One and Two; and
- (2) The modification to the requirements achieves an equivalent level of fire protection as provided by Section 142.0412, other regulations of the Land Development Code, and the minimum standards contained in the Land Development Manual; and
- (3) The modification to the requirements is not detrimental to the public health, safety, and welfare of persons residing or working in the area.
- (j) If the Fire Chief approves a modified plan in accordance with this section as part of the City's approval of a *development permit*, the modifications shall be recorded with the approved permit conditions.

- (k) For existing *structures*, the Fire Chief may require brush management in compliance with this section for any area, independent of size, location, or condition if it is determined that an imminent fire hazard exists.
- (l) Brush management for existing *structures* shall be performed by the owner of the property that contains the native and naturalized vegetation. This requirement is independent of whether the *structure* being protected by brush management is owned by the property owner subject to these requirements or is on neighboring property.
- (m) Where specifically authorized by the Fire Chief, goats may be used for brush management in accordance with the following:
 - (1) In order to prevent escapes, harassment from predators or humans, or over browsing, goats shall be managed and monitored 24-hours a day by a contractor with at least two years experience in raising, handling, and controlling of goats. The goat contractor shall maintain a minimum of \$1 million of liability insurance subject to approval by the Office of the City Attorney.
 - (2) At least 10 business days prior to using goats for brush management, the property owner shall apply to the Fire Rescue Department for a permit to use goats for brush management. The *applicant* shall:
 - (A) Obtain and submit written permission from the owner of any property through which the goats must gain access to the area to be browsed.
 - (B) Provide written notice to the Fire Chief and all owners and residents of property located immediately adjacent to the area to be browsed. This notice shall identify Sections 44.0307 and 142.0412(m) as the authority for temporary use of goats.
 - (C) Provide photographs of the existing condition of the site, and a plan describing the methods to be employed and measures to retain existing vegetation in compliance with Section 142.0412(h).
 - (3) The area to be browsed shall be measured, staked, and appropriately fenced with temporary electrically charged fencing to delineate the Zone Two brush management areas. Signs must be posted at 25-foot intervals along the fence warning of the possibility of mild electric shock.
 - (4) The timing of brush management activities shall comply with Section 142.0412(d).

- (5) While goats are browsing:
 - (A) No more than 75 goats are permitted on a single acre of the *premises*.
 - (B) Goats shall be moved along periodically so that no more than 50 percent of the vegetation is thinned or reduced.
 - (C) The goats shall remain within a secure enclosure at all times.
 - (D) Goats shall be moved into a separate holding pen at night, which shall be located the maximum distance reasonably practicable from residences.
 - (E) Droppings in the holding pen, and to the extent reasonably possible within the brush management area, shall be removed and properly disposed of daily in accordance with Section 44.0307.
 - (F) The goats shall be used for brush management only and shall be immediately removed when the brush thinning has been accomplished.
- (6) No later than 5 business days from the date of removal of the goats, the *applicant* shall notify the Fire Chief in writing of the removal of the goats.
- (7) The Fire Rescue Department shall not approve any permit under Section 142.0412(m) that will utilize a contractor determined by the City Manager to have negligently performed brush management services within the three prior calendar years. All facts supporting such a determination shall be provided to the *applicant* in writing, and shall constitute a final determination on the City's behalf.
- (n) Within the Coastal Overlay Zone, brush management for new *subdivisions* shall not be permitted to encroach into an environmentally sensitive habitat area [ESHA], except that *encroachment* may be permitted where necessary to achieve a maximum *development* area of 25 percent including Zones One and Two. For purposes of this Section, ESHA shall include southern fordures, torrey pines forest, coastal bluff scrub, maritime succulent scrub, maritime chaparral, native grasslands, oak woodlands, coastal sage scrub and coastal sage scrub/communities, and any vegetative communities that support threatened or endangered species.

(o) Violations and Remedies

- (1) The provisions of this division shall be enforced pursuant to Chapter 12, Article 1, Division 2 (Enforcement Authorities for the Land Development Code), and Chapter 12, Article 1, Division 3 (Violations of the Land Development Code and General Remedies).
- (2) In accordance with Section 121.0312, the City Manager may order reasonable restoration of the *premises* and any adjacent affected site to its lawful condition or may require reasonable mitigation at the sole cost of the responsible person.

(Added 12-9-1997 by O-18451 N.S.; amended 10-18-1999 by O-18691 N.S.; effective 1-1-2000.)

(Amended 9-19-2005 by O-19413 N.S.; effective 10-19-2005.)

(Amended 6-15-2007 by O-19624 N.S.; effective 7-15-2007.)

(Amended 1-15-2008 by O-19698 N.S.; effective 2-14-2008.)

(Amended 7-28-2009 by O-19885 N.S.; effective 8-27-2009.)

[**Editors Note Section 142.0412.** A Resolution (R-2008-366) was passed by the Council to temporarily allow goat monitoring in the coastal overlay zone for a 5 year trial period (until **September 4, 2013**) during which annual monitoring reports would be distributed to the Coastal Commission. If at the end of 5 years, monitoring reports indicate that the use of goats has adversely impacted ESHA, the use of goats in the coastal zone would be discontinued.]

§142.0413 Water Conservation

- (a) Landscape Area. For the purposes of Section 142.0413, landscape area means the entire *premises*, less the area of building footprints, non-irrigated portions of parking lots, driveways, *hardscapes*, and areas designated for habitat preservation or brush management Zone Two.
- (b) Lawn Requirements.
 - (1) Lawn areas shall not exceed 10 percent of the landscape area on a *premises*, excluding required common areas, active recreation areas, and areas located within the *public right-of-way* between the curb and public sidewalk. This restriction does not apply to *single dwelling units*.
 - (2) Lawn areas bounded by impervious surfaces on two or more sides must have minimum dimensions of 8 feet in all directions unless subsurface or low volume irrigation is used.
 - (3) Lawn areas located on slopes, where the toe of the slope is adjacent to *hardscape*, shall not exceed a gradient of 25 percent (4:1).

- (c) Mulch Requirements. All required planting areas and all exposed soil areas without vegetation shall be covered with mulch to a minimum depth of 2 inches, excluding slopes.
- (d) Water Budget.
 - (1) *Developments* listed in Table 142-04I shall be subject to a water budget.

Table 142-04I

Water Budget Applicability

Type of Development	Landscape Area Threshold
New non residential <i>development</i>	1,000 square feet and greater
New <i>multiple dwelling unit development</i>	1,000 square feet ¹ and greater
New <i>single dwelling unit development subdivisions</i>	All <i>subdivider</i> installed landscape

Footnote to Table 142-04I

¹ Total area of landscape in the *development's* common areas.

- (2) The water budget is calculated using the following formula (see Section 2.6 and Appendix E of the Landscape Standards of the Land Development Manual for additional information):

$$\text{Water Budget} = (\text{ETo})(0.62) [(0.7)(\text{LA}) + (0.3)(\text{SLA})]$$
 Where:

ETo = Evapotranspiration (inches per year)

0.62 = Conversion Factor (to gallons)

0.7 = Evapotranspiration Adjustment Factor

LA = Landscaped Area (square feet)

0.3 = Evapotranspiration Adjustment Factor for Special Landscape Area and Reclaimed Water

SLA = Special Landscape Area

- (3) The irrigation system is required to be operated within the approved water budget.
 - (4) The estimated total water use, as calculated in Section 2.6 of the Landscape Standards of the Land Development Manual shall not exceed the water budget as calculated in Section 142.0413(d)(2).
- (e) Water Meters.
- (1) Dedicated landscape irrigation meters shall be required in all new *development* with a landscape area greater than or equal to 5,000 square feet; except that this requirement shall not apply to new *single dwelling unit development* or to the commercial production of agricultural crops or livestock.
 - (2) Landscape irrigation submeters shall be required in the following *developments*:
 - (A) New *single dwelling unit development*;
 - (B) Improvements to existing industrial, commercial and *multiple dwelling unit development* when:
 - (i) The improvement requires a building permit as identified in Table 142-04A; and
 - (ii) The landscape area is 1,000 square feet and greater.
- (f) Irrigation Audit. An *applicant* subject to the requirement for a water budget in Table 142-04I is required to conduct and submit to the City an irrigation audit consistent with Section 2.7 of the Landscape Standards of the Land Development Manual.
- (1) All irrigation audits shall be conducted by a California registered landscape architect, a licensed landscape contractor, or other professional licensed by the State to perform this work.
 - (2) The irrigation audit shall certify that all plant material, irrigation systems, and landscape features have been installed and operate as approved by the City; and shall be submitted to the City prior to occupancy and use.

- (g) Reclaimed water. New *development* in areas where reclaimed water is available and suitable for irrigation shall provide for a dual water distribution system for all landscaped areas. Only reclaimed water shall be used for irrigation purposes where it is available.

(Added 12-9-1997 by O-18451 N.S.; effective 1-1-2000.)

(Amended 10-28-2009 by O-19903 N.S; effective 11-27-2009.)



THE CITY OF SAN DIEGO
REPORT TO THE CITY COUNCIL

DATE ISSUED: September 30, 2009 REPORT NO: 09-117

ATTENTION: Council President and City Council

SUBJECT: Landscape and Water Conservation. Citywide. Process 5.

REFERENCE: Planning Commission Report No. PC-09-039
<http://www.sandiego.gov/planning-commission/pcreports/2009/pdf/09039.pdf>

REQUESTED ACTION:

Amend the Landscape Regulations in Chapter 14, Article 2, Division 4 of the Municipal Code to incorporate additional water conserving requirements in compliance with the State of California Water Conservation in Landscaping Act.

STAFF RECOMMENDATION:

Approve the amendments to the Municipal Code in Chapter 14, Article 4, Division 5 (Landscape Regulations).

SUMMARY:

Planning Commission Recommendation:

On May 14, 2009 the Planning Commission voted 7-0 to recommend approval of the draft Landscape Regulations. The Commissioners discussed several topic areas including water conservation issues outside the scope of these landscape regulations. The commission requested that further research be done and consideration be given to the following related to the Landscape Regulations:

- Developing a procedure for random inspections to check for compliance with the water budget when the plans have been self-certified;
- Requiring weather-based irrigation controllers instead of landscape irrigation submeters;
- Exempting public parks from the water budget requirement; and
- Requiring a limitation on the area of turf permitted in single-family homes (similar to the 10 percent limitation placed on commercial and industrial developments).

Background:

The California State Water Conservation in Landscaping Act was amended in September 2006 by AB1881. The amended Act requires the State Department of Water Resources (DWR) to prepare and submit to the Legislature a report and a Model Water Efficient Landscape Ordinance (Model Ordinance) no later than January 1, 2009. The Act requires local agencies, no later than January 1, 2010, to adopt the State Model Ordinance or other water efficient landscape ordinance that is at least as effective in conserving water as the updated model ordinance.

On April 1, 2009 the Office of Administrative Law (OAL) disapproved the “final” draft Model Ordinance (dated February 9, 2009) based on issues related to the “clarity” standard, incorrect incorporation of reference materials, rejection of comments without explanation, and miscellaneous errors. The DWR has responded to the OAL comments and provided an additional 15-day public review. At the writing of this report the DWR had not yet resubmitted to the OAL.

Since the fall of 2006 the City of San Diego has participated in a Regional Model Ordinance Working Group. The group is comprised of representatives from numerous stakeholder groups including, the County of San Diego, cities within San Diego County, the San Diego County Water District, water agencies, landscape professionals, building industry professionals, and the San Diego County Apartment Association. The group has undertaken two functions; to review and comment on the draft versions of the State Model Ordinance and to draft a regional ordinance that is at least as effective as the State Model Water Efficient Landscape Ordinance that can be adopted by local jurisdictions. The format and organization of the draft regional model is generally based on the San Diego County Landscape Regulations. The Regional Model Ordinance Working Group issued its last draft model ordinance in December 2007.

The City of San Diego first adopted a Landscape Ordinance in 1986. The purpose of that ordinance was to:

...improve the appearance, quality and quantity of landscaping visible from public rights-of-way and adjacent properties.

In 1997 as part of the Land Development Code process the Landscape Regulations were expanded and a manual of Landscape Standards was created. The purpose of the Landscape Regulations was expanded to:

...minimize the erosion of slopes and disturbed lands through revegetation; to conserve energy by the provision of shade trees over streets, sidewalks, parking areas, and other paving; **to conserve water through low-water-using planting and irrigation design**; to reduce the risk of fire through site design and the management of flammable vegetation ; and to improve the appearance of the built environment by increasing the quality and quantity of landscaping visible from public rights-of-way, private streets, and adjacent properties, with the emphasis on landscaping as viewed from public rights-of-way. [emphasis added]

The 1997 expanded Landscape Regulations (Chapter 14, Article 2, Division 4) and the new Landscape Standards included many water conserving requirements, mostly within the technical requirements of the Landscape Standards. Those water conserving standards are primarily located within sections devoted to Plant Material Guidelines and Irrigation Systems and to a lesser extent within sections devoted to Revegetation and Erosion Control, and Street Rights-of-Way and Open Spaces. The Landscape Standards have recently been updated, after a noticed 30 day public review and comment period, to address the water conservation requirements of the latest draft of the State Model Ordinance. Attachment 1, Comparison Matrix, identifies the State directives in AB 1881, the State’s draft Model Water Efficient Landscape Ordinance response to the directive, and the City’s response to the AB 1881 with proposed amendments to the regulations in ~~strikeout~~/underline.

Project Description:

The State's draft Model Ordinance is designed so that a local jurisdiction could adopt the ordinance and have within it everything needed to implement the State's Water Conservation in Landscaping Act. It includes definitions; submittal requirements; a water budget; irrigation audits; requirements for dedicated landscape irrigation meters; and requirements for irrigation plans, landscape plans, grading plans, and soil reports. The City of San Diego, currently addresses most of these issues within its Landscape Regulations, Landscape Standards, and project submittal requirements. The central components of the State's draft Model Ordinance that are not within the City's current Landscape Regulations are the water budget, landscape irrigation audits, and dedicated water meters. A strikeout/underline of the proposed amendment to the City's Landscape Regulations is provided in Attachment 2.

Water Budget

The central component of the State's draft Model Ordinance is the requirement for new and rehabilitated landscapes to comply with a maximum applied water allowance (MAWA), also referred to as a water budget. The water budget in the State Model Ordinance applies to the types of development listed in Table 1 provided that a building permit, landscape permit, a plan check, or design review is required.

Table 1
State Model Ordinance
Water Budget

Type of Development ¹	Landscape Area ² Threshold /Requirements
Landscape in new development and rehabilitated landscapes that are part of public projects, and private development projects	<ul style="list-style-type: none">• 2,500 square feet• Comply with Water Budget for new construction
Landscape in new development and rehabilitated landscapes that are <i>developer-installed</i> in single- and multi-family projects	<ul style="list-style-type: none">• 2,500 square feet• Comply with Water Budget for new construction
Landscape in new development that are <i>homeowner-installed</i> or homeowner-hired landscaping in single- and multi-family projects	<ul style="list-style-type: none">• 5,000 square feet• Comply with Water Budget for new construction
Existing landscapes with dedicated landscape irrigation or mixed use water meter	<ul style="list-style-type: none">• ≥ 1 acre• Administer programs to meet the maximum water budget for existing landscapes
Existing with landscapes without dedicated landscape irrigation meter	<ul style="list-style-type: none">• ≥ 1 acre• Administer programs to meet the maximum water budget for existing landscapes

¹ The water budget applies to these development types only when a building permit, landscape permit, a plan check, or design review is required.

² Landscape Area. For purposes of these regulations the landscape area means the entire premises less the area of building footprints, non-irrigated portions of parking lots, driveways, hardscapes (as defined in §113.0103 of the Land development Code), and areas designated for habitat preservation or brush management zone 2.

Generally the concept of the water budget is that landscape areas be analyzed to determine the yearly amount of water required to irrigate based on site conditions, plant materials, and environmental factors. A calculation using the area of landscape, the region's reference evapotranspiration rate (ET_o), and an evapotranspiration rate of 0.7 or 1.0 (depending on the type of landscape area) is used to establish the water budget. The result is the maximum number of gallons per year that may be used for landscape irrigation. The State Model Ordinance also includes calculations for determining the estimated total water use (ETWU) to assist in designing a landscape that can successfully meet the water budget. This calculation takes into account the same factors as the water budget, and also includes plant factors and hydrozones (areas planted with similar water needs that are designated as low, medium, or high water use areas). The gallons per year identified in the ETWU cannot exceed the gallons per year in the water budget.

The City's proposed regulations for compliance with the water budget differ from those of the draft State Model Ordinance in that the City proposal:

- Increases the number of new industrial, commercial, and multi-family developer-installed landscapes that must comply with the water budget by reducing the landscape area threshold from 2,500 to 1,000 square feet.
- Increases the number of developer (subdivider) installed single family landscapes that must comply with the water budget by reducing the landscape area threshold from 2,500 to 0 (*all* developer installed landscapes must comply with the water budget).
- Increases the number of multi-family homeowner-installed and homeowner-hired landscapes that must comply with the water budget by reducing the landscape area threshold from 5,000 square feet to 1,000 square feet.
- Removes the water budget requirement from homeowner-installed and homeowner-hired landscapes in new single-family dwelling units where the State Model Ordinance threshold is a landscape area of 5,000 square feet.
- Removes requirements for existing development with landscape areas greater than or equal to 1 acre.
- Removes the requirement for rehabilitated landscapes in that the City is not subject to the requirement based on the State Model Ordinance definition of rehabilitated landscapes.

The City's proposal to increase the applicability of the water budget by reducing landscape area thresholds achieves greater conservation. The proposed threshold of 1,000 square feet for new nonresidential and multi-family development and the proposal to require a water budget for all developer installed landscapes in single family developments will capture a greater number of projects than the State Model Ordinance threshold of 2,500 square feet of landscape area. Applying the water budget to all developer installed landscape in single family projects will capture all common landscape areas, all model homes, and any developer installed front and/or rear yard landscapes. Model home landscapes will also be used as educational tools demonstrating how homes can be landscaped to meet the water budget; providing information

regarding use of irrigation submeters; and showing how water efficient landscapes are designed, installed, and maintained.

The decision to remove the requirement for a water budget from *homeowner installed* landscapes in new single-family residential units is based on how new single-family developments are landscaped, the typical single family lot size, and the amount of land remaining for new development within the City.

- Single family homes are typically developed within planned developments. Developers of planned developments limit their landscape installation to common landscape areas, model homes, and in limited instances the front yards of single-family homes. The City proposal will require all *developer-installed* landscapes to comply with the water budget even though the State Model Ordinance provides a 2,500 square foot threshold.
- The most common single-family development type in the City will be on lots of 5,000 square feet and less where the landscape will be *homeowner-installed*. The State Model Ordinance establishes a landscape area threshold of 5,000 square feet for homeowner-installed landscapes. These lots of 5,000 square feet and less will be developed with homes, driveways, patios, walkways, and other features that will reduce the landscape area well below the State Model Ordinance threshold of 5,000 square feet for homeowner-installed landscapes. In fact is very likely that the landscape areas for these homes on lots of 5,000 square feet and less will have a landscape area below the 2,500 square-foot landscape area threshold for developer-installed landscapes.
- The City of San Diego has developed nearly all of its land designated for future development. These regulations would apply to development within those remaining areas that have yet to submit for building permits. Those remaining areas Otay Mesa, and portions of Pacific Highlands Ranch and Black Mountain Ranch.

The State Model Ordinance requires rehabilitated landscapes comply with the water budget when 50 percent or more of the landscape area is re-landscaped within a one year period. The State Model Ordinance defines rehabilitated landscape as “any re-landscaping project that requires a permit, plan check, or design review and meets the requirements of Section 490.1” (Section 490.1 is the applicability of the water budget). The City of San Diego does not have “rehabilitated landscapes.” The City requires no permit, plan check, or design review for re-landscaping. To do so would require the City to establish a new project submittal, review, processing, and fee schedule to cover the cost of reviewing plans for property owners that elect to re-landscape. To require this new process would add time and cost to property owners, increase costs associated with Neighborhood Code Compliance, and possibly serve as a disincentive to re-landscaping to conserve water.

Landscape Irrigation Audits

The State Model Ordinance requires all projects subject to the water budget (see Table 1) to submit to the local agency an irrigation audit with a certificate of occupancy. The irrigation audit is to be prepared by a “certified landscape irrigation auditor.” The State Model Ordinance also requires that the local agency administer programs that may include, but not be limited to,

water use analysis, irrigation audits, and irrigation surveys for compliance with the water budget for existing projects with landscape areas that are greater than or equal to 1 acre.

The City of San Diego accepts landscape and irrigation plans from non-professionals. Staff reviews the plans against the City's Landscape Regulations and Landscape Standards and requires corrections as necessary for compliance. The costs associated with these reviews are covered by the applicant. Generally, plans provided by the more experienced landscape professionals require less review and corrections and result in lower review costs. The City is not proposing to review landscape and irrigation plans for compliance with the water budget or to conduct onsite irrigation audits. The City proposes that audits be conducted and certified by a California registered landscape architect, a licensed landscape contractor, or other professional licensed by the State to perform this type of work. This self-certification by State licensed professionals would reduce the need for additional staff and would shift the responsibility to the professional and their license. The certified audit would state that all plant materials, irrigation systems, and landscape features have been installed and operate as approved.

The City's proposal for audits is similar to the State Model in that projects that are subject to the water budget must submit to the City a certified irrigation audit prior to occupancy. The City however, is more restrictive in that it requires that the audit be conducted and certified by a California registered landscape architect, a licensed landscape contractor, or other professional licensed by the State to perform this work. The City is not proposing to conduct irrigation audits of development once it has accepted a certified irrigation audit. Regarding existing projects with more than 1 acre of landscaped area, the City Water Department in conjunction with the County Water Authority provides audits for large landscape (greater than 1 acre). The "audit" is conducted to assess the efficiency of the irrigations system, identify potential leaks, and determine the proper watering schedule for the landscape based on existing plant materials. The City Water Department is also working with existing homeowners associations to provide direction on how to reduce landscape irrigation.

Dedicated Landscape Irrigation Meters

The Water Conservation in Landscaping Act and more specifically Section 535 of the State Water Code requires a dedicated irrigation water meter be provided for new industrial, commercial, and multi-family residential development with a landscape area equal to or greater than 5,000 square feet. The requirement does not apply to single dwelling unit development, development used for commercial production of livestock or crops, or existing development.

The City's proposed regulations mirror those of the State Water Code. However, in addition to the requirement for a dedicated irrigation meter, the city is adding requirements for installation of irrigation submeters in projects that meet specified criteria. Table 2 identifies developments that will be required to install dedicated irrigation meters and irrigation submeters.

As identified in Table 2, all new development (except single-family homes and production of crops and livestock) with 5,000 square feet or more of landscape area require a dedicated irrigation water meter. These same project types with over 1,000 square feet of landscape area are required to comply with a water budget. The cost of a dedicated irrigation water meter is approximately \$16,000 to cover the cost of City water capacity, County Water Authority

capacity, and installation. The City also proposes that existing industrial, commercial and multi-family development, with a landscape area equal to or greater than of 1,000 square feet that propose improvements that requiring a building permit and landscape review install an irrigation submeter. The submeter is installed on private property behind the City's water meter that serves the development. The irrigation submeters are not proposed to be read nor billed separately by the Water Department. Instead, the submeters are proposed to be used by the property owner as a tool for monitoring water use in the landscape. The cost of a submeter varies depending on the whether the construction is new (approximately \$300) or whether the development is existing (the cost varies based on the site and existing irrigation system). No capacity costs are associated with irrigation submeters.

TABLE 2
City Proposal for Water Metering

Type of Water Meter	Type of Development Proposal	Landscape Area Threshold
Dedicated Landscape Irrigation Meter	New development (except single dwelling units, and commercial production of agricultural crops or livestock)	5,000 s.f. and greater
Landscape Irrigation Submeter	New single-dwelling unit development	All
	Improvements to the following existing development that does not have a dedicated irrigation meter and requires a building permit and landscape review consistent with Section 142.0402: ³ <ul style="list-style-type: none"> • Multiple-dwelling units - common landscape area only • Commercial • Industrial 	1,000 s.f. and greater

Public Responses

Other than clarifications, and minor corrections or modifications the responses can be categorized into the issues of audits, landscape irrigation submeters, the water budget, and plant materials. A summary of the comments and staff responses can be found in Attachment 4. The American Society of Landscape Architects (ASLA) provided a detailed response to the revisions to the Landscape Standards which will implement the proposed amendments to the Municipal Code. Detailed responses to those comments are provided in Attachment 5.

FISCAL CONSIDERATIONS:

The costs of processing this amendment are funded through the Development Services Department Code Update Section which is funded as an overhead expense in the Development Services Department's budget.

³ See Attachment 3 for the projects that require a building permit and a landscape review.

PREVIOUS COUNCIL and/or COMMITTEE ACTION:

Natural Resources and Culture Committee (NR&C): On June 24, 2009 the Committee recommended that this item be forwarded to the full City Council. The Committee also recommended that options that would cumulatively address how the water budget might be expanded to single family residential subdivisions and standalone single family projects be analyzed. The draft regulations have been expanded to apply the water budget to *all* developer installed landscape areas within single family developments where the previous draft applied the water budget to only common landscape areas greater than 1,000 square feet.

COMMUNITY PARTICIPATION AND PUBLIC OUTREACH EFFORTS:

The draft amendments to the Landscape Regulations were made available for a 30-day public review and comment period beginning on April 9, 2009. The draft regulations were posted to the Development Services Department's Land Development Code website and were also e-mailed to the City Planning and Community Investment Department's interested persons list (approximately 2,000 individuals including members of all community planning groups) and to members of the Regional Model Ordinance Working Group.

Code Monitoring Team (CMT): On May 13, 2009 the Code Monitoring Team voted to support the proposed changes to the landscape regulations with the following modifications:

- Clarify that the audit is to certify that all irrigation, plant materials and landscape features have been installed and operate as approved;
- Clarify the language in Table 142-04I with regard to residential use and common landscape areas; and
- Exempt recycled water from the water budget.

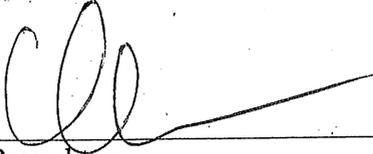
The regulations were modified to reflect the proposed modifications with the exception of the exemption for recycled water. The water budget calculation in the State Model Ordinance, which is reflected in this draft ordinance, does allow for greater water use when the water used is reclaimed. However, it is not unlimited. Reclaimed water is also treated as a resource.

Community Planners Committee (CPC): On April 28, 2009 the Community Planners Committee voted 24-0-2 to support the proposed amendments and requested that analysis be conducted for the following:

- The use of gray water in new development
- Onsite recycling of water, and
- The use of water basins to capture rainfall

KEY STAKEHOLDERS AND PROJECTED IMPACTS:

Key stakeholders include landscape professionals, building industry professions, business owners and property owners. Adoption of the proposed amendments will result in reductions in water used for landscape in new construction.



Kelly Broughton
Director, Development Services Department



Jay Goldstone
Chief Operating Officer

Attachments:

1. Comparison Matrix
2. Strikeout Underline Regulations
3. Building Permit and Landscape Review
4. Public Comments and Staff Responses
5. Responses to April 28 ASLA Letter

ATTACHMENT 1 – COMPARISON MATRIX (July 2009)

<p>AB 1881 Requirements</p>	<p>State Model Ordinance</p>	<p align="center">City of San Diego Landscape Ordinance / Landscape Standards</p>
<p>65596(a) Include provisions for water conservation and the appropriate use and groupings of plants that are well-adapted to particular sites and to particular climatic, soil, or topographic conditions.</p>	<p>§492.6. Landscape Design Plan. (a) 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 Documentation Package. (1) Plant Material (B) Each hydrozone shall have plant materials with similar water use. For hydrozones with plants of mixed water use, refer to Section 492.7 (a)(2)(D) for more information. (C) Plants shall be selected and planted appropriately based upon their adaptability to the climatic, and the geologic, and topographical conditions of the project site. To encourage the efficient use of water, the following is highly recommended: (i) 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.; (ii) 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 (iii) Consider the solar orientation for plant placement to maximize summer shade and winter solar gain.</p>	<p>Landscape Ordinance 142.0401 - The purpose of these regulations is to... to conserve water through low-water-using planting and irrigation design; ... 142.0403 (b) Plant Materials (15) Plant materials are to be grouped into hydrozones with plant species having similar water demand and by their soil, sun, and shade requirements. (16) Plant material shall be selected to be less than or equal to a maximum applied water allowance (MAWA) as determined by the water budget formula and specifications in Section 142.0413(d). See Table 142-04F - Permanent Revegetation and Irrigation Requirements (native, naturalized, and drought tolerant planting requirements) Landscape Standards Introduction The Landscape Standards establish the minimum plant material, irrigation, brush management, and landscape related standards for work done in accordance with requirements of Land Development Code. They provide guidelines and alternative methods to meet regulations based on various site conditions. Additionally, the Landscape Standards provide the technical standards to create and maintain landscapes that conserve and efficiently use water. Applicants proposing landscape work should also obtain copies of the Submittal Requirements in the Land Development Manual. These establish the materials and information that must be submitted with an application for review by the City and establish applicable drafting standards for landscape drawings. 1.1 Locational Criteria 1.1-3 - Plant materials are to be grouped into hydrozones with plant species having similar water demand and by their, soil, sun, and shade requirements. 1.3 Plant Selection Criteria 1.3-1 - General Guidelines 1.3-1.01 - Preferred plants are essentially those most suited to the actual site conditions. However, there are innumerable combinations of factors affecting the selection of appropriate plants. The water needs of a plant are, however, a critical factor. For the purposes of this document, preferred plants are water conserving plants which are easily maintained and have no known history of problems. Appendix 'A' is a list of reference materials which discuss and identify water conserving plants. 1.3-1.02 - Acceptable plants are those which satisfy minimum performance standards for the special site area in question and are easily maintained. 1.3-1.06 - Plant material used adjacent to coastal bluffs shall be native or naturalized to minimize the need for irrigation beyond initial plant establishment. 2.3 Design Standards</p>

ATTACHMENT 1 – COMPARISON MATRIX (July 2009)

AB 1881 Requirements	State Model Ordinance	City of San Diego Landscape Ordinance / Landscape Standards
<p>65596(a) The model ordinance shall not prohibit or require specific plant species, but it may include conditions for the use of plant species or encourage water conserving plants.</p>	<p>§492.6. Landscape Design Plan. (a) 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 Documentation Package. (1) Plant Material (A) Any plant may be selected for the landscape, providing the landscape does not exceed the Maximum Applied Water Allowance. To encourage the efficient use of water, the following is highly recommended: (i) protection and preservation of native species and natural vegetation; (ii) selection of water conserving plant species and turf species; (iii) selection of trees based on applicable local tree ordinances or tree shading guidelines; (iv) selection of plants from local and regional landscape program plant lists (B) Each hydrozone shall have plant materials with similar water use. For hydrozones with plants of mixed water use, refer to Section 492.7 (a)(2)(D) for more information. (C) Plants shall be selected and planted appropriately based upon their adaptability to the climatic, and the</p>	<p>2.3-13- Water Conservation Performance Standards and Requirements 2.3-13.03 - The irrigation system shall deliver water efficiently and uniformly and shall be appropriate to the needs of the plant materials. Recommended reference materials for irrigation systems design are listed in Appendix "A". 4.1 Permanent Revegetation 4.1-1 - Revegetation Adjacent to Native Vegetation 4.1-1.01 - The plant palettes for transitional landscapes shall typically consist of a combination of appropriate and compatible native and nonnative species. 4.2 Slope Revegetation Guidelines 4.2-2 - A minimum of 50 percent of the total slope area shall be planted with deep rooting groundcovers, (i.e. those with a typical root depth of 5 feet or greater). For seeded plantings, at least 50 percent of the viable seed count shall be deep rooting species. 4.2-3 - All the plant materials shall be appropriate to the site conditions, water conserving and appropriately spaced to control soil erosion.</p>
		<p>Landscape Standards 1.3 - Plant Selection Criteria 1.3-1 - General Guidelines 1.3-1.01 - Preferred plants are essentially those most suited to the actual site conditions. However, there are innumerable combinations of factors affecting the selection of appropriate plants. The water needs of a plant are, however, a critical factor. For the purposes of this document, preferred plants are water conserving plants which are easily maintained and have no known history of problems. Appendix 'A' is a list of reference materials which discuss and identify water conserving plants. 1.3-1.02 - Acceptable plants are those which satisfy minimum performance standards for the special site area in question and are easily maintained. 1.3-2 – Lawns 1.3-2.01 - Areas of lawn shall be minimized and concentrated where used. 1.3- - Lawn areas shall not exceed 10 percent of the planting area on a premises, excluding required common areas, active recreation areas, and areas located within the public right-of-way between the curb and public sidewalk and areas of turf used for bioretention and infiltration basins. This restriction does not apply to single dwelling unit residential uses in residential zones. 1.3-2.03 - The minimum dimension of a lawn bounded by impervious surfaces on two or more sides is 8 feet in all directions. 1.3-2.04 - Lawn areas located on slopes, where the toe of slope is adjacent to hardscape (as defined in Section 113.0103 of the Land Development Code), shall not exceed a gradient of 25 percent (4:1).</p>

ATTACHMENT 1 – COMPARISON MATRIX (July 2009)

AB 1881 Requirements	State Model Ordinance	City of San Diego Landscape Ordinance / Landscape Standards
	<p>geologic, and topographical conditions of the project site. To encourage the efficient use of water, the following is highly recommended:</p> <p>(i) 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;</p> <p>(ii) 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</p> <p>(iii) Consider the solar orientation for plant placement to maximize summer shade and winter solar gain.</p> <p>(D) Installation of turf on slopes greater than 25% shall not be permitted where 25% means 1 foot of vertical elevation change for every 4 feet of horizontal length (rise divided by run x 100 = slope percent).</p>	<p>1.6 – Maintenance Criteria</p> <p>1.6-8 - Trees shall be selected based upon the site characteristics including soil type, soil area, drainage, and adjacent improvements. Trees selected should grow to maturity without impacts to sidewalks, curbs, and other public improvements.</p> <p>5.2 Center Island Landscaping</p> <p>5.2-4 - Turf shall not be used in medians.</p>
<p>65596(a)</p> <p>However, the model ordinance shall not include conditions that have the effect of prohibiting or requiring specific plant species.</p>	<p>§492.6. Landscape Design Plan.</p> <p>(a) 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 Documentation Package.</p> <p>(1) Plant Material</p> <p>(F) Invasive species of plants shall be avoided especially near parks, buffers, greenbelts, water bodies, and open spaces because of their potential to cause harm to environmentally sensitive areas.</p>	<p>Landscape Standards</p> <p>1.3 - Plant Selection Criteria</p> <p>1.3-1.03 - Prohibited plants are those which do not satisfy the minimum performance standards for the site area in question. In addition, there are a number of invasive species that are not allowed in any required landscape area. The use of these materials elsewhere on a site is strongly discouraged.</p> <p>4.1-1 Revegetation Adjacent to Native Vegetation</p> <p>Revegetation of manufactured slopes and other disturbed areas adjacent to areas of native vegetation shall be accomplished in a manner so as to provide visual and horticultural compatibility with the indigenous native plant materials.</p> <p>4.1-1.03 Invasive (i.e., those readily capable of reproducing and spreading into native, non-irrigated areas) non-native plant species including but not limited to those listed on Table 1 are prohibited in all transitional landscapes.</p> <p>4.1-1.04 Noxious weeds and invasive plants (e.g., Pampas Grass) that sprout in transition areas shall be promptly removed.</p>
<p>65596(b)</p> <p>Include a landscape water budget component that establishes the maximum amount of water to be applied through the irrigation system, based on climate, landscape size,</p>	<p>§ 490.1. Applicability.</p> <p>(a) After January 1, 2010, this ordinance shall apply to all of the following landscape projects:</p> <p>(1) new construction and rehabilitated landscapes for public agency projects and private development projects with a total project landscape area equal to or greater than 2,500 square feet requiring a building or landscape permit, plan check, or design review;</p> <p>(2) new construction and rehabilitated landscapes which are developer-installed in single-family and multi-family</p>	<p>Landscape Ordinance</p> <p>(a) Landscape Area. For purpose of Section 142.0413 landscape area means the entire premises less the area of building footprints, non-irrigated portions of parking lots, driveways, <i>hardscapes</i>, and areas designated for habitat preservation or brush management zone 2.</p> <p>(d) Water Conservation</p> <p>(1) <i>Developments</i> listed in Table 142-041 shall be subject to a water budget (maximum applied water allowance).</p> <p>Table 142-041 Water Budget Applicability</p> <p>New non residential development with a landscape area of 1,000 square feet</p>

ATTACHMENT 1 – COMPARISON MATRIX (July 2009)

<p>AB 1881 Requirements irrigation efficiency, and plant needs.</p>	<p align="center">State Model Ordinance</p>	<p align="center">City of San Diego Landscape Ordinance / Landscape Standards</p>
<p>residential projects with a total project landscape area equal to or greater than 2,500 square feet requiring a building or landscape permit, plan check, or design review;</p> <p>(3) new construction which are homeowner-provided and/or homeowner-hired landscaping 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 or landscape permit, plan check or design review;</p> <p>(4) existing landscapes are limited to Section 493.1; and</p> <p>§492.4. Water Efficient Landscape Worksheet.</p> <p>(a) A project applicant shall complete the Water Efficient Landscape Worksheet which contains two sections. See sample worksheet in Appendix B.</p> <p>(1) A hydrozone information table (Section A of worksheet) for the landscape project.</p> <p>(2) A water budget calculation (Section B of worksheet) for the landscape project. For the calculation of the Maximum Applied Water Allowance (MAWA) and Estimated Total Water Use (ETWU), a project applicant shall use the ET0 values from the Reference Evapotranspiration Table in Section 495 Appendix A. For geographic areas not covered in Appendix A, use data from other cities located nearby in the same Reference Evapotranspiration Zone Map.</p> <p>(b) Water Budget Calculations shall follow the following requirements:</p> <p>(1) The plant factor used shall be from WUCOLS. The plant factor for low water use plants range from 0 to 0.3, for moderate water use plants range from 0.4 to 0.6, and for high water use plants range from 0.7 to 1.0.</p> <p>(2) All water features shall be included in the high water use hydrozone and temporarily irrigated areas shall be included in low water use hydrozone,</p> <p>(3) Special Landscape Area (SLA) shall be identified and its water use calculated as described below.</p> <p>(4) ETAF for Special Landscape Area shall not exceed 1.0.</p> <p>(c) Maximum Applied Water Allowance (MAWA). The landscape project's Maximum Applied Water Allowance shall be calculated using this equation: $MAWA = (ET0)(0.62)[0.7 \times LA + 0.3 \times SLA]$ where: MAWA = Maximum Applied Water Allowance (gal/yr)</p>	<p>and greater.</p> <p><u>New multiple dwelling unit development with a landscape area of 1,00 square feet and greater; and</u></p> <p><u>New Single dwelling unit development in subdivisions – all developer installed landscape.</u></p> <p>(2) <u>The water budget is calculated using the following formula (see Section 2.6 and Appendix E of the Landscape Standards for additional information):</u> $Water\ Budget = (ET0)(0.62) [(0.7)(LA) + (0.3)(SLA)]$ Where: ET0 = Evapotranspiration (inches per year) 0.62 = Conversion factor (to gallons) 0.7 = Evapotranspiration Adjustment Factor LA = Landscaped Area (square feet) 0.3 = Evapotranspiration Adjustment Factor for Special Landscape Area and Reclaimed Water</p> <p>SLA = Special Landscape Area</p> <p>(3) <u>The irrigation system is required to be operated within the approved water budget.</u></p> <p>(4) <u>The estimated total water use, as calculated in Section 2.6 of the Landscape Standards shall not exceed the water budget as calculated in Section 142.0413(d)(2).</u></p> <p>Landscape Standards</p> <p>1.3 - Plant Selection Criteria</p> <p>1.3-1 - General Guidelines</p> <p>1.3-1.07 - Plant material shall be selected to be less than or equal to a maximum applied water allowance (MAWA) as determined by the water budget formula and specifications in Section 2.6.</p> <p>2.1 - General Requirements</p> <p>Irrigation systems shall be designed, constructed, and managed to maximize overall irrigation efficiency within the limits established by the maximum applied water allowance. The following standards establish the minimum requirements for irrigation systems.</p> <p>2.1-5 - Irrigation systems (valve systems, piping and pressure regulators) shall be designed to deliver water to hydrozones based on the moisture requirements of the plant grouping.</p> <p>2.3 – Design Standards</p> <p>2.3-13 - Water Conservation Performance Standards and Requirements</p> <p>2.6 - Water Budget</p> <p>2.6-1 – Development listed in table 5 shall be subject to a Water Budget – Maximum Applied Water Allowance (MAWA):</p> <p>[Note: Table 5 contains the following: New non residential development with a landscape area of 1,000 square feet and greater;</p>	<p>and greater.</p> <p><u>New multiple dwelling unit development with a landscape area of 1,00 square feet and greater; and</u></p> <p><u>New Single dwelling unit development in subdivisions – all developer installed landscape.</u></p> <p>(2) <u>The water budget is calculated using the following formula (see Section 2.6 and Appendix E of the Landscape Standards for additional information):</u> $Water\ Budget = (ET0)(0.62) [(0.7)(LA) + (0.3)(SLA)]$ Where: ET0 = Evapotranspiration (inches per year) 0.62 = Conversion factor (to gallons) 0.7 = Evapotranspiration Adjustment Factor LA = Landscaped Area (square feet) 0.3 = Evapotranspiration Adjustment Factor for Special Landscape Area and Reclaimed Water</p> <p>SLA = Special Landscape Area</p> <p>(3) <u>The irrigation system is required to be operated within the approved water budget.</u></p> <p>(4) <u>The estimated total water use, as calculated in Section 2.6 of the Landscape Standards shall not exceed the water budget as calculated in Section 142.0413(d)(2).</u></p> <p>Landscape Standards</p> <p>1.3 - Plant Selection Criteria</p> <p>1.3-1 - General Guidelines</p> <p>1.3-1.07 - Plant material shall be selected to be less than or equal to a maximum applied water allowance (MAWA) as determined by the water budget formula and specifications in Section 2.6.</p> <p>2.1 - General Requirements</p> <p>Irrigation systems shall be designed, constructed, and managed to maximize overall irrigation efficiency within the limits established by the maximum applied water allowance. The following standards establish the minimum requirements for irrigation systems.</p> <p>2.1-5 - Irrigation systems (valve systems, piping and pressure regulators) shall be designed to deliver water to hydrozones based on the moisture requirements of the plant grouping.</p> <p>2.3 – Design Standards</p> <p>2.3-13 - Water Conservation Performance Standards and Requirements</p> <p>2.6 - Water Budget</p> <p>2.6-1 – Development listed in table 5 shall be subject to a Water Budget – Maximum Applied Water Allowance (MAWA):</p> <p>[Note: Table 5 contains the following: New non residential development with a landscape area of 1,000 square feet and greater;</p>

ATTACHMENT 1 – COMPARISON MATRIX (July 2009)

<p>AB 1881 Requirements</p>	<p>State Model Ordinance</p>	<p>City of San Diego Landscape Ordinance / Landscape Standards</p>
<p>ETo = Reference Evapotranspiration Appendix A (in/yr) 0.7 = ET Adjustment Factor LA = Landscaped Area includes Special Landscape Area (s.f.) 0.62 = Conversion factor (to gallons per square foot) SLA = Portion of the landscape area identified as Special Landscape Area (square feet) 0.3 = the additional ET Adjustment Factor for Special Landscape Area (1.0 - 0.7 = 0.3) (d) Estimated Total Water Use. The Estimated Total Water Use shall be calculated using the equation below. Estimated Total Water Use shall not exceed MAWA. ETWU (ETo)(0.62) (PF x HAPF / IE + SLA) Where: ETWU = Estimated total water use per year (gallons) ETo = Reference Evapotranspiration (inches) PF = Plan Factor from WUCOLS (see Section 491) HA = Hydrozone Area [high, medium, and low water use areas] (square feet) SLA = Special Landscape Area (square feet) 0.62 = Conversion Factor IE = Irrigation Efficiency (minimum 0.71)</p>	<p>New multiple dwelling unit development with a landscape area of 1,00 square feet and greater; and New Single dwelling unit development in subdivisions – all developer installed landscape. 2.6-2 - The following development are exempt from the requirements of Section 2.6-1 2.6-2.01 - Cemeteries; 2.6-2.02 - Landscape that is part of a registered historic site (local, state or federal); 2.6-2.03 - Ecological restoration projects without permanent irrigation; 2.6-2.04 - Botanical gardens and arboretums open to the public; 2.6-2.05 - Mined-land reclamation projects without permanent irrigation; and 2.6-2.06 - Any development ^{landscaped area} the uses reclaimed water only for all of its</p> <p>2.6-3 - The maximum applied water allowance is calculated as follows: MAWA = (ETo)(0.62) [(0.7)(LA) + (0.3)(SLA)] Where: ETo = Evapotranspiration (inches/year)(see Table 6 and the ETo Map in Appendix E) 0.62 = Conversion factor (to gallons) 0.7 = Evapotranspiration Adjustment Factor LA = Landscaped Area (square feet)(see footnote 4) SLA = Special Landscape Area</p> <p>2.6-5 - The estimated total water use is calculated as follows: ETWU [(ETo)(0.62)][(PF x HA/IE) + SLA] Where: ETWU = Estimated total water use per year (gallons) ETo = Reference Evapotranspiration (inches) PF = Plant Factor from WUCOLS HA = Hydrozone Area (high, medium, and low water use areas) (square feet) SLA = Special Landscape Area (square feet) 0.62 = Conversion Factor IE = Irrigation Efficiency (minimum 0.71)</p>	<p>Note: Appendix E for calculating MAWA using hydrozones Crop co-efficient, Plant Factor: A factor that when multiplied by reference evapotranspiration, estimates the amount of water used by plants. Plant water use calculations are based on the list in WUCOLS III (www.owue.water.ca.gov/docs/wucols00.pdf). The average plant factor are as follows: • Very low water using plants is less than 0.1;</p>

ATTACHMENT 1 – COMPARISON MATRIX (July 2009)

AB 1881 Requirements	State Model Ordinance	City of San Diego Landscape Ordinance / Landscape Standards
<p>65596(c) Promote the benefits of consistent local ordinances in neighboring areas.</p> <p>65596(d) Encourage the capture and retention of storm water onsite to improve water use efficiency or water quality.</p>	<p><u>Note:</u> Preparation of this State Model Ordinance accomplishes this.</p> <p>§492.6. Landscape Design Plan. (b) The landscape design plan shall follow standard industry practices and applicable local agency requirements. Plans, at a minimum, shall: (10) location and installation details of any applicable stormwater best management practices that encourage on-site retention and infiltration of stormwater. Examples include, but are not limited to: (A) Infiltration beds, swales, and basins that allow water to collect and soak into the ground ; (B) Constructed wetlands and retention ponds that retain water, handle excess flows, and filter pollutants; (C) Pervious or porous surfaces (e.g., permeable pavers or blocks, pervious or porous concrete etc.) that minimize. (11) Rain harvesting or catchment technologies (e.g., rain gardens, cisterns, etc.).</p> <p>§492.8. Grading Design Plan. (a) For the efficient use of water, grading of a project site shall be designed to minimize soil erosion, runoff, and water waste. A grading design plan shall be submitted as part of the Landscape Documentation Package. (1) The project applicant shall submit a landscape grading plan that indicates finished configurations and elevations of the landscape area including: (A) height of graded slopes; (B) drainage patterns;</p>	<ul style="list-style-type: none"> • Low water using plants is less than 0.2; • Average water using plants is 0.5; and • High water using plants is 0.8. <p>Factors for non plant material are as follows:</p> <ul style="list-style-type: none"> • Water Features. The surface area of man made water features (pools, ponds, spas and similar features) are calculated using the co-efficient for high water using plants. • Artificial Turf. The surface area of artificial turf is calculated using the co-efficient for low water using plants with a distribution uniformity (DU) of 1.0.
		<p><u>Note:</u> This speaks to the requirement of the State Model Landscape Ordinance and is not a requirement of a local landscape ordinance.</p> <p>Municipal Code See Grading Regulations Chapter 14, Article 2 Division 1 §142.0101 Purpose of Grading Regulations The purpose of these regulations is to address slope stability, protection of property, erosion control, water quality, and landform preservation and to protect the public health, safety, and welfare of persons, property, and the environment. See Storm Water Runoff and Drainage Regulations Chapter 14, Article 2, Division 2 §142.0201 Purpose of Drainage Regulations The purpose of this division is to regulate the <i>development</i> of, and impacts to, drainage facilities, to limit water quality impacts from <i>development</i>, to minimize hazards due to <i>flooding</i> while minimizing the need for construction of <i>flood</i> control facilities, to minimize impacts to <i>environmentally sensitive lands</i>, to implement the provisions of federal and state regulations, and to protect the public health, safety, and welfare. See Stormwater Management and Discharge Control Chapter 4, Article 3, Division 3 §43.0301 Purpose and Intent The purposes of this Division are to further ensure the health, safety and general welfare of the citizens of the City of San Diego by controlling Non-Storm Water Discharges to the Storm Water Conveyance System; by eliminating discharges to the Storm Water Conveyance System from spills, dumping, or disposal of materials other than Storm Water; and by reducing Pollutants in urban Storm Water discharges to the maximum extent practicable. The intent of this Division is to protect and enhance the water quality of our watercourses, water bodies, and wetlands in a manner pursuant to and</p>

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<p>(C) pad elevations; (D) finish grade; and (E) stormwater retention improvements.</p> <p>§492.15. Stormwater Management (a) Stormwater management practices will minimize runoff and increase infiltration which recharges groundwater, and improves water quality. Implementing stormwater best management practices into the landscape and grading design plans to minimize runoff, and to increase on-site retention and infiltration are highly recommended.</p>	<p>§492.7. Irrigation Design Plan. (a) For the efficient use of water, an irrigation system shall meet all requirements listed in this section and manufacturers' specifications. 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 conditions design criteria shall be submitted as part of the Landscape Documentation Package. (1) System (A) Dedicated (separate) landscape water meters shall be installed for all projects greater than 5,000 square feet, except for single family residences. Dedicated landscape water meters are highly recommended on landscape areas smaller than 5,000 square feet to facilitate water management. (B) Weather-based irrigation controllers or soil moisture based controllers or other self adjusting irrigation controllers, shall be required for irrigation scheduling in all irrigation systems. (D) Sensors (rain, freeze, wind, etc.), either integral or auxiliary, that suspend or alter irrigation operation during unfavorable weather conditions such as rain or a freeze shall be required on all irrigation systems, as appropriate for local climatic conditions. (2) Hydrozone (A) Each valve shall irrigate a hydrozone with similar site, slope, sun exposure, soil conditions and plant materials with similar water use.</p> <p>§492.10. Irrigation Scheduling Schedule (a) For the efficient use of water, all irrigation schedules shall be developed, managed, and evaluated to utilize the minimum</p>	<p>consistent with the Federal Water Pollution Control Act [Clean Water Act, 33 U.S.C. section 1251 et seq.] and National Pollutant Discharge Elimination System [NPDES] Permit No. CA0108758, as amended</p> <p>Landscape Standards 2.3-13.12 - Alternative irrigation systems that may be used to augment water for landscape purposes include: • Rain water harvesting may be used to augment irrigation systems provided that the systems used to harvest and store the water are designed to prevent intrusion of trash, insects, and animals.</p>
<p>65596(e) Include provisions for the use of automatic irrigation systems and irrigation schedules based on climatic conditions, specific terrains and soil types, and other environmental conditions.</p>	<p>§142.0413 Water Conservation (d) Water Meters. (1) Dedicated landscape irrigation meters shall be required in all new development with a landscape area greater than or equal to 5,000 square feet. Except that this requirement shall not apply to single dwelling unit development or to the commercial production of agricultural crops or livestock. (2) Landscape irrigation submeters shall be required in the following developments: (A) New single dwelling unit development. (B) Improvements to the following existing industrial, commercial and multiple dwelling unit development when: (i) The improvement requires a building permit and a landscape review as identified in Table 142-04A; and (ii) The landscape area is 1,000 square feet and greater.</p> <p>Landscape Standards 2.1 - General Requirements Irrigation systems shall be designed, constructed, and managed to maximize overall irrigation efficiency within the limits established by the maximum applied water allowance (MAWA). The following standards establish the minimum requirements for irrigation systems. 2.1-5 - Water meters. Dedicated (separate) landscape water meters shall be</p>	<p>Landscape Ordinance §142.0403 -General Planting and Irrigation Requirements (c) Irrigation Requirements (1) All required plant material shall be irrigated with a permanent, below-grade irrigation system unless specified otherwise in this division. (3) Irrigation systems shall meet the following design requirements: (D) An approved rain sensor shutoff device is required for all systems and a moisture-sensing device that regulates the irrigation system for all lawn areas is required.</p>

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	<p>amount of water required to maintain plant health. Irrigation schedules meeting the following criteria shall be submitted with the Certificate of Completion.</p> <p>(1) Irrigation scheduling shall use automatic irrigation systems and evapotranspiration data such as those from the California Irrigation Management Information System (CIMIS) weather stations or soil moisture monitoring systems to apply the appropriate levels of water for different climates.</p> <p>(2) Overhead irrigation shall be scheduled between 8:00 p.m. and 10:00 a.m. unless weather conditions prevent it</p> <p>(3) For implementation of the irrigation schedule, particular attention must be paid to irrigation run times, emission device, flow rate, and current ETo, so that applied water meets the Estimated Total Water Use. Total annual applied water shall be less than or equal to MAWA. Actual irrigation schedules should be based on current time ETo data (e.g., CIMIS or soil moisture sensor).</p> <p>(4) Using an appropriate controller, an annual irrigation program with monthly irrigation schedules shall be developed and submitted for each of the following:</p> <p>(A) the plant establishment period;</p> <p>(B) the established landscape; and</p> <p>(C) temporarily irrigated areas.</p> <p>(5) Each Irrigation Schedule shall consider for each station all of the following that apply:</p> <p>(A) Irrigation interval (days between irrigation);</p> <p>(B) Irrigation run times (hours or minutes per irrigation event to avoid runoff);</p> <p>(C) Number of cycle starts required for each irrigation event to avoid runoff;</p> <p>(D) Amount of applied water scheduled to be applied on a monthly basis;</p> <p>(E) Application rate setting;</p> <p>(F) Root depth setting;</p> <p>(G) Plant type setting;</p> <p>(H) Soil type;</p> <p>(I) Slope factor setting;</p> <p>(J) Shade factor setting; and</p> <p>(K) Irrigation uniformity or efficiency setting</p>	<p>installed for all new development as listed in Table 2.</p> <p>[Note: Table 2 requires dedicated water meters for New development excluding single dwelling units and commercial production of agricultural crops and livestock with a landscape area of 5,000 square feet and greater.</p> <p>2.1-6 - Submeters. A landscape irrigation submeter shall be installed development as listed in Table 2 prior to a certificate of occupancy or final inspection approval.</p> <p>[Note: Table 2 requires landscape submeters for New single-dwelling unit development; and Improvements to existing industrial, commercial and multiple dwelling units (without a dedicated landscape irrigation meter) that have a landscape area of 1,000 square feet and greater and that require a building permit and landscape review consistent with Section 142.0402 of the Municipal Code.]</p> <p>2.3 Design Standards</p> <p>2.3-4 - Scheduling and Circuiting</p> <p>2.3-4.01 - Each circuit shall be capable of meeting the minimum needs of the mature plant material during peak demands within a weekly irrigation schedule.</p> <ul style="list-style-type: none"> • All irrigation systems shall be adjusted seasonally and as weather and plant conditions warrant. • Overhead irrigation shall be scheduled between 8:00 p.m. and 10:00 a.m. unless weather conditions prevent. <p>2.3-4.02 - Lateral systems shall be divided by exposure (sun vs. shade, etc.), elevation, and by type of irrigation application equipment (drip, spray, etc.).</p> <p>2.3-4.03 - Where the plant material has differing watering needs, such as low, medium, and high water use plants, separate systems shall be designed to give each plant-type area adequate minimum amounts of water. Where feasible trees shall be placed on separate valves from shrubs, groundcovers, and lawns.</p> <p>2.3-5 - Control Systems</p> <p>2.3-5.01 - Automatic control systems shall accommodate all aspects of the design, including multiple schedules, repeat cycles, and moisture sensing and rain sensing override devices (or weather-based adjustment) as required.</p> <p>2.3-5.02 - Control mechanisms for moisture-sensing systems shall be accommodated within the controller enclosure.</p> <p>2.3-13 - Water Conservation Performance Standards and Requirements</p> <p>The following standards apply to all projects for which landscaping is required and to special landscape situations such as slopes, fire hazard areas, and transitional landscapes:</p>

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<p>AB 1881 Requirements</p>	<p>State Model Ordinance</p>	<p align="center">City of San Diego Landscape Ordinance / Landscape Standards</p>
<p>65596(e) The model ordinance shall include references to local, state, and federal laws and regulations regarding standards for water-conserving irrigation equipment.</p>		<p>2.3-13.01 - For all areas, the water delivery rate of the irrigation system shall be matched to the slope gradient and the percolation rate of soil. 2.3-13.02 - Slopes with a gradient of 3:1 or steeper and greater than 6 feet in height that are irrigated with an overhead spray system must have a precipitation rate no greater than 0.65 inches per hour. 2.3-13.03 - The irrigation system shall deliver water efficiently and uniformly and shall be appropriate to the needs of the plant materials. Recommended reference materials for irrigation systems design are listed in Appendix "A". 2.3-13.04 - Over watering as evidenced by soggy soils, continually wet pavement, standing water, runoff in street gutters and other similar conditions shall be prevented. 2.3-13.07 - All automatic irrigation controllers and moisture sensing systems shall be adjusted seasonally and as weather and plant conditions warrant.</p> <p><u>Landscape Standards</u> Note: Additional references from Regional Manual added to Landscape Standards References Appendix</p>
<p>65596(e) The model ordinance may include climate information for irrigation scheduling based on the California Irrigation Management Information System.</p>	<p>§492.10. 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 meeting the following criteria shall be submitted with the Certificate of Completion. (1) Irrigation scheduling shall use automatic irrigation systems and evapotranspiration data such as those from the California Irrigation Management Information System (CIMIS) weather stations or soil moisture monitoring systems to apply the appropriate levels of water for different climates.</p>	<p><u>Landscape Standards</u> 2.3-13 - Water Conservation Performance Standards and Requirements The following standards apply to all projects for which landscaping is required and to special landscape situations such as slopes, fire hazard areas, and transitional landscapes: 2.3-13.06 - Moisture sensors shall be installed per manufacturer's recommendations. 2.3-13.07 - All automatic irrigation controllers and moisture sensing systems shall be adjusted seasonally and as weather and plant conditions warrant.</p>
<p>65596(f) Include provisions for onsite soil assessment and soil management plans that include grading and drainage to</p>	<p>§492.5. Soil Management Plan. (a) In order to reduce runoff and encourage healthy plant growth, a soil management plan shall be submitted as part of the Landscape Documentation Package. The soil management plan may include the following elements: (1) soil type; (2) estimated date of soil analysis report (to be conducted</p>	<p><u>Landscape Regulations</u> §142.0401 - Purpose of Landscape Regulations The purpose of these regulations is to minimize the erosion of slopes and disturbed lands through revegetation; §142.0411 - Revegetation and Erosion Control (a) Permanent Revegetation. All graded, disturbed, or eroded areas that will not be permanently paved or covered by structures shall be permanently</p>

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<p>promote healthy plant growth and to prevent excessive erosion and runoff, and</p>	<p>after mass grading is complete); (3) identification of limiting soil characteristics; and (4) identification of planned soil management actions to remediate limiting soil characteristics. (b) After mass grading, the project applicant or his/her designee shall: (1) perform a preliminary site inspection; (2) determine the appropriate level of soil sampling and sampling method needed to obtain representative soil sample(s); (3) conduct a soil probe test to determine if the soil in the landscape area has sufficient depth to support the intended plants; and (4) obtain appropriate soil sample(s). (c) The project applicant or his/her designee shall submit soil sample(s) to laboratory for analysis and recommendation. The soil analysis may include: (A) soil texture; (B) infiltration rate determined by laboratory test or soil texture infiltration rate tables; (C) pH; (D) total soluble salts; (E) sodium; and (F) recommendations. (G) Submit the soil analysis report and documentation verifying implementation of soil analysis report recommendations to the local agency per the requirements of Section 492.9 Certificate of Completion.</p>	<p>revegetated and irrigated as shown in Table 142-04F and in accordance with the standards in the Land Development Manual. (b) Temporary Revegetation. Graded, disturbed, or eroded areas that will not be permanently paved, covered by <i>structure</i>, or planted for a period over 90 calendar days shall be temporarily revegetated with a non-irrigated hydrosed mix, ground cover, or equivalent material. Temporary irrigation systems may be used to establish the vegetation. (c) All required revegetation and erosion control shall be completed within 90 calendar days of the completion of <i>grading</i> or disturbance. §142.0413 Water Conservation (b) <u>Landscape Area</u>. For purpose of Section 142.0413 landscape area means the entire premises less the area of building footprints, non-irrigated portions of parking lots, driveways, <i>hardscapes</i>, and areas designated for habitat preservation or brush management zone 2. (b) <u>Lawn-Area Requirements</u>. (1) Lawn areas shall not exceed 10 percent of the planting landscape area on a <i>premises</i>, excluding required common areas, active recreation areas, and areas located within the <i>public right-of-way</i> between the curb and public sidewalk. This restriction does not apply to <i>single dwelling unit</i> residential uses in residential zones. (2) <u>The minimum dimension of a lawn bounded by impervious surfaces on two or more sides is 8 feet in all directions unless subsurface or low volume irrigation is used.</u> (3) <u>Lawn areas located on slopes, where the toe of slope is adjacent to hardscape, shall not exceed a gradient of 25 percent (4:1).</u> See Table 142-04F - Permanent Revegetation and Irrigation Requirements (native, naturalized, and drought tolerant planting requirements) Chapter 14, Article 2, Division 1: Grading Regulations <u>Landscape Standards</u> 1.3 - Plant Selection Criteria 1.3-1 - General Guidelines 1.3-1.04 - Plant material used for erosion control on disturbed soil areas and slopes should achieve 100 percent soil coverage within two years of being installed. 1.3-2 - Lawns 1.3-2.04 - Lawn areas located on slopes, where the toe of slope is adjacent to hardscape (as defined in Section 113.0103 of the Land Development Code), shall not exceed a gradient of 25 percent (4:1). 1.4 - Site Preparation Criteria 1.4-1 - When so indicated on the approved landscape plans, soils testing by a certified agronomic soil testing laboratory and/or 24 hour percolation tests (see Sec. 2.3-13.09) shall be conducted and report recommendations</p>

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<p>the use of mulches in shrub areas, garden beds, and landscaped areas where appropriate.</p>	<p>§492.6. Landscape Design Plan. (a) 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 Documentation Package. (3) Mulch and Amendments (A) 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</p>	<p>implemented prior to the installation of plants and irrigation systems. 1.4-2 - Certified soil test and percolation test results and any proposed construction document revisions shall be submitted to the City. Written approval of revised construction documents is required prior to the installation of plantings and irrigation systems. 1.4-3 - Soil amendments are to be used when needed to improve water retention in the soil, to improve the functional structure of the soil for greater water infiltration and percolation, to balance pH, and to optimize plant growth. 2.2 - Types of Systems 2.2-1 - Temporary Systems Temporary systems shall operate for a period sufficient to establish plant material and to provide vegetative cover that prevents soil erosion. The amount of irrigation must be adjusted when warranted by site conditions. 2.3 - Design Standards 2.3-4 - Scheduling and Circuiting 2.3-4.02 - Lateral systems shall be divided by exposure (sun vs. shade, etc.), elevation, and by type of irrigation application equipment (drip, spray, etc.). 2.3-13 - Water Conservation Performance Standards and Requirements 2.3-13.02 - Slopes with a gradient of 3:1 or steeper and greater than 6 feet in height that are irrigated with an overhead spray system must have a precipitation rate no greater than 0.65 inches per hour. 4.2 - Slope Revegetation Guidelines These guidelines establish the acceptable standards for the design and installation of slope revegetation. 4.2-2 - A minimum of 50 percent of the total slope area shall be planted with deep rooting groundcovers, (i.e. those with a typical root depth of 5 feet or greater). For seeded plantings, at least 50 percent of the viable seed count shall be deep rooting species. 4.2-3 - All the plant materials shall be appropriate to the site conditions, water conserving and appropriately spaced to control soil erosion. Note: See also Chapter 14, Article 2, Division 1: Grading Regulations Landscape Ordinance §142.0413 - Water Conservation (b) Mulch Requirements. All required planting areas shall be covered with mulch to a minimum depth of 2 inches, excluding slopes requiring revegetation and areas planted with ground cover. All exposed soil areas without vegetation shall also be mulched to this minimum depth. Landscape Standards 1.4 Site Preparation Criteria 1.4-4 - All required planting areas shall be covered with mulch (organic or inorganic) to a minimum depth of 2 inches, excluding slopes requiring</p>

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<p>Promote the use of recycled water consistent with Article 4 (commencing with Section 13520) of Chapter 7 of Division 7 of the Water Code.</p>	<p>other special planting situations where mulch is not recommended. (B) Stabilizing mulching products shall be used on slopes. (C) The mulching portion of the seed/mulch slurry in hydro-seeded applications meets the mulching requirement.</p>	<p>revegetation and areas planted with ground cover. All exposed soil areas without vegetation shall also be mulched to this minimum depth.</p> <p>4.3 Mulching Procedures</p> <p>The following procedures will be followed when mulching is required by the landscape regulations or when proposed by the applicant.</p> <p>4.3-1- Jute netting and other approved geotextile materials shall be installed and secured per manufacturer's specifications and in a manner precluding sheet flows and drilling below the material surface.</p> <ul style="list-style-type: none"> • Straw mulch shall be uniformly spread at the rate of two tons per acre. • Straw on all cut slopes shall be "tacked" with binder at a minimum rate of 160 pounds per acre. The binder shall be an organic derivative or processed organic adhesive. • Straw on all fill slopes shall be incorporated into the soil with a bladed roller so that the straw will not support combustion or blow away and will leave a uniform surface. <p>4.3-3 - Wood Products:</p> <ul style="list-style-type: none"> • Shredded wood products shall be uniformly spread to a minimum depth of two inches. • When used in conjunction with indigenous native container stock, the mulch shall be applied at the conclusion of the initial 90-day maintenance period <p>Landscape Regulations §142.0413 Water Conservation (g) Reclaimed water. <u>New development in areas where reclaimed water is available and suitable for irrigation are to provide for a dual water distribution system for all landscaped areas so that only reclaimed water is used for irrigation purposes.</u></p> <p>Landscape Standards 2.3-13 - Water Conservation Performance Standards and Requirements 2.3-13.11 - New development, in areas where reclaimed water is available, are to provide for a dual water distribution system for all landscaped areas so that only reclaimed water is used for irrigation purposes. 2.3-13.12 - Alternative irrigation systems that may be used to augment water for landscape purposes include: <ul style="list-style-type: none"> • Graywater systems may be used in the State of California when installed consistent with the Department of Water Resources Graywater Guide and upon permit approval and inspection by San Diego County Department of Environmental Health. </p> <p>Municipal Code §64.0807 Water Reclamation Master Plan (a) General. No person or public agency, as used in California Water Code</p>
<p>65596(g) Promote the use of recycled water consistent with Article 4 (commencing with Section 13520) of Chapter 7 of Division 7 of the Water Code.</p>	<p>§492.14. Recycled Water. (a) 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 Section 492.14 (b). (b) Irrigation systems and decorative water features shall use recycled water unless a written exemption has been granted by the local water agency, stating that recycled water meeting all public health codes and standards is not available and will not be available for the foreseeable future. (c) All recycled water irrigation systems shall be designed and operated in accordance with all applicable local and State laws.</p>	<p>Landscape Regulations §142.0413 Water Conservation (g) Reclaimed water. <u>New development in areas where reclaimed water is available and suitable for irrigation are to provide for a dual water distribution system for all landscaped areas so that only reclaimed water is used for irrigation purposes.</u></p> <p>Landscape Standards 2.3-13 - Water Conservation Performance Standards and Requirements 2.3-13.11 - New development, in areas where reclaimed water is available, are to provide for a dual water distribution system for all landscaped areas so that only reclaimed water is used for irrigation purposes. 2.3-13.12 - Alternative irrigation systems that may be used to augment water for landscape purposes include: <ul style="list-style-type: none"> • Graywater systems may be used in the State of California when installed consistent with the Department of Water Resources Graywater Guide and upon permit approval and inspection by San Diego County Department of Environmental Health. </p> <p>Municipal Code §64.0807 Water Reclamation Master Plan (a) General. No person or public agency, as used in California Water Code</p>

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<p>65596(h) Seek to educate water users on the efficient use of water and the benefits of doing so.</p>	<p>§492.16. Public Education. (a) Publications. Education is a critical component to promoting the efficient use of water in landscapes. The use of appropriate principles of design, installation, management, and maintenance that save water is encouraged in the community. (1) A local agency shall provide information to owners of new, single-family residential homes regarding the design, installation, management, and maintenance of water efficient landscapes. (b) Model Homes. All model homes that are landscaped shall use signs and written information to demonstrate the principles of water efficient landscapes described in this ordinance. (1) Signs shall be used to identify the model as an example of a water efficient landscape, featuring elements such as hydrozones, irrigation equipment, to the overall water efficient theme. (2) Information shall be provided about designing, installing, managing, and maintaining water efficient landscapes.</p>	<p>section 13551, shall use water from any source or of quality suitable for potable domestic use for the irrigation of greenbelt areas, or other uses where the use of reclaimed water is suitable, when reclaimed water is available.</p> <p>Landscape Standards 2.6 - Water Budget Footnote to Table 5 for Model homes.</p> <ul style="list-style-type: none"> • Model homes shall be landscaped consistent with the principles of a water-efficient landscape. • Signs shall be used to identify the model as an example of a water efficient landscape, featuring elements such as hydrozones, irrigation equipment, plant materials and other elements that contribute to the water-efficiency. • Information shall be provided within the model about designing, installing, managing, and maintaining water efficient landscapes. <p>Additional public information is found at</p> <ul style="list-style-type: none"> • City Water Department website http://www.sandiego.gov/water/ • County Water Authority website http://sdcwa.org/
<p>65596(i) Address regional differences, including fire prevention needs.</p>	<p>§492.6. Landscape Design Plan. (a) 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 Documentation Package. (1) Plant Material (A) Any plant may be selected for the landscape, providing the landscape does not exceed the Maximum Applied Water Allowance. To encourage the efficient use of water, the following is highly recommended: (i) protection and preservation of native species and natural vegetation; (ii) selection of water conserving plant species and turf species;</p>	<p>The City's Landscape Ordinance and Landscape Standards have been developed in the context of the region.</p> <p>Landscape Ordinance §142.0403 - General Planting and Irrigation Requirements All planting, irrigation, brush management, and landscape-related improvements required by this division must comply with the regulations in this section and with the Landscape Standards in the Land Development Manual. (b) Plant Material Requirements (13) Native plants shall be locally indigenous. (14) Naturalized plant material shall be plantings that can survive without irrigation after initial plant establishment.</p> <p>Landscape Standards 1.3-1 - General Guidelines 1.3-1.01 - Preferred plants are essentially those most suited to the actual site</p>

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<p>65596(j) Exempt landscaping that is part of a registered historical site.</p>	<p>(iii) selection of trees based on applicable local tree ordinances or tree shading guidelines; (iv) selection of plants from local and regional landscape program plant lists (E) 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 Public Resources Code Section 4291(a) and (b). Avoid fire-prone plant materials and highly flammable mulches.</p>	<p>conditions. However, there are innumerable combinations of factors affecting the selection of appropriate plants. The water needs of a plant, however, a critical factor. For the purposes of this document, preferred plants are water conserving plants which are easily maintained and have no known history of problems. Appendix 'A' is a list of reference materials which discuss and identify water conserving plants. 1.3-1.06 - Plant material used adjacent to coastal bluffs shall be native or naturalized to minimize the need for irrigation beyond initial plant establishment. Existing exotic and other plant material that require regular irrigation should be removed and replaced with native or naturalized plant material. Fire Prevention Needs See Landscape Ordinance §142.0412 Brush Management and Landscape Standards throughout. And within Section III – Brush Management.</p>
<p>65596(k) Encourage the use of economic incentives to promote the efficient use of water.</p>	<p>§ 490.1. Applicability. (a) After January 1, 2010, this ordinance shall apply to all of the following landscape projects: (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) mined-land reclamation projects that do not require a permanent irrigation system; or (4) botanical gardens and arboretums open to the public.</p>	<p>Landscape Standards 2.6 - Water Budget 2.6-2 - The following development are exempt from the requirements of Section 2.6-1 2.6-2.01 - Cemeteries; 2.6-2.02 - Landscape that is part of a registered historic site (local, state or federal); 2.6-2.03 - Ecological restoration projects without permanent irrigation; 2.6-2.04 - Botanical gardens and arboretums open to the public; 2.6-2.05 - Mined-land reclamation projects without permanent irrigation; and 2.6-2.06 - Any development the uses reclaimed water only for all of its landscape area.</p>
<p>65596(l) Include provisions for landscape maintenance practices that foster long-term landscape water conservation. Landscape maintenance practices may include, but are not limited to, o performing routine</p>	<p>§490. Purpose. (b) Consistent with the legislative findings, the purpose of this model ordinance is to: (6) encourage local agencies and water purveyors to use economic incentives that promote the efficient use of water, such as implementing a tiered rate structure; §492-11. 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, weeding in all landscape areas and removing any obstruction to emission devices.</p>	<p>• The City Water Department tiered rate structure • CWA provides rebates for residential, businesses and public agencies see the link http://www.20gallonchallenge.com/programs.html</p> <p>Landscape Ordinance §142.0403 General Planting and Irrigation Requirements (3) Irrigation systems shall meet the following design requirements: (C) Irrigation systems shall be designed to minimize system maintenance requirement after installation. Above-ground irrigation system equipment that is exposed to potential damage shall be designed to be damage-resistant; §142.0413 Water Conservation (f) Irrigation Audit. <i>Development</i> subject to the requirement for a water budget in <u>Table 142-04I</u> is required to conduct and submit to the City an irrigation</p>

ATTACHMENT 1 – COMPARISON MATRIX (July 2009)

<p>AB-1881 Requirements</p> <p>irrigation system repair and adjustment, o conducting water audits, and prescribing the amount of water applied per landscaped acre.</p>	<p align="center">State Model Ordinance</p> <p>(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. §492-12. Irrigation Audit, Irrigation Survey, and Irrigation Water Use Analysis. (a) At a minimum, all landscape irrigation audits shall comply with the "Irrigation Association Certified Landscape Irrigation Auditor Training Manual (2004 or most current edition)," which is hereby incorporated by reference. (b) All landscape irrigation audits shall be conducted by a certified landscape irrigation auditor. (c) For new construction and rehabilitated landscape projects installed after January 1, 2010, as described in Section 490.1: (1) the project applicant shall submit an irrigation audit report with the Certificate of Completion to the local agency containing the following: an inspection, a system tune up, a system test (including distribution uniformity and verification of minimal overspray or runoff that does not cause overland flow), an irrigation schedule and recommendations for improvements from the certified irrigation auditor; and (2) the local shall administer programs that may include, but not be limited to, irrigation water use analysis, irrigation audits, and irrigation surveys for compliance with the MAWA. §493.1. Irrigation Audits, Irrigation Survey, and Irrigation Water Use Analysis. (a) For all existing landscapes installed before January 1, 2010 with a dedicated or mixed use water meter that are one acre or more, including golf courses, green belts, common areas, multifamily housing, schools, businesses, parks, cemeteries, and publicly owned landscapes, the local agency shall administer programs that may include, but not be limited to irrigation water use analyses, irrigation surveys and irrigation audits to meet the existing landscape MAWA. (1) For all existing landscapes installed before January 1, 2010 without a meter that are one acre or more, the local agency shall administer programs that may include, but not be limited to irrigation surveys and irrigation audits to meet the existing landscape MAWA.</p>	<p align="center">City of San Diego Landscape Ordinance / Landscape Standards</p> <p>audit consistent with Section 2.7 of the Landscape Standards. (1) All landscape irrigation audits shall be conducted by a California registered landscape architect, a licensed landscape contractor, or other professional licensed by the State to perform this work. (2) The landscape irrigation audit shall certify that all plant material, irrigation system, and landscape features have been installed and operate as approved; and be submitted to the City prior to occupancy and use.</p> <p>Landscape Standards Section II: Irrigation Systems 2.1 - General Requirements Irrigation systems shall be designed, constructed, and managed to maximize overall irrigation efficiency within the limits established by the maximum applied water allowance. The following standards establish the minimum requirements for irrigation systems. 2.1-1 -The minimum design, installation and maintenance criteria herein shall not be considered as specifications. 2.1-2 - Material or processes other than those indicated herein may be used if sufficient data is presented to show that the material or process is equivalent or better in performance and intent, and meets or exceeds all design and performance tests with all equivalent features. 2.1-3 - All required irrigation systems and all irrigated shall be automatically controlled. Temporary systems may be an exception. 2.1-4 - All required irrigation systems shall be maintained in working condition as approved. Any equipment or material needing replacement is to be replaced immediately with equipment or material of the same type and performance standard as the originally approved irrigation system. 2.7 - Landscape Irrigation Audit 2.7-1 - Landscape irrigation audits shall comply with the most current edition of the "Irrigation Association Certified Landscape Irrigation Auditor Training Manual" and shall also include a certified soil analysis. 2.7-2 - All landscape irrigation audits shall be conducted by a California registered landscape architect, a licensed landscape contractor, or other professional licensed by the State to perform this work. 2.7-3 - Irrigation audits shall be required for the types of development identified in 2.6-1. 2.7-4 - The landscape irrigation audit shall certify that all plant material, irrigation system, and landscape features have been installed and operate as approved; and be submitted to the City prior to occupancy and use.</p>
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ATTACHMENT 1 – COMPARISON MATRIX (July 2009)

<p align="center">AB 1881 Requirements</p>	<p align="center">State Model Ordinance</p>	<p align="center">City of San Diego Landscape Ordinance / Landscape Standards</p>
<p>65596(m) Include provisions to minimize landscape irrigation overspray and runoff.</p>	<p>(b) Maximum Applied Water Use Allowance (MAWA) for existing landscapes shall be calculated as: MAWA = (0.8)(ETo)(LA)(0.62). (c) The audit shall be comply with the Irrigation Association Certified Landscape Irrigation Auditor Training Manual (2004) or the most current edition. (d) All landscape irrigation audits shall be conducted by a certified landscape irrigation auditor.</p> <p>§492.7. Irrigation Design Plan. (a) For the efficient use of water, an irrigation system shall meet all requirements listed in this section and manufacturers' specifications. 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 conditions design criteria shall be submitted as part of the Landscape Documentation Package. (1) System (H) 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.</p> <p>§492.8. Grading Design Plan. (a) For the efficient use of water, grading of a project site shall be designed to minimize soil erosion, runoff, and water waste.</p> <p>§492.15. Stormwater Management (a) Stormwater management practices will minimize runoff and increase infiltration which recharges groundwater, and improves water quality. Implementing stormwater best management practices into the landscape and grading design plans to minimize runoff, and to increase on-site retention and infiltration are highly recommended.</p> <p>§493.2. Water Waste Prevention Cities and counties shall prevent water waste resulting from inefficient landscape irrigation by prohibiting runoff, low head drainage, overspray, or other similar conditions where water flows onto adjacent property, non-irrigated areas, walks, roadways, or structures. Penalties for violation of these prohibitions shall be established locally.</p>	<p>Landscape Ordinance §142.0403 General Planting and Irrigation Requirements (c) Irrigation Requirements (3) Irrigation systems shall meet the following design requirements: (A) No irrigation runoff or overspray shall cross <i>property lines</i> or paved areas; §142.0412 Brush Management (g) Zone One Requirements (6) Zone One irrigation overspray and runoff shall not be allowed into adjacent areas of native or naturalized vegetation. (h) Zone Two Requirements (5) The following standards shall be used where Zone Two is in an area previously <i>graded</i> as part of legal <i>development</i> activity and is proposed to be planted with new plant material instead of <i>clearing</i> existing native or naturalized vegetation: (C) All new Zone Two plantings shall irrigated temporarily until established to the satisfaction of the City Manager. Only low-flow, low-gallonage spray heads may be used in Zone Two. Overspray and runoff from the irrigation shall not drift or flow into adjacent areas of native or naturalized vegetation. Temporary irrigation systems shall be removed upon approved establishment of the plantings. Permanent irrigation is not allowed in Zone Two.</p> <p>Landscape Standards 2.2-3 Spray System 2.2-3.03 - Specially designed, adjustable nozzles shall be used for odd shaped areas, while still maintaining even application rates. 2.3 - Design Standards 2.3-2 - Water Service 2.3-2.01 - Individually assessed areas and lots that will be individually owned shall have separately metered and controlled irrigation systems. Irrigation shall be confined to the individual areas without overspray onto adjacent areas or across property lines. 2.3-8 - Runoff and Overspray All irrigation systems shall be designed to avoid runoff, seepage, and</p>

ATTACHMENT 1 – COMPARISON MATRIX (July 2009)

AB 1881 Requirements	State Model Ordinance	City of San Diego Landscape Ordinance / Landscape Standards
<p>65598 Any model ordinance adopted pursuant to this article shall exempt cemeteries from all provisions of the ordinance except those set forth in subdivisions (h), (k), and (l) of Section 65596.</p>	<p>§ 490.1. Applicability. (a) After January 1, 2010, this ordinance shall apply to all of the following landscape projects: (5) 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 Section 493.1.</p>	<p>overspray onto adjacent property, non-irrigated areas, walks, roadways, or structures. Systems requiring flushing shall accommodate flushing without erosion or disturbance to planting areas, or discharge into the storm drain system.</p> <p>2.3-11 - Coverage 2.3- 11.02 Only low volume irrigation or subsurface irrigation shall be used to irrigate turf areas that are within 24 inches of an impermeable surface unless the surface is constructed to allow the water to drain entirely into a landscaped area.</p> <p>2.3-12 - Equipment Protection 2.3-12.01 - Any irrigation equipment located within 12 inches of pedestrian and vehicular use areas shall be located entirely below grade or otherwise adequately protected from potential damage.</p> <p>2.3-13 - Water Conservation Performance Standards and Requirements 2.3-13.04 - Over watering as evidenced by soggy soils, continually wet pavement, standing water, runoff in street gutters and other similar conditions shall be prevented.</p>
<p>65599 Article 4.5. Irrigated Landscape 535. (a) A water purveyor shall require as a condition of new retail water service on and after January 1, 2008, the installation of separate water meters to measure the volume of water used exclusively</p>	<p>§492.7. Irrigation Design Plan. (a) For the efficient use of water, an irrigation system shall meet all requirements listed in this section and manufacturers' specifications. 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 conditions design criteria shall be submitted as part of the Landscape Documentation Package. (1) System (A) Dedicated (separate) landscape water meters shall be installed for all projects greater than 5,000 square feet, except for single family residences. Dedicated landscape</p>	<p>Landscape Standards 2.6 – Water Budget 2.6-2 - The following development are exempt from the requirements of Section 2.6-1 2.6-2.01 - Cemeteries; 2.6-2.02 - Landscape that is part of a registered historic site (local, state or federal); 2.6-2.03 - Ecological restoration projects without permanent irrigation; 2.6-2.04 - Botanical gardens and arboretums open to the public; 2.6-2.05 - Mined-land reclamation projects without permanent irrigation; and 2.6-2.06 - Any development the uses reclaimed water only for all of its landscape area.</p>
<p>65599 Article 4.5. Irrigated Landscape 535. (a) A water purveyor shall require as a condition of new retail water service on and after January 1, 2008, the installation of separate water meters to measure the volume of water used exclusively</p>	<p>Landscape Standards 2.1 - General Requirements Irrigation systems shall be designed, constructed, and managed to maximize overall irrigation efficiency within the limits established by the maximum applied water allowance (MAWA). The following standards establish the minimum requirements for irrigation systems. 2.1-5 - Water meters. Dedicated (separate) landscape water meters shall be installed for all new development as listed in Table 2. [Note: Table 2 requires dedicated water meters for New development (excluding single dwelling unit development and commercial production of crops and livestock) with a landscape area of 5,000 square feet and greater. 2.1-6 - Submeters. A landscape irrigation submeter shall be installed</p>	<p>Landscape Standards 2.1 - General Requirements Irrigation systems shall be designed, constructed, and managed to maximize overall irrigation efficiency within the limits established by the maximum applied water allowance (MAWA). The following standards establish the minimum requirements for irrigation systems. 2.1-5 - Water meters. Dedicated (separate) landscape water meters shall be installed for all new development as listed in Table 2. [Note: Table 2 requires dedicated water meters for New development (excluding single dwelling unit development and commercial production of crops and livestock) with a landscape area of 5,000 square feet and greater. 2.1-6 - Submeters. A landscape irrigation submeter shall be installed</p>

ATTACHMENT 1 – COMPARISON MATRIX (July 2009)

<p>AB 1881 Requirements</p>	<p>State Model Ordinance</p>	<p>City of San Diego Landscape Ordinance / Landscape Standards</p>
<p>for landscape purposes. (b) Subdivision (a) does not apply to either of the following: (1) Single-family residential connections. (2) Connections used to supply water for the commercial production of agricultural crops or livestock. (c) Subdivision (a) applies only to a service connection for which both of the following apply: (1) The connection serves property with more than 5,000 square feet of irrigated landscape. (2) The connection is supplied by a water purveyor that serves 15 or more service connections. (d) For the purposes of this section, "new retail water service" means the installation of a new water meter where water service has not been previously provided, and does not include applications for new water service submitted before January 1, 2007.</p>	<p>water meters are highly recommended on landscape areas smaller than 5,000 square feet to facilitate water management.</p>	<p>development as listed in Table 2 prior to a certificate of occupancy or final inspection approval. [Note: Table 2 requires landscape submeters for New single-dwelling unit development; and Improvements to existing industrial, commercial and multiple dwelling units (without a dedicated landscape irrigation meter) that have a landscape area of 1,000 square feet and greater and that require a building permit and landscape review consistent with Section 142.0402 of the Municipal Code.] 2.4 - Installation Standards 2.4-6 - Landscape Irrigation Submeter 2.4-6.01 - A landscape irrigation submeter shall be installed after the domestic water meter in single-dwelling unit development to track water used for irrigation purposes. 2.4-6.02 - An irrigation mainline from the irrigation submeter shall be extended to the rear yard of new single dwelling unit development.</p>

Article 2: General Development Regulations

Division 4: Landscape Regulations

§142.0401 through §142.0402 [No change]

§142.0403 General Planting and Irrigation Requirements

All planting, irrigation, brush management, and landscape-related improvements required by this division must comply with the regulations in this section and with the Landscape Standards in the Land Development Manual.

(a) [No change]

(b) Plant Material Requirements

(1) through (14) [No change]

(15) Plant materials shall be grouped into hydrozones with plant species having similar water demand and by their, soil, sun, and shade requirements.

(16) Plant material shall be selected to meet a maximum applied water allowance (MAWA) as determined by the water budget formula and specifications in Section 142.0413(d).

(c) through (d) [No change]

§142.0404 through §142.0412 [No change]

§142.0413 Water Conservation

(a) Landscape Area. For purpose of Section 142.0413 landscape area means the entire premises less the area of building footprints, non-irrigated portions of parking lots, driveways, *hardscapes*, and areas designated for habitat preservation or brush management Zone 2.

(ab) Lawn Area-Requirements.

(1) Lawn areas shall not exceed 10 percent of the planting landscape area on a *premises*, excluding required common areas, active recreation areas, and areas located within the *public right-of-way* between the curb and public sidewalk. This restriction does not apply to *single dwelling unit* residential uses in residential zones.

(2) The minimum dimension of a lawn bounded by impervious surfaces on two or more sides is 8 feet in all directions unless subsurface or low volume irrigation is used.

(3) Lawn areas located on slopes, where the toe of slope is adjacent to hardscape, shall not exceed a gradient of 25 percent (4:1).

(bc) Mulch Requirements. All required planting areas shall be covered with mulch to a minimum depth of 2 inches, excluding slopes requiring revegetation and areas planted with ground cover. All exposed soil areas without vegetation shall also be mulched to this minimum depth.

(d) Water Budget.

(1) Developments listed in Table 142-04I shall be subject to a water budget (maximum applied water allowance).

Table 142-04I
Water Budget Applicability

<u>Type of Development Proposal</u>	<u>Landscape Area Threshold</u>
<u>New non residential development</u>	<u>1,000 square feet and greater</u>
<u>New multiple dwelling unit development</u>	<u>1,000 square feet¹ and greater</u>
<u>New single dwelling unit development Subdivisions</u>	<u>All subdivider installed landscape</u>

Footnote to Table 142-04I

¹ Total area of all common landscape in the development.

(2) The water budget is calculated using the following formula (see Section 2.6 and Appendix E of the Landscape Standards for additional information):

$$\text{Water Budget} = (ET_o)(0.62) [(0.7)(LA) + (0.3)(SLA)]$$

Where:

ET_o = Evapotranspiration (inches per year)

0.62 = Conversion Factor (to gallons)

0.7 = Evapotranspiration Adjustment Factor

LA = Landscaped Area (square feet)

0.3 = Evapotranspiration Adjustment Factor for Special Landscape Area and Reclaimed Water

SLA = Special Landscape Area

(3) The irrigation system is required to be operated within the approved water budget.

- (4) The estimated total water use, as calculated in Section 2.6 of the Landscape Standards shall not exceed the water budget as calculated in Section 142.0413(d)(2).
- (e) Water Meters.
- (1) Dedicated landscape irrigation meters shall be required in all new development with a landscape area greater than or equal to 5,000 square feet. Except that this requirement shall not apply to new single dwelling unit development or to the commercial production of agricultural crops or livestock.
- (2) Landscape irrigation submeters shall be required in the following developments:
- (A) New single dwelling unit development;
- (B) Improvements to the following existing industrial, commercial and multiple dwelling unit development when:
- (i) The improvement requires a building permit and a landscape review as identified in Table 142-04A; and
- (ii) The landscape area is 1,000 square feet and greater.
- (f) Irrigation Audit. Development subject to the requirement for a water budget in Table 142-04I is required to conduct and submit to the City an irrigation audit consistent with Section 2.7 of the Landscape Standards.
- (1) All landscape irrigation audits shall be conducted by a California registered landscape architect, a licensed landscape contractor, or other professional licensed by the State to perform this work.
- (2) The landscape irrigation audit shall certify that all plant material, irrigation systems, and landscape features have been installed and operate as approved; and submitted to the City prior to occupancy and use.
- (g) Reclaimed water. New development in areas where reclaimed water is available and suitable for irrigation are to provide for a dual water distribution system for all landscaped areas so that only reclaimed water is used for irrigation purposes.

Development Requiring A building Permit and Landscape Review
Subject to Draft Section 142.0413 (e)(2)
 (Irrigation Submeter)

Type of Development Proposal		
Column A	Column B (Gross floor Area)	Column C (Development Type)
1. New structures that equal or exceed the gross floor area shown in Column B, and are proposing the type of development in Column C	1,000 Square Feet	<ul style="list-style-type: none"> • Multiple dwelling unit residential development • Commercial development
	5,000 square feet	Industrial Development
2. Additions to structures or additional structures on developed properties that exceed the gross floor area in Column B or that increase the gross floor area by the percentage in Column B; and are proposing the type of development shown in Column C	<ul style="list-style-type: none"> • 1,000 square feet or • A 20 percent increase in gross floor area 	Multiple dwelling unit residential development
	<ul style="list-style-type: none"> • 1,000 square feet or • A 10 percent increase in gross floor area 	Commercial development
	<ul style="list-style-type: none"> • 5,000 square feet or • A 20 percent increase in gross floor area 	Industrial development
3. New permanent parking and vehicular use area for four or more vehicles including access to the spaces		
4. New temporary parking and vehicular use area for four or more vehicles including access to the spaces		
5. Additions or modifications to existing permanent or temporary parking and vehicular use areas that increase the number of parking spaces by four or more		
6. Projects proposing slopes with gradients steeper than 4:1 (4 horizontal feet to 1 vertical foot) that are 5 feet or greater in height		
7. New structures, additions to structures, or subdivisions that create lots where new structures could be located on premises adjacent to native or naturalized vegetation		

Public Comments and Staff Responses

Other than clarifications, minor corrections, and modifications the comments can be categorized into audits, landscape irrigation submeters, the water budget, and plant materials. The frequent comments are numbered within each category below with responses provided in italics.

Audits. Audits are a component of the State Model Ordinance. As stated in this report the proposed amendments require audits be conducted, certified, and submitted to the City prior to receiving occupancy. The comments received address the following:

1. Audits should not be required since the City currently reviews the conceptual landscape plan, approves the landscape construction plans, and inspects the built plans. That should be sufficient.

Response: First, the audit is a major component of the State Model Ordinance. Second, although City staff do review conceptual landscape plans, approve landscape construction plans, and conduct inspections; staff is not trained to review, inspect, and certify that project landscapes comply with the water budget as identified in the State Model Ordinance. The goal is to be certain that when completed, the landscape has been installed to comply with the approved water budget. To require this of staff would result in additional costs to the City associated with staff training and certification and increase site visits by staff would result in a need for additional staffing.

2. Requiring an audit will increase the cost of the projects.

Response: The costs of projects will increase in that the applicants will need to hire a professional to conduct and certify the audit. However, if staff were to perform that function those costs too would be charged to the project.

3. Audits should be required only for projects that do not comply with required water budgets.

Response: An audit should be required prior to occupancy to verify that all of the plant materials, irrigations systems and other landscape features and been installed and operate as approved. Perhaps future audits could be required for projects that are or appear to be exceeding their water budget. However, it should be noted that to conduct an audit as part of a code compliance issue would require the property owner to grant access to private property.

4. Requiring the audit to be conducted by a California registered landscape architect, a licensed landscape contractor, or other professional licensed by the State to perform this work is too restrictive.

Response: The City is proposing self-certification (product certified by professional and not reviewed by City staff). When allowing for self-certification, the City ~~is~~ can require the work be performed by a professional licensed by the State. This allows the City, if necessary, to file complaints with the State that could result in the professional's loss of license if the product is found to be fraudulent or of consistently poor quality. There is no such recourse with unlicensed professionals. This self-certification is required only for the audit; it is not required for the design of the landscape plans.

5. Requiring audits increases the level of bureaucracy. It would be simpler to charge people who use water beyond a fixed amount.

Response: As previously stated the audit is a major component of the State Model Ordinance. The requirement for the audit applies to new construction with a specified amount of landscape. Determining the budget at the time of construction is the ideal time to determine exactly what the water use should be for the landscape as designed. Applying a fixed amount per household brings into account many factors unrelated to water conservation in the landscape including household size, lot size, changes in household size, and short term considerations.

Landscape Irrigation Submeters. The proposed amendment would require landscape irrigation submeters be installed in all new single-dwelling units; and in existing industrial, commercial, and multiple-dwelling unit development when improvements are made that trigger a building permit and a landscape review on site with a landscape area of 1,000 square feet. The comments received address the following:

1. Property owners will not monitor the submeter or will not know how to use it effectively.
Response: Submeters are a tool proposed to assist property owners in conserving water in the landscape. Property owners would be provided information on how to use submeters when the submeter is installed. Additionally, as water costs increase based on tiered billing rates, property owners will realize financial savings by monitoring the submeter. Builditgreen.org, a green building organization whose membership includes over 40 California Cities, other public agencies, and building and landscape professionals recommends irrigation submeters. Their guidelines recommend property owners "Install a landscape sub-meter combined with irrigation controllers to understand water use. An irrigation meter can help with leak detection and will help maintain a water budget". A number of other cities and agencies also require/recommend installation of irrigation submeters. Although most of these are readable and billable, the goal is to educate property owners on water conservation and the landscape. It is conceivable that the proposed submeters would be replaced with readable and billable submeters at a future time when the advanced technology of automatic meter reading is adopted by the City of San Diego.
2. The submeters should be smart readable submeters that can be read by the Water Department and billed separately.
Response: The City of San Diego has not yet incorporated this technology. There are issues related to public access to private water meters that may not make this feasible.

Water Budget. Comments on the water budget generally reflect both sides of the discussion.

1. The method of achieving a water budget is too complex, and an alternative approach to determining an appropriate amount of water should be developed.
Response: The water budget is the central component of the State Model Ordinance. Not adopting this approach could result in the State determining that our ordinance is not as efficient as the State Model Ordinance. Additionally, the State Water Conservation in Landscaping Act encourages consistency in regional ordinances. This same approach is proposed in the draft Regional Model Ordinance and is proposed in the San Diego County draft ordinance.
2. The proposed water budget should be applied much more broadly and apply to existing landscapes including all existing single- and multi-family development.
Response: The City is proposing to apply the water budget similar to that of the State Model Ordinance. The City could choose to require that the water budget for existing development

be applied to all existing development including multi- and single-family residential (the State Model Ordinance applies to existing with greater than or equal to 1 acre of landscape area). The issue then becomes one of landscape review and eventually enforcement. Should the City require all property owners with existing landscapes of 1,000 square feet or more to submit to the City landscape plans, a water budget, and a certified irrigation audit? This would be very costly for existing property owners and would put a strain on City services. Instead, the City, the County Water Authority, and other water purveyors and jurisdictions in the region are providing a number of services to assist property owners with existing landscapes. Property owners may request an irrigation "audit" which reviews the efficiency of the existing irrigation system, identifies potential leaks, and determines the proper watering schedule for the landscape based on existing plant materials. Local agencies provide information publications and website information on how to save water in the landscape. And ultimately, price controls and rationing, if necessary, will reduce outdoor water use and encourage property owners to make changes to their landscape that increase water conservation.

Plant Materials. The responses on plant materials addressed two different areas. A number of responses requested that the City's list of prohibited species (invasives) be expanded. That is not a part of this process but is something that will be looked at when the City looks to a larger revision of the Landscape Standards later this year. The comments related to water conservation relate to the following:

1. Drought tolerant and native species should be required.

Response: The State Water Conservation in Landscaping Act does not allow an agency to prohibit plant species (other than invasives). It further does not allow conditions, such as the use of only drought tolerant plants, in that such a condition would be a de facto prohibition of other plant species.

Section 65595(a) states: The model ordinance shall not prohibit or require specific plant species, but it may include conditions for the use of plant species or encourage water conserving plants. However, the model ordinance shall not include conditions that have the effect of prohibiting or requiring specific plant species.

The City's Landscape Standards identify three classes of plants: preferred, acceptable, and prohibited (invasive). As stated below water conserving plant are preferred.

Preferred plants are essentially those most suited to the actual site conditions.

However, there are innumerable combinations of factors affecting the selection of appropriate plants. The water needs of a plant are, however, a critical factor.

For the purposes of this document, preferred plants are water conserving plants which are easily maintained and have no known history of problems. Appendix 'A' is a list of reference materials which discuss and identify water conserving plants. [emphasis added]

2. Further reduce the amount of lawn area and apply the reduction to single-family development.

Response: The current landscape regulations limit lawn area in new industrial, commercial and multi-family development (single-family excluded) to no more than 10 % of the landscape area, excluding required for common areas, active recreation areas, and areas located within the public right-of-way between the curb and public sidewalk. The City

proposal would require new development (excluding single-family) with 1,000 square feet or more of landscape area will be required to comply with the water budget. Whether the site contains 10% of lawn area or less would not be an issue provided that the design of the landscape and irrigation system complied with the water budget. Regarding single-family as stated in the report the city does not regulate landscape in single-family homes with the exception of issues of brush management, street trees, and common landscape areas within subdivisions. The City proposes installation of irrigation submeters in all new single-family homes to provide a tool for the homeowner to monitor and conserve water use in the landscape.

Responses to April 28 ASLA letter
Regarding revisions to
The City's Landscape Standards

The following are responses to the April 28, 2009 letter from the ASLA addressing proposed revisions to the **City's Landscape Standards** which provide direction on how to implement the City Landscape Regulations. The NR&C Committee is currently making a recommendation on moving forward the draft amendments to the **Landscape Regulations** (Chapter 14, Article 2, Division 4 of the Municipal Code) related to landscape and water conservation. A number of the issues identified in the letter are unrelated to water conservation. Following are the numbered comments of the April 28 letter with staff responses provided in italics.

General Comments:

1. We appreciate the effort to integrate new state water conservation mandates into an existing Landscape Standards document without significant revisions to the entire text. However, the new water conservation standards represent substantive changes in the design approach requiring new water budget based design standards (MAWA). The revisions that have been integrated into the document are not comprehensive and may cause confusion and misinterpretation. Some of the most important standards, for example, are included in footnotes. We feel more comprehensive revisions to the document are required to maintain clear and concise standards that can be easily followed and administered. The MAWA water budget concept should be integrated into all of the standards. For example, the MAWA is not introduced into the document until page 7 which is past standards for Plant Selection criteria (page 5).

The Landscape Standards is a document containing standards for implementing the Landscape Regulations of the Municipal Code, the Landscape Standards is not a regulatory document. Amendments are proposed to the Landscape Regulations, they will have regulatory authority.

With regard to formatting (use of footnotes and location of water budget within the document), staff is working with the current format of the Landscape Standards and is focused on revisions related to water conservation as required by AB 1881. The immediate concern is implementation of water conservation standards and regulations that comply with AB1881. A separate reformatting and comprehensive update of the entire Landscape Standards had already begun and will resume after adoption of the Water Conservation in Landscaping Regulations. That effort will take considerable time and provide opportunity for public review and comment.

2. We understand that the State Office of Administrative Law has reviewed the State Model Ordinance and has found problems with certain elements. We feel that the City should not rush through adopting revisions to their standards before the state finalizes the document that you must be "at least as effective as".

The State Office of Administrative Law (OAL) did return the State's draft model ordinance for revisions. The issues identified in the OAL letter to the Department of Water Resources and the recent re-draft of the State Model Ordinance do not impact the regulations proposed by the City.

3. As you know, ASLASD along with numerous private associations and public municipalities spent over a year creating new Regional Landscape Water Conservation Standards. Our desire was to create standards that could be integrated in a more comprehensive way throughout the County. We encourage you to closely align your standards with this document and the County of San Diego, as much as practical, to lay the groundwork for more consistent standards throughout the various cities and unincorporated areas of San Diego County.

The City of San Diego is proposing a 1,000 square-foot threshold for compliance with the water budget and is requiring irrigation submeters as is the County of San Diego. The City is also adopting the water budget calculation used by the State which the County is also adopting. The December 2007 draft ordinance developed by the regional working group and the draft State Model Ordinance were used to identify where the City's Landscape Standards and regulations needed to be revised.

4. There are a number of terms and acronyms that are not defined in the document. We feel it would be a definitions section should be added. Examples can be seen in the Regional Draft and County of San Diego's Draft.

The terms are identified on the Landscape Hydrozone Worksheet for Estimated Total Water Use in Appendix E of the Landscape Standards. This worksheet will be used by projects that are required to comply with the water budget. A definitions section for the entire landscape standards will be considered with the comprehensive update proposed after adoption of the landscape water conservation ordinance.

5. The document does not address the use of synthetic turf in the landscape. Although ASLASD has concerns over environmental costs and the broad application of this material, in limited applications it may be appropriate. It is being used as a water conservation tool in the landscape and thus should be addressed. Because of environmental costs and the fact that water is used to cool and clean the synthetic material, we believe that the material should be allowed as part of the MAWA calculations but categorized as a low water use material (0.2 crop coefficient).

Modified. The Landscape Standards have been modified (since the 5/27/09 NR&C hearing) to address the use of artificial turf in the landscape. A crop co-efficient of 0.2 (same as low water using plants) has been assigned to artificial turf so that it is appropriately calculated when determining the Estimated Total Water Use (ETWU). The language was added to the

Hydrozone Worksheet for Estimated Total Water Use in the Landscape Standards. It is also referenced on Page 28 as part of the ETWU calculation

6. Another reason to revise the document more comprehensively is because the original document was created in 1997. It includes a number of outdated equipment standards and recommendations that do not comply with current Regional Water Quality Control Standards.

As previously stated, a comprehensive update to the Landscape Standards will move forward after adoption of amendments to the landscape water conservation ordinance. To do so now would lengthen the process and possibly result in the City missing the January 2010 deadline for implementing AB1881.

Specific Text Comments –Landscape Standards

7. Page 5, Sec 1.1-3: After the word “their”, add: “water use classification”.
- Add “A hydrozone may mix plants of moderate and low water use or mix plants of high water use and moderate water use. If hydrozones contain mixed water use plants, the higher water use plant classification shall be used for the ETWU calculations. No plan shall mix plants of high water use with plants of low water use unless the low water use plants can thrive and flourish with the additional water”.
 - Add: (Water use classification shall be based on the list in WUCOLS III, <http://www.owue.water.ca.gov/docs/wucols00.pdf>.)

Modified. Section 1.1-3 (page 5) was modified as suggested with regards to hydrozones and water use. The Water Use Classification reference is already on page 27 and in the reference materials in Appendix A).

8. Page 5, Sec 1.3, Plant Selection Criteria: This section should include references to the MAWA water budget and .7 ET adjustment factor requirements.

Page 7, Sec 1.3-1.02: Suggest omitting this item which sets a limit on turf grass. By default a MAWA will limit the size of a high water use material such as lawn. Comments: The MAWA water budget by default regulates the amount of cool season grass that will be planted and thus the 10% restriction is arbitrary and unnecessary. As modified the 10% restriction would still apply to smaller projects. Grass within the public right-of-way should not be encouraged because of narrow dimensions, see 1.3-2.03.

Modified. Added requirement for compliance with MAWA and referenced that section of the Landscape Standards. The water budget and evapotranspiration are discussed in Section 2.6 of the Landscape Standards.

Not Modified. The 10% limitation on turf in industrial and commercial development is a current requirement of the landscape regulations (since 1997). Staff is proposing to retain

this restriction on the amount of turf permitted in new commercial and industrial development. Also, grass is currently not permitted within new medians of public rights-of-way. With regard to the right-of-way that is the planting area between the sidewalk and curb in front of residences, the irrigation type is limited to low volume and subsurface irrigation to reduce/eliminate overspray and it is also subject to the MAWA calculation for the adjacent development.

9. Page 7, Sec 1.3-2.03: "Low volume irrigation" is not defined in the document. Add the definition that is included in the County of San Diego's Draft.

Modified.

10. Page 7, Sec 1.3-2.04: Modify gradient to allow up to 3:1 slopes in lawn areas which is the standard in the industry and allows for more interesting design opportunities without sacrificing water conservation goals.

Modified. Section 1.3-2.04 was modified to match the State Model Landscape Ordinance language that limits turf to slopes of no more than 4:1 when the toe of the turfed slope is adjacent to hardscapes. The intent is to reduce runoff.

11. Page 7, Sec 1.4-1: After the word "conducted", add: "and report recommendations implemented."

Modified.

12. Page 8, Sec 1.4-4: Remove "and areas planted with groundcover".

Modified. (see Section is 1.5-6)

13. Page 8, Sec 1.5-1: This requirement should be modified because it conflicts with current Regional Water Quality Control Standards which requires Low Impact Development and not drainage directly into inlets and pipes.

Modified. Used language recommended by the City Storm Water Department.

14. Page 8, Sec 1.5-5: We questions why this section is required and suggest that it be omitted.

Modified. Removed existing language.

15. Page 9, Sec 1.6-8: This tree selection criteria should not be listed in the maintenance section. It would be more appropriate in Section 1.3.

Future. To be considered with future update of the Landscape Standards.

16. Page 9, Sec 1.7-1: Add the requirement for MAWA.

No modification. This section deals with landscape in City rights-of-way and City open space. City approval is required for all landscape related installation in these areas. Reference to MAWA (water budget) is made in the earlier section for Plant Material Selection and in Section 2.6 (water budget). Repeating a concept throughout is unnecessary since all components of the Landscape Standards apply.

17. Page 10, Sec 1.7-2.01: “Sumps when approved...” paragraph is shown twice.

Modified. Removed existing duplicative language.

18. Page 10, Sec 1.7-2.02: Remove the words “around new trees” which inappropriately promotes ringing the rootball of new tree installations.

No modification. This is a standard related to City rights-of-way and is required by the City to prevent roots from breaking sidewalks, curbs and drives resulting in potential injury to the public and costly repairs.

19. Page 12, Sec 2.1-3: strike out text makes this sentence incomplete.

Modified.

20. Page 12, Sec 2.1-5: Suggest this section read as follows: “Water meters. Dedicated (separate) landscape water meters shall be installed for all new development as listed in Table 2.”

No modification. The reference to new development clarifies to the user, before having to go to the table, that the requirement is for new development only and does not apply to existing development. The table further clarifies how types of new development are affected.

21. Page 12, Sec 2.1-6: Submeters – We have discussed the idea of sub-meters amongst our membership at great length. For a very interested a sophisticated homeowner it could be a useful tool, however for 99% of the installations we feel it will never be utilized. For the homeowner to remember to read the meter at regular intervals, document this information, and then calculate conversions to determine their water consumption seems unrealistic. In addition, water use outdoors is based on real time weather conditions and site microclimates. Even if the homeowner had this information it really doesn’t help them manage their irrigation system according to actual weather conditions, irrigation efficiency, and site conditions. We understand that this is an attempt to reach single family homeowners who represent a large water user group. Rather than requiring submeters, we recommend the requirement that educational material be provided to all single family home projects under 5,000 s.f. that outlines “Best management Practices for maximizing Water Conservation in

the Landscape". With a well organized document homeowners can perhaps have a check list of BMP's that if carried out will bring them into compliance. We propose that single family homes over 5,000 s.f. would have to comply with all elements of the ordinance. We suggest omitting Sec 2.1-6 from the document.

No modification. Staff does not propose to remove the requirement for a landscape irrigation submeter. Staff disagrees with the notion that only a very few homeowners will use an irrigation submeter, especially in times when water restrictions and rate increases are imposed. Future homeowners faced with tiered water rates and possible fines will benefit from having a landscape irrigation submeter. Materials for using the submeter will be provided to the homebuyer when the home is purchased.

22. Page 13, Table 2: The table shows requirements for New Industrial, New Commercial and New Multifamily Residential. Should Public Right-of-Ways, Public Buildings and Parks be noted as well?

Please omit the section on Landscape irrigation submeters.

We recognize that dedicated landscape irrigation meters are a very useful water conservation tool. They also they eliminate the issue of sewer charges being added to water utilized in the landscape. If dedicated irrigation meters can be required for smaller projects down to 1,000 square feet we would be in favor of this IF capacity charges would be waived for shared for this dedicated landscape meter for projects from 1,000 to 5,000 sf.

Modified. The table was modified so that it will also capture new public developments.

Not Modified. Comments related to irrigation submeters were captured in response to item 21 above.

The issue of capacity charges is not something that can be addressed in the Landscape Standards or the Landscape Regulations.

23. Page 13, footnote: The footnote on this page defines a landscape area which is a very important part of the document. This should be part of a definitions section, not a footnote that is easily missed. Also, this definition is not comprehensive enough. Please add the following clarification as noted in the County of San Diego document: "Rock and stone or pervious design features, such as decomposed granite ground cover that are adjacent to a vegetated area may be included in the calculation of the MAWA provided the features are integrated into the design of the landscape area and the primary purpose of the feature is decorative." Also water features should be included in the landscape area as a high water use zone.

Future consideration. With regard to use of footnotes, as stated previously, a comprehensive reformatting and updating of the Landscape Standards will continue after adoption of the

amendments to the landscape water conservation ordinance. This document, the Landscape Standards, addresses implementation of the regulations.

No modification. The draft regulations which are the subject of this City Council action, state what constitutes landscape area. Consistent with the rules for the Land Development Code, the word "hardscape" is italicized because it is defined in the definitions section of the Land Development Code (Chapter 11, Article 3, Division 1). Decomposed granite and similar materials are not listed as excluded from the landscape area. The writer incorrectly assumes that such materials are captured within the definition of hardscape, which they are not. The following is the definition of hardscape:

Hardscape means patterned paving material including tiles; mortared pavers; wood timbers; colored, patterned concrete with a tile, brick, or stone appearance; or a patterned paving material with enhanced concrete that has an exposed aggregate, colored, or salt finish.

Modified. Clarified that surface area of water features are calculated as high water use (p 28).

24. Page 15-16, Sec 2.3-4.01, first bullet: We recommend all irrigation systems be supplied with a "smart controller". Definition: "Smart controller" means a weather-based or soil moisture-based irrigation controller that monitors and uses information about environmental conditions for a specific location and landscape to automatically adjust watering schedules.

Modified. The standard for a weather-based or soil moisture-based irrigation controller was added.

25. Page 15, Sec 2.3-4.03: after "such as" replace with "low, medium, and high water use plants"

Modified.

26. Page 15, Sec 2.3-5.01: after "moisture sensing", add "or weather based adjustment".

Modified.

27. Page 17-18, Sec 2.3-8: Omit the last sentence, "water shall be channeled into adjacent drainage structures (swale, gutter, etc.) where possible." This is in conflict with current stormwater standards.

Modified. Used language recommended by the City Storm Water Department.

28. Page 19, Sec 2.3-11.01: This sentence is a duplicate of sec 2.3-10 above, omit.

Modified.

29. Page 20, Sec 2.3-11.03: "Spray heads" is not defined in the document. Please replace this section with the following: "Only low volume irrigation (defined as application of irrigation

water at low pressure through a system of tubing or lateral lines and low volume emitters such as drip lines or bubblers) or subsurface irrigation shall be used to irrigate turf areas within 24 inches of an impermeable surface unless the adjacent impermeable surfaces are designed and constructed to cause water to drain entirely into a landscaped area on site.

Modified. Added language to allow spray heads to be closer than 24" when they next to an impermeable surface that drains entirely onto landscape area.

30. Page 21, Sec 2.3-13.07: The controllers will not need to be adjusted seasonally if they are "smart" controllers. They will adjust daily. Omit this section.

No modification. All controllers are not required to be smart.

31. Section 2.3-13.11: Suggested rewrite: New development, in areas where reclaimed water is available and suitable for irrigation, is to provide for a separate reclaimed water distribution system so that only reclaimed water is used for all irrigation purposes.

Modified.

32. Page 23, Sec 2.4-6: Omit this section regarding Submeters as previously noted.

No modification. Same response as to issue 21 regarding submeters.

33. Page 25, Sec 2.5-11: This section states 200' apart, but page 17 sec 2.3-6.04 states 100' apart. Please clarify.

No modification. The differences are intentional. Section 2.5 addresses City rights-of-way and City open space and section 2.3 relates to private development. The City standards for rights-of-way and City open space are developed according to the City maintenance operations and equipment (hose lengths) used. The private development standards relate to equipment commonly used by the public.

34. Page 25, Sec 2.5-15: This section states "Each and every sprinkler head", while page 17 sec 2.3-6.05 states when a cross gradient exceeds 10 ft., please clarify.

No modification. The differences are intentional. One relates to City rights-of-way and the other relates to private development. The differences are related to standard City operations and maintenance.

35. Page 26, Table 5: Considering that single family homes represent a significant user category, we recommend adding the requirement that single family homes with landscapes over 5,000 square feet be included in the MAWA applicability. We feel that larger single family homeowners will have the consultant expertise availability to them to comply with these complex standards. Smaller single family homeowners, however, typically do not have this expertise at their disposal and thus should be required only to be given Landscape Water Conservation Best Management Practices educational material. We recommend including in applicability any developer installed landscapes such as front yards for new single family

subdivisions. And we believe landscapes for public buildings, parks and right-of-ways should also be noted for inclusion.

Table 5 should also include Public Right-of-Ways, Public Buildings, and Public Parks.

The City of San Diego will have few if any single family residential lots with 5,000 square feet of landscape area since the single family residential lots anticipated in the remaining developable areas of the City will be 5,000 and less. A 5,000 square-foot lot once developed with a home, driveway, walkways, and patios or decking will have less than the 5,000 square-foot threshold for homeowner installed landscape area and likely less than the 2,500 square feet of landscape area threshold for developer installed landscape area identified in the State Model Ordinance. The City proposes that all new single-family homes with 1,000 square feet of landscape area be provided landscape irrigation submeters.

Modified. The regulations and Landscape Standards also been modified to require that all developer (subdivider) installed landscape be subject to the water budget.

Modified. Table 5 was modified so that the requirements would apply to new public projects (all new non-residential development captures public projects).

36. Page 26, footnote: As noted previously, the landscape area definition is incomplete and should be more prominent than in a footnote.

No modification. See response to issue 23 regarding landscape area and issue 1 regarding formatting.

37. Page 26, After explaining MAWA, Estimated Total Water Use (ETWU) should be defined.

Modified.

38. Page 26, Sec 2.6-2.05: The “and” at the end of the sentence should be deleted.

Modified.

39. Page 27, Footnote: This notation regarding recreation areas should be more prominently in the body of the text.

Future consideration. See response to issue 1 regarding formatting. Note that the landscape area is prominently identified in the draft amended landscape ordinance [Water Conservation Section 142.0413(a)].

40. Page 28, 2.7-3: Requiring an audit of a new landscape installation prior to occupancy is unnecessary and redundant. The city will exceed many of the requirements of the State Ordinance and thus in our opinion can disregard this inappropriate requirement. Omit item 2.7-3.

Modified. The requirement for an audit is a component of the State Model Ordinance. The section was modified to clarify that the audit is required to verify that all plant materials, irrigation systems, and landscape features have been installed and operate as approved.

41. Page 38, WUCOLS III should be the first reference regarding plants since it defines their water use classifications.

No modification. Reference materials are cited in alphabetical order. WUCOLS III are also cited within the Landscape Standards (p.27).

42. Page 50, Landscape Standards Appendix D, Approved Irrigation materials List: This Appendix should not apply to all development as the title implies. If the city wishes to create a list of approved irrigation materials for public works projects that would be fine but not for all development.

Future consideration. See issue 1 regarding future comprehensive update.

43. Page 55, Outdated irrigation equipment is listed. Product numbers are listed that are outdated and new technology has not been included. For example, MP Rotators and drip irrigation are not identified as acceptable equipment even though they are 15%-30% more efficient than standard spray heads.

Future consideration. See issue 1 regarding future comprehensive update.

44. Page 61: Should have a main title ETWU (Estimated Total Water Use).

Modified.

45. Page 61: DU should be defined for each application type so all applicants are using the same standards. Riverside County uses the following: Drip: 0.90, Bubblers: 0.85, MP Rotators: 0.75, Rotors: 0.70, Microsprays: 0.70, Spray Heads: 0.60. Best Management Practices Standards created by the Irrigation Association in 2005 include: Drip irrigation .80, Rotator Spray .70, and Fixed Spray .55.

Modified.

46. Page 61, Crop Co-efficient: Applicants should be required to use the average plant factor for each water use classification range. I.E.: Very low: 0.1, Low: 0.2, Medium: 0.5, High: 0.8. Plant water use classification shall be based on the list in WUCOLS III.

Modified.

