

Clean Up Green Up  
Application Packet  
Ordinance No. 184246

Effective June 4, 2016  
Council Districts: 7, 14, 15

**AMENDED REGULATION: AIRBORNE TOXIC CONTROL MEASURE  
TO LIMIT SCHOOL BUS IDLING AND IDLING AT SCHOOLS**

Amended on December 24, 2010, Chapter 10- Mobile Source Operational Controls, Article 1-Motor Vehicles, Section 2480, title 13, California Code of Regulation (CCR) to read as follows:

Section 2480. Airborne Toxic Control Measure to Limit School Bus Idling and Idling at Schools.

(a) **Purpose.** This airborne toxic control measure seeks to reduce public exposure, especially school age children's exposure, to diesel exhaust particulate matter and other toxic air contaminants by limiting unnecessary idling of specified vehicular sources.

(b) **Applicability.** Except as provided in subsection (d), this section applies to the operation of every school bus, transit bus, school pupil activity bus, youth bus, general public paratransit vehicle, and other commercial motor vehicle as defined in subsection (h).

(c) **Idling Control Measure.**

(1) A driver of a school bus, school pupil activity bus, youth bus, or general public paratransit vehicle:

(A) must turn off the bus or vehicle engine upon stopping at a school or within 100 feet of a school, and must not turn the bus or vehicle engine on more than 30 seconds before beginning to depart from a school or from within 100 feet of a school; and

(B) must not cause or allow a bus or vehicle to idle at any location greater than 100 feet from a school for:

(i) more than five consecutive minutes; or

(ii) a period or periods aggregating more than five minutes in any one hour.

(2) A driver of a transit bus or of a commercial motor vehicle not identified in (c)(1):

(A) must turn off the bus or vehicle engine upon stopping at a school and must not turn the bus or vehicle engine on more than 30 seconds before beginning to depart from a school; and

(B) must not cause or allow a bus or vehicle to idle at any location within 100 feet of, but not at, a school for:

(i) more than five consecutive minutes; or

(ii) a period or periods aggregating more than five minutes in any one hour.

(3) A motor carrier of a school bus, school pupil activity bus, youth bus, or general public paratransit vehicle must ensure that:

(A) the bus or vehicle driver, upon employment and at least once per year thereafter, is informed of the requirements in (c)(1), and of the consequences, under this section and the motor carrier's terms of employment, of not complying with those requirements;

(B) all complaints of non-compliance with, and enforcement actions related to, the requirements of (c)(1) are reviewed and remedial action is taken as necessary; and

(C) records of (3)(A) and (B) are kept for at least three years and made available or accessible to enforcement personnel as defined in subsection (g) within three business days of their request.

(4) A motor carrier of a transit bus or of a commercial motor vehicle not identified in (c)(1) must ensure that:

(A) the bus or vehicle driver, upon employment and at least once per year thereafter, is informed of the requirements in (c)(2), and of the consequences, under this section and the motor carrier's terms of employment, of not complying with those requirements;

(B) all complaints of non-compliance with, and enforcement actions related to, the requirements of (c)(2) are reviewed and remedial action is taken as necessary; and

(C) records of (4)(A) and (B) are kept for at least three years and made available or accessible to enforcement personnel as defined in subsection (g) within three business days of their request.

**(d) Exemptions**

This section does not apply for the period or periods during which:

(1) idling is necessary while stopped:

(A) for an official traffic control device;

(B) for an official traffic control signal;

(C) for traffic conditions over which the driver has no control, including, but not limited to: stopped in a line of traffic; or

(D) at the direction of a peace officer;

(2) idling is necessary to ascertain that the school bus, transit bus, school pupil activity bus, youth bus, general public paratransit vehicle, or other commercial motor vehicle is in safe operating condition and equipped as required by all provisions of law, and all equipment is in good working order, either as part of the driver's daily vehicle inspection, or as otherwise needed;

(3) idling is necessary for testing, servicing, repairing, or diagnostic purposes;

(4) idling is necessary, for a period not to exceed three to five minutes (as per the recommendation of the manufacturer), to cool down a turbo-charged diesel engine before turning the engine off;

(5) idling is necessary to accomplish work for which the vehicle was designed, other than transporting passengers, for example:

(A) collection of solid waste or recyclable material by an entity authorized by contract, license, or permit by a school or local government;

(B) controlling cargo temperature; or

(C) operating a lift, crane, pump, drill, hoist, mixer, or other auxiliary equipment other than a heater or air conditioner;

(6) idling is necessary to operate:

(A) a lift or other piece of equipment designed to ensure safe loading, unloading, or transport of persons with one or more disabilities; or

(B) a heater or an air conditioner of a bus or vehicle that has, or will have, one or more children with exceptional needs aboard;

(7) idling is necessary to operate defrosters, heaters, air conditioners, or other equipment to ensure the safety or health of the driver or passengers, or as otherwise required by federal or State motor carrier safety regulations; or

(8) idling is necessary solely to recharge a battery or other energy storage unit of a hybrid electric bus or vehicle.

**(e) Relationship to Other Law**

Nothing in this section allows idling in excess of other applicable law, including, but not limited to:

(1) [Title 13 California Code of Regulations Section 1226](#);

(2) [Vehicle Code Section 22515](#); or

(3) any local ordinance or requirement as stringent as, or more stringent than, this section.

**(f) Penalties**

(1) For each violation of subsection (c)(1), a driver of a school bus, school pupil activity bus, youth bus, or general public paratransit vehicle is subject to the civil and criminal penalties specified in [Health and Safety Code section 39642](#).

(2) For each violation of subsection (c)(2), a driver of a transit bus or other commercial motor vehicle is subject to the civil and criminal penalties specified in [Health and Safety Code section 39642](#).

(3) For each violation of subsection (c)(3), a motor carrier of a school bus, school pupil activity bus, youth bus, or general public paratransit vehicle is subject to the civil and criminal penalties specified in [Health and Safety Code section 39642](#).

(4) For each violation of subsection (c)(4), a motor carrier of a transit bus or other commercial motor vehicle is subject to the civil and criminal penalties specified in [Health and Safety Code section](#)

[39642.](#)

(g) Enforcement. This section may be enforced by the Air Resources Board, peace officers as defined in California Penal Code, title 3, chapter 4.5, Sections 830 et seq. and their respective law enforcement agencies' authorized representatives, and air pollution control or air quality management districts.

**(h) Definitions.**

The following terms are defined for the purposes of this section:

(1) Children With Exceptional Needs. "Children with exceptional needs" means children meeting eligibility criteria described in [Education Code Section 56026](#).

(2) Commercial Motor Vehicle. "Commercial Motor Vehicle" means any vehicle or combination of vehicles defined in [Vehicle Code Section 15210\(b\)](#) and any other motor truck with a gross vehicle weight rating of 10,001 pounds or more, with the following exceptions:

(A) a zero emission vehicle; or

(B) a pickup truck defined in [Vehicle Code Section 471](#).

(3) Driver. "Driver" means any person who drives or is in actual physical control of a vehicle.

(4) General Public Paratransit Vehicle. "General public paratransit vehicle" means any motor vehicle defined in [Vehicle Code Section 336](#), other than a zero emission general public paratransit vehicle, that is transporting school pupils at or below the 12th grade level to or from public or private schools or public or private school activities.

(5) Gross Vehicle Weight Rating. "Gross vehicle weight rating" means the weight specified by the manufacturer as the loaded weight of a single vehicle.

(6) Hybrid Electric Bus or Vehicle. "Hybrid electric bus or vehicle" means any school bus, transit bus, school pupil activity bus, youth bus, general public paratransit vehicle, or other commercial motor vehicle equipped with at least the following two sources of motive energy on board:

(A) an electric drive motor that must be used to partially or fully drive the bus or vehicle wheels;  
and

(B) one of the following:

(i) an internal combustion engine;

(ii) a turbine; or

(iii) a fuel cell.

(7) Idling. "Idling" means the engine is running while the bus or vehicle is stationary.

(8) Motor Carrier. "Motor carrier" means the registered owner, lessee, licensee, school district superintendent, or bailee of any school bus, transit bus, school pupil activity bus, youth bus, general public paratransit vehicle, or other commercial motor vehicle who operates or directs the operation of any such bus or vehicle on either a for-hire or not-for-hire basis.

(9) Motor Truck. "Motor truck" or "motortruck" means a motor vehicle designed, used, or maintained primarily for the transportation of property.

(10) Official Traffic Control Device. "Official traffic control device" means any sign, signal, marking or device, consistent with [Section 21400 of the Vehicle Code](#), placed or erected by authority of a public body or official having jurisdiction, for the purpose of regulating, warning, or guiding traffic, but does not include islands, curbs, traffic barriers, speed humps, speed bumps, or other roadway design features.

(11) Official Traffic Control Signal. "Official traffic control signal" means any device, whether manually, electrically, or mechanically operated, by which traffic is alternately directed to stop and proceed and which is erected by authority of a public body or official having jurisdiction.

(12) School. "School" means any public or private school used for the purposes of education and instruction of more than 12 school pupils at or below the 12th grade level, but does not include any private school in which education and instruction is primarily conducted in private homes. The term includes any building or structure, playground, athletic field, or other area of school property. The term excludes unimproved school property.

(13) School Bus. "School bus" means any school bus defined in [Vehicle Code Section 545](#), except a zero emission school bus.

(14) School Pupil Activity Bus. "School pupil activity bus" means any bus defined in [Section 546 of the Vehicle Code](#), except a zero emission school pupil activity bus.

(15) Transit Bus. "Transit bus" means any bus defined in [Vehicle Code Section 642](#), except a zero emission transit bus.

(16) Youth Bus. "Youth bus" means any bus defined in [Vehicle Code Section 680](#), except a zero emission youth bus.

(17) Zero Emission School Bus, Transit Bus, School Pupil Activity Bus, Youth Bus, General Public Paratransit Vehicle, or Other Commercial Motor Vehicle. A "zero emission school bus, transit bus, school pupil activity bus, youth bus, general public paratransit vehicle, or other commercial motor vehicle" means any bus or vehicle certified to zero-emission standards.

Note: Authority cited: [Sections 39600, 39601, 39658, 39667 and 39674, Health and Safety Code](#); and *Western Oil & Gas Assn. v. Orange County Air Pollution Control Dist.* (1975) 14 Cal.3d.411. Reference: [Sections 39002, 39003, 39027, 39500, 39600, 39640, 39641, 39642, 39650, 39655, 39656, 39657, 39658, 39659, 39662, 39665, 39674, 39675 and 42403.5, Health and Safety Code](#); and [Section 27153, Vehicle Code](#).

#### HISTORY

13 CCR § 2480  
Cal. Admin. Code tit. 13, § 2480

Page 6

1. New chapter 10, article 1 (section 2480) and section filed 6-16-2003; operative 7-16-2003 (Register 2003, No. 25).

2. Change without regulatory effect amending subsections (f)(1)-(4) and Note filed 3-25-2010 pursuant to [section 100, title 1, California Code of Regulations](#) (Register 2010, No. 13).

13 CCR § 2480, 13 CA ADC § 2480

This database is current through 12/24/10 Register 2010, No. 52

**§ 2485. Airborne Toxic Control Measure to Limit Diesel-Fueled Commercial Motor Vehicle Idling.**

(a) *Purpose.* The purpose of this airborne toxic control measure is to reduce public exposure to diesel particulate matter and other air contaminants by limiting the idling of diesel-fueled commercial motor vehicles.

(b) *Applicability.* This section applies to diesel-fueled commercial motor vehicles that operate in the State of California with gross vehicular weight ratings of greater than 10,000 pounds that are or must be licensed for operation on highways. This specifically includes:

(1) California-based vehicles; and

(2) Non-California-based vehicles.

(c) *Requirements.*

(1) *Idling Restriction.*

On or after February 1, 2005, the driver of any vehicle subject to this section shall comply with the following requirements, except as noted in subsection (d) below:

- (A) the driver shall not idle the vehicle's primary diesel engine for greater than 5.0 minutes at any location.
- (B) the driver shall not operate a diesel-fueled auxiliary power system (APS) to power a heater, air conditioner, or any ancillary equipment on that vehicle during sleeping or resting in a sleeper berth for greater than 5.0 minutes at any location when within 100 feet of a restricted area.

(2) *Use of Alternative Technologies.*

- (A) On or after January 1, 2008, the driver shall not operate an internal combustion APS on any vehicle equipped with a 2007 and subsequent model year primary diesel engine unless the vehicle is:
  - 1. equipped with an APS meeting the emissions performance requirements found in subsection (c)(3)(A), below; and
  - 2. the vehicle is equipped with a label meeting the requirements pursuant to section 35.B.4 of the "California Exhaust Emission Standards and Test Procedures for 2004



and Subsequent Model Heavy-Duty Diesel Engines and Vehicles,” as incorporated by reference in title 13, CCR, section 1956.8(b).

- (B) On or after January 1, 2008, the driver shall not operate a fuel-fired heater on any vehicle equipped with a 2007 and subsequent model year primary diesel engine unless the fuel-fired heater meets the emissions performance requirements found in subsection (c)(3)(B), below;
  - (C) On or after January 1, 2008, the driver of a vehicle equipped with a 2006 or older model year primary diesel engine may use and operate in California any certified internal combustion APS with or without the additional PM control specified in subsection (c)(3)(A)1. or any other certified alternative idling reduction technology.
- (3) *Compliance Requirements.* As an alternative to idling the primary engine, diesel engines/vehicles may, as an option, be equipped with alternative technologies, as listed and defined below in (A), (B), and (C) of this subsection. If so equipped, these technologies are subject to the following requirements:
- (A) *Internal Combustion APS.*
    - 1. In order to operate in California, an APS utilizing an internal combustion engine must comply with applicable California off-road and/or federal non-road emission standards and test procedures for its fuel type and power category. In addition, diesel-fueled APSs installed on vehicles equipped with primary engines certified to the 2007 and subsequent model year heavy-duty diesel engine standards, pursuant to section 1956.8(a)(2)(A) of title 13, CCR, shall either,
      - a. be equipped with a verified Level 3 in-use strategy for particulate matter control (see title 13, CCR, sections 2700 to 2710), or
      - b. have its exhaust routed directly into the vehicle’s exhaust pipe, upstream of the diesel particulate matter aftertreatment device.
    - 2. With advance Executive Officer approval, a certifying/verifying APS manufacturer may petition for an alternate compliance strategy other than described in (A)1.a. or b. in this subsection above. However, this provision is

limited to manufacturers that can demonstrate, to the satisfaction of the Executive Officer, that their alternative strategy is equivalent (or “cleaner”), from an emissions standpoint, compared to the requirement described in (A)1.a. or b. in this subsection above. As an example, strategies that can use the available electric power infrastructure, instead of solely operating a diesel-fueled APS for engine and/or cab heating and cooling, may be able to use such a strategy to demonstrate compliance with these requirements.

- (B) *Fuel-Fired Heaters.* Fuel-fired heaters must comply with the applicable California emission standards and test procedures as specified in the Low Emission Vehicle program requirements found in title 13, CCR, subsections 1961(a)(15) and (d), or in Part I.E.1.13 of the “California Exhaust Emission Standards and Test Procedures for 2001 and Subsequent Model Passenger Cars, Light-Duty Trucks and Medium-Duty Vehicles,” as incorporated by reference in title 13, CCR, section 1961(d). However, the specified requirement that limits fuel-fired heaters from being operated above 40°F does not apply.
- (C) *Other Idle Reduction Technologies.* Other technologies that will reduce idling emissions may also be used, including the use of batteries, fuel cells, power inverter/chargers for on-shore electrical power, on-shore electric power infrastructure also known as truck stop electrification, and other technologies that produce minimal or no emissions. With the exception of battery and fuel cell powered APSs, power inverter/chargers, and electric power infrastructure, the use of other technologies are subject to advance Executive Officer approval and must be at least as effective in reducing idling emissions as the technologies described in subsections (c)(3)(A), above, or the NOx idling emission standard specified in title 13, CCR, section 1956.8(a)(6)(C). The Executive Officer shall use good engineering judgment and test data to determine if an idle reduction technology provides idling emission controls equivalent to the standards specified in subsection (c)(3)(A) above, or in title 13, CCR, section 1956.8(a)(6)(C).
- (D) *Labeling Requirements.* 2007 and subsequent model year commercial diesel vehicles equipped with an internal combustion APS meeting the requirements specified in subsection (c)(3)(A) shall have a label affixed to the hood of the vehicle to allow operation of the APS in California. The labels shall meet the requirements specified in section 35.B.4 of the “California Exhaust Emission Standards and Test Procedures

for 2004 and Subsequent Model Heavy-Duty Diesel Engines and Vehicles,” as incorporated by reference in title 13, CCR, section 1956.8(b).

(d) *Exceptions.*

- (1) Except when a vehicle is located within 100 feet of a restricted area, subsection (c)(1)(A) does not apply, if the vehicle is equipped with
  - (A) a primary diesel engine meeting the optional NOx idling emission standard pursuant to title 13, CCR, section 1956.8(a)(6)(C); and
  - (B) a label meeting the requirements pursuant to section 35.B.4 of the “California Exhaust Emission Standards and Test Procedures for 2004 and Subsequent Model Heavy-Duty Diesel Engines and Vehicles,” as incorporated by reference in title 13, CCR, section 1956.8(b).
- (2) Subsection (c)(1) does not apply for the period or periods during which
  - (A) a bus is idling for
    - (1) up to 10.0 minutes prior to passenger boarding, or
    - (2) when passengers are onboard;
  - (B) prior to January 1, 2008, idling of the primary diesel engine is necessary to power a heater, air conditioner, or any ancillary equipment during sleeping or resting in a sleeper berth. This provision does not apply when operating within 100 feet of a restricted area;
  - (C) idling when the vehicle must remain motionless due to traffic conditions, an official traffic control device, or an official traffic control signal over which the driver has no control, or at the direction of a peace officer, or operating a diesel-fueled APS or other device at the direction of a peace officer;
  - (D) idling when the vehicle is queuing that at all times is beyond 100 feet from any restricted area;
  - (E) idling of the primary diesel engine, operating a diesel-fueled APS, or operating other devices when forced to remain motionless due to immediate adverse weather conditions

affecting the safe operation of the vehicle or due to mechanical difficulties over which the driver has no control;

- (F) idling to verify that the vehicle is in safe operating condition as required by law and that all equipment is in good working order, either as part of a daily vehicle inspection or as otherwise needed, provided that such engine idling is mandatory for such verification;
- (G) idling of the primary diesel engine, operating a diesel-fueled APS, or operating other devices is mandatory for testing, servicing, repairing, or diagnostic purposes, including regeneration or maintenance of the exhaust emission control device during engine idling when the dashboard indicator light, if so equipped, is illuminated indicating that regeneration or maintenance is in progress;
- (H) idling when positioning or providing a power source for equipment or operations, other than transporting passengers or propulsion, which involve a power take off or equivalent mechanism and is powered by the primary engine for:
  - (1) controlling cargo temperature, operating a lift, crane, pump, drill, hoist, mixer (such as a ready mix concrete truck), or other auxiliary equipment;
  - (2) providing mechanical extension to perform work functions for which the vehicle was designed and where substitute alternate means to idling are not reasonably available; or
  - (3) collection of solid waste or recyclable material by an entity authorized by contract, license, or permit by a school or local government;
- (I) idling of the primary diesel engine, operating a diesel-fueled APS, or operating other devices when operating defrosters, heaters, air conditioners, or other equipment solely to prevent a safety or health emergency;
- (J) idling of the primary diesel engine, operating a diesel-fueled APS, or operating other devices by authorized emergency vehicles while in the course of providing services for which the vehicle is designed;
- (K) idling of military tactical vehicles during periods of training, testing, and deployment; and

- (L) idling when operating equipment such as a wheelchair or people assist lift as prescribed by the Americans with Disabilities Act.

(e) *Relationship to Other Law.*

Nothing in this section allows idling in violation of other applicable law, including, but not limited to:

- (1) California Vehicle Code Section 22515;
- (2) Title 13, Section 2480, California Code of Regulations;
- (3) California Health and Safety Code Section 40720; or
- (4) any applicable ordinance, rule, or requirement as stringent as, or more stringent than, this section.

- (f) *Enforcement.* This section may be enforced by the Air Resources Board; peace officers as defined in California Penal Code, title 3, chapter 4.5, Sections 830 et seq. and their respective law enforcement agencies' authorized representatives; and air pollution control or air quality management districts.

- (g) *Penalties.* For violations of subsection (c)(1), (c)(2) or (c)(3), the driver of a subject vehicle is subject to a minimum civil penalty of 300 dollars and to criminal penalties as specified in the Health and Safety Code and the Vehicle Code.

(h) *Definitions.*

The following definitions apply to this section:

- (1) "Authorized emergency vehicle" is as defined in Vehicle Code Section 165.
- (2) "Auxiliary power system" or "APS" means any device that is permanently dedicated to the vehicle on which it is installed and provides electrical, mechanical, or thermal energy to the primary diesel engine, truck cab, and/or sleeper berth, bus's passenger compartment or any other commercial vehicle's cab, as an alternative to idling the primary diesel engine.
- (3) "Bus" means any vehicle defined in Title 13, California Code of Regulations, Section 2480, subsections (h) (13)-(16), inclusive or as defined in the Vehicle Code Section 233.

- (4) "Commercial Motor Vehicle" means any vehicle or combination of vehicles defined in Vehicle Code Section 15210(b) and any other motor truck or bus with a gross vehicle weight rating of 10,001 pounds or more, except the following:
  - (A) a zero emission vehicle; or
  - (B) a pickup truck as defined in Vehicle Code Section 471.
- (5) "Driver" is as defined in Vehicle Code Section 305.
- (6) "Fuel-fired heater" means a fuel burning device that creates heat for the purpose of (1) warming the cab or sleeper berth compartment of a vehicle or (2) warming the engine oil and/or coolant for easy start-up of the vehicle's engine but does not contribute to the propulsion of the vehicle.
- (7) "Gross vehicle weight rating" is as defined in Vehicle Code Section 350.
- (8) "Highway" is as defined in Vehicle Code Section 360.
- (9) "Idling" means the vehicle engine is running at any location while the vehicle is stationary.
- (10) "Motor truck" or "motortruck" means a motor vehicle designed, used, or maintained primarily for the transportation of property.
- (11) "Official traffic control device" is as defined in Vehicle Code Section 440.
- (12) "Official traffic control signal" is as defined in Vehicle Code Section 445.
- (13) "Owner" is as defined in Vehicle Code Section 460.
- (14) "Primary diesel engine" means the diesel-fueled engine used for vehicle propulsion.
- (15) "Queuing" means (A) through (C)
  - (A) the intermittent starting and stopping of a vehicle;
  - (B) while the driver, in the normal course of doing business, is waiting to perform work or a service; and
  - (C) when shutting the vehicle engine off would impede the progress of the queue and is not practicable.
  - (D) Queuing does not include the time a driver may wait motionless in line in anticipation of the start of a workday or opening of a location where work or a service will be performed.

- (16) "Restricted area" means any real property zoned for individual or multifamily housing units that has one or more of such units on it.
- (17) "Safety or health emergency" means:  
(A) a sudden, urgent, or usually unforeseen, occurrence; or  
(B) a foreseeable occurrence relative to a medical or physiological condition.
- (18) "Sleeper berth" is as defined in Title 13, California Code of Regulations, Section 1265.
- (19) "Vehicle" is as defined in the Vehicle Code Section 670.

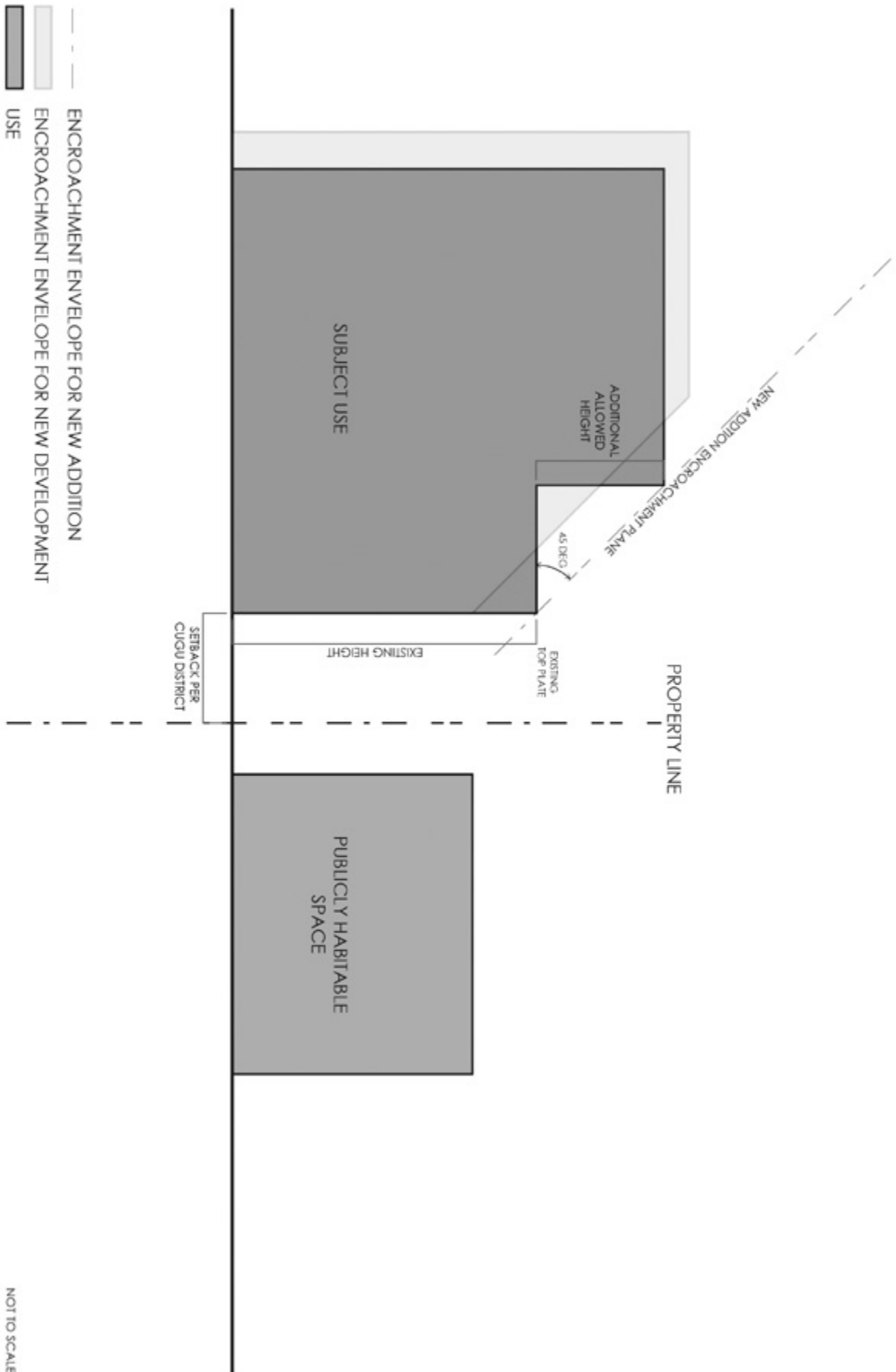
Authority: Sections 39600, 39601, 39614(b)(6)(A), 39658, 39667, 43000.5(d), 43013(b), 43013(h), 43018(b) and 43018(c), Health and Safety Code; and *Western Oil & Gas Assn. v. Orange County Air Pollution Control Dist.* (1975) 14 Cal.3d.411.

Reference: Sections 39002, 39003, 39027, 39500, 39600, 39650, 39655, 39656, 39657, 39658, 39659, 39662, 39665, 39674, 39675, 39667, 42400, 42400.1, 42400.2, 42400.3, 42402, 42402.1, 42402.2, 42402.3, 42403.5, 42410, 43000.5(d), 43013 and 43018, Health and Safety Code; Sections 305, 336, 350, 440, 445, 545, 546, 642, 680, 21400, 22452, 22515, 27153, 40001 and 40001(b)(5), Vehicle Code; and Sections 1201,1900, 1962 and 2480, Title13, California Code of Regulations.



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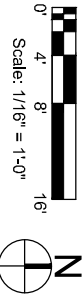
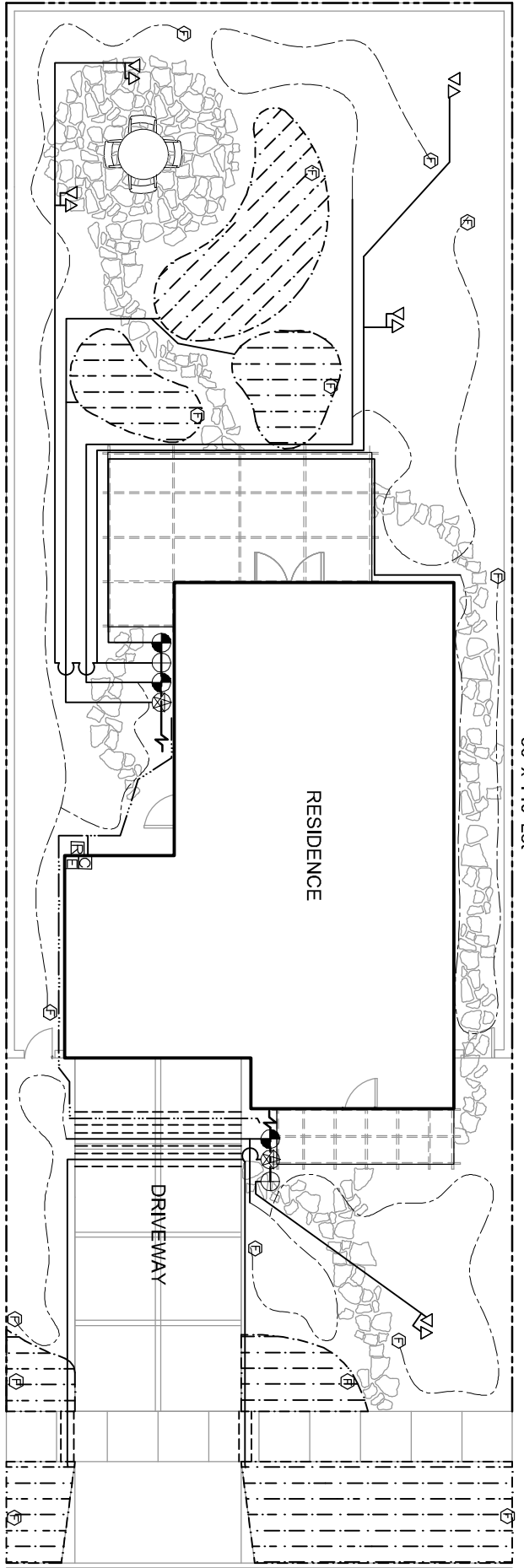
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**Table 2.1 Preferred Trees: E=Evergreen, C=Coniferous, D=Deciduous**

Botanical Name/ Common Name	Type	Height	Crown Spread	Spacing	Drought Tolerant	Native
Callistemon Salignus/ White Bottle Brush	E.	20-40	20-40	30-35	Yes	
Cupressus Glabra/ Smooth Arizona Cypress	C.	40+	40+	35-40	Yes	
Cinnamomum Camphora/ Camphor Tree	E.	20-40	40+	35-40	Yes	
Calistemon Viminalis/ Weeping Bottle Brush	E.	20-40	20-40	30-35	Yes	
Geijera Parviflora/ Australian Willow	E.	20-40	20-40	30-35	Yes	
Harpephyllum Caffrum/ Kaffir Plum	E.	20-40	20-40	35-40	Yes	
Lyonathamnus Floribondus/ Catalina Ironwood	E.	40+	20-40	30-35	Yes	Yes
Melaleuca Linariifolia/ Flaxleaf Paperbark	E.	20-40	20-40	30-35	Yes	
Melaleuca Quinquenervia/ Cajeput	E.	20-40	20-40	30-35	Yes	
Metrosideros Excelsus/ New Zealand Christmas Tree	E.	-20	-20	25-30	Yes	
Olea Europae/ Olive	E.	20-40	-20	30-35	Yes	
Photinia Serrulata/ Chinese Photinia	E.	-20	-20	25-30	Yes	
Pinus Canariensis/ Canary Island Pine	C.	40+	20-40	35-40	Yes	
Pinus Halepensis/ Aleppo Pine	C.	40+	40+	35-40	Yes	
Pinus Pinea/ Italian Stone Pine	C.	40+	40+	35-40	Yes	
Pinus Torreyana/ Torrey Pine	C.	40+	40+	35-40	Yes	Yes
Pistacia Chinensis/ Chinese Pistache	D.	40+	40+	35-40	Yes	
Quercus Lobata/ Valley Oak	D.	40+	40+	35-40	Yes	Yes
Rhus Lancea/ African Sumac	E.	20-40	20-40	30-35	Yes	
Schinus Molle/ California Pepper	E.	20-40	20-40	30-35	Yes	
Schinus Terebinthifolius/ Brazilian Pepper	E.	20-40	20-40	30-35	Yes	
Ulmus Parvifolia Sempervirens/ Chinese Elm	E.	20-40	20-40	35-40	Yes	
Umbellularia Californica/ California Laurel	E.	40+	20-40	35-40	Yes	Yes

# FOOTHILLS Irrigation Plan

50' x 140' Lot



SYMBOL	EQUIPMENT	DESCRIPTION
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	EXISTING IRRIGATION MAINLINE	CONNECT TO EXISTING IRRIGATION MAINLINE
	PVC LATERAL	PVC PIPE 3/4" - 1" SCHEDULE 40
	PVC SLEEVE	PVC PIPE SCHEDULE 40 SLEEVING
	VALVE WIRE	IRRIGATION CONTROL WIRE #18UF
	SMART CONTROLLER	WEATHER BASED CONTROLLER
	SENSOR	RAIN/TEMPERATURE SENSOR
	N/A	ELECTRICAL OUTLET
	SHRUB DRIP VALVE	DRIP AUTOMATIC CONTROL VALVE ASSEMBLY
	GROUNDCOVER DRIP VALVE	DRIP AUTOMATIC CONTROL VALVE ASSEMBLY
	TREE VALVE	AUTOMATIC CONTROL VALVE ASSEMBLY
	BLANK DRIP TUBING FOR SHRUB AREAS	1/2" BLANK FLEXIBLE TUBING
	GROUNDCOVER DRIP TUBING	INLINE DRIP TUBING WITH BUILT-IN EMITTERS
	FLUSH CAP	SELF-FLUSHING END VALVE
	BUBBLER FOR TREES	2 BUBBLERS PER TREE



2 BUBBLERS PER TREE  
 (≤ 4 GAL/HR)



DRIP TUBING WITH 1 OR 2 DRIP EMITTER(S) PER SHRUB



INLINE DRIP TUBING GRID WITH EVEN SPACING BETWEEN DRIP LINES FOR GROUNDCOVER AREAS



SMART CONTROLLER USING REAL TIME WEATHER DATA



RAIN SENSOR



AUTOMATIC CONTROL VALVE ASSEMBLY


















MICRO-SPRAY DRIP SPRINKLER

NOTE: LAYOUT SHOWN IS DIAGRAMMATIC. ADJUST TO FIT ACTUAL CONDITIONS.

# FOOTHILLS Irrigation Installation

## LEGEND

SYMBOL	EQUIPMENT	INSTALLATION
	EXISTING IRRIGATION MAINLINE	CONNECT TO EXISTING IRRIGATION MAINLINE BY REPLACING EXISTING SPRINKLER VALVES WITH NEW REDUCED PRESSURE DRIP VALVES (10 GALLONS PER MIN. MAX. FLOW) USING 1" PVC SCHEDULE 40 PIPE. STATIC WATER PRESSURE TO BE 45 POUNDS PER SQUARE INCH TO ACCOMMODATE THIS DESIGN.
	PVC LATERAL	PVC PIPE 3/4" - 1" SCHEDULE 40 LATERAL LINES. 12" BELOW GRADE.
	PVC SLEEVE	PVC PIPE SCHEDULE 40 SLEEVING. TWICE THE DIAMETER OF PIPE OR WIRE BUNDLE CARRIED. PLACE BELOW PAVING.
	VALVE WIRE	IRRIGATION CONTROL WIRE #18BUE ALUMINUM WIRE GAUGE DIRECT BURIAL. 6 -WIRE STRAND. BURIED 6" DEEP (U.L. APPROVED).
NO SYMBOL	WIRE NUT	WATER-PROOF WIRE CONNECTORS FOR USE ON ALL WIRE CONNECTIONS (U.L. APPROVED).
	SMART CONTROLLER	WEATHER BASED CONTROLLER UTILIZING PAID WEATHER SUBSCRIPTION. RAIN/TEMPERATURE SENSOR OR WIFI. INTERIOR WALL MOUNT.
	SENSOR	RAIN/TEMPERATURE SENSOR. MOUNT TO EAVE OF ROOF IN FULL SUN EXPOSURE AND WIRE TO CONTROLLER.
	N/A	120 VOLT ELECTRICAL POWER OULET.
	SHRUB DRIP VALVE	1" DRIP AUTOMATIC CONTROL VALVE ASSEMBLY W/ ANTI-SIPHON VALVE. 1" FILTER AND 40 PSI REGULATOR. INSTALL 6" ABOVE HIGHEST POINT.
	GROUNDCOVER DRIP VALVE	3/4" DRIP VALVE ASSEMBLES CAN BE USED FOR FLOWS LESS THAN 5 GALLONS PER MINUTE.
	TREE VALVE	3/4" DRIP VALVE ASSEMBLES CAN BE USED FOR FLOWS LESS THAN 5 GALLONS PER MINUTE.
	3/4" AUTOMATIC CONTROL VALVE ASSEMBLY W/ ANTI-SIPHON VALVE. INSTALL 6" ABOVE HIGHEST POINT.	
	BLANK DRIP TUBING FOR SHRUBS	1/2" BLANK FLEXIBLE TUBING (100' MAX. LENGTH), CONNECTED TO PVC LATERAL LINE WITH 2 MICRO-SPRAY DRIP EMITTERS PUNCHED INTO TUBING AT EACH SHRUB INSTALL ON-GRADE BELOW MULCH.
NO SYMBOL	MICRO-SPRAY DRIP EMITTERS FOR SHRUBS	PRESSURE COMPENSATING MICRO-SPRAY DRIP EMITTERS (1.0 GALLON PER HOUR). TWO PER SHRUB. 300 SHRUBS CAN BE PLANTED USING A 1" VALVE AT ROUGHLY 10 GALLONS PER MINUTE. 150 SHRUBS CAN BE PLANTED USING A 3/4" VALVE AT ROUGHLY 5 GALLONS PER MINUTE.
NO SYMBOL	EMITTER STAKE FOR SHRUBS	ONE EMITTER STAKE PER MICRO-SPRAY DRIP EMITTER CONNECTED WITH 6' OF 1/4" TUBING TO BLANK DRIP TUBING.
	GROUNDCOVER DRIP TUBING	INLINE DRIP TUBING WITH BUILT-IN EMITTERS EVERY 18" ON CENTER WITH A ROW SPACING OF 18" AND AN EMITTER FLOW OF 0.6 GPH. ALL TUBING SHALL BE INSTALLED ON GRADE BELOW MULCH W/ WIRE STAKES EVERY 5' ON CENTER. 2000 S.F. MAXIMUM AREA TO CREATE A FLOW OF ROUGHLY 10 GALLONS PER MINUTE. 1000 S.F. MAXIMUM AREA TO CREATE A FLOW OF ROUGHLY 5 GALLONS PER MINUTE.
	FLUSH CAP	1/2" BARB X 3/4" THREAD W/ PLASTIC CAP AS A FLUSH POINT. ONE REQUIRED AT THE END OF EACH TUBING LENGTH.
NO SYMBOL	DRIP FITTINGS	ALL CONNECTIONS BETWEEN DRIPLINE TUBING SHALL BE MADE USING 1/2" BARB X BARB FITTINGS.
NO SYMBOL	BUBBLERS FOR TREES	ALL CONNECTIONS BETWEEN DRIPLINE TUBING AND PVC SHALL BE MADE USING 1/2" BARB X 1/2" THREAD.
	BUBBLERS FOR TREES	BUBBLER ON PVC SCHEDULE 80 RISER, TWO PER TREE.

CLICK [HERE](#) FOR MORE INFORMATION ABOUT IRRIGATION.



**Drip Irrigation Valve Kit comes with the following:**

- Low Flow Anti-siphon Valve—must be 6 inches above the highest drip tubing. (this is not a typical sprinkler valve)
- Pressure Regulator (usually set at 30 psi)
- Filter

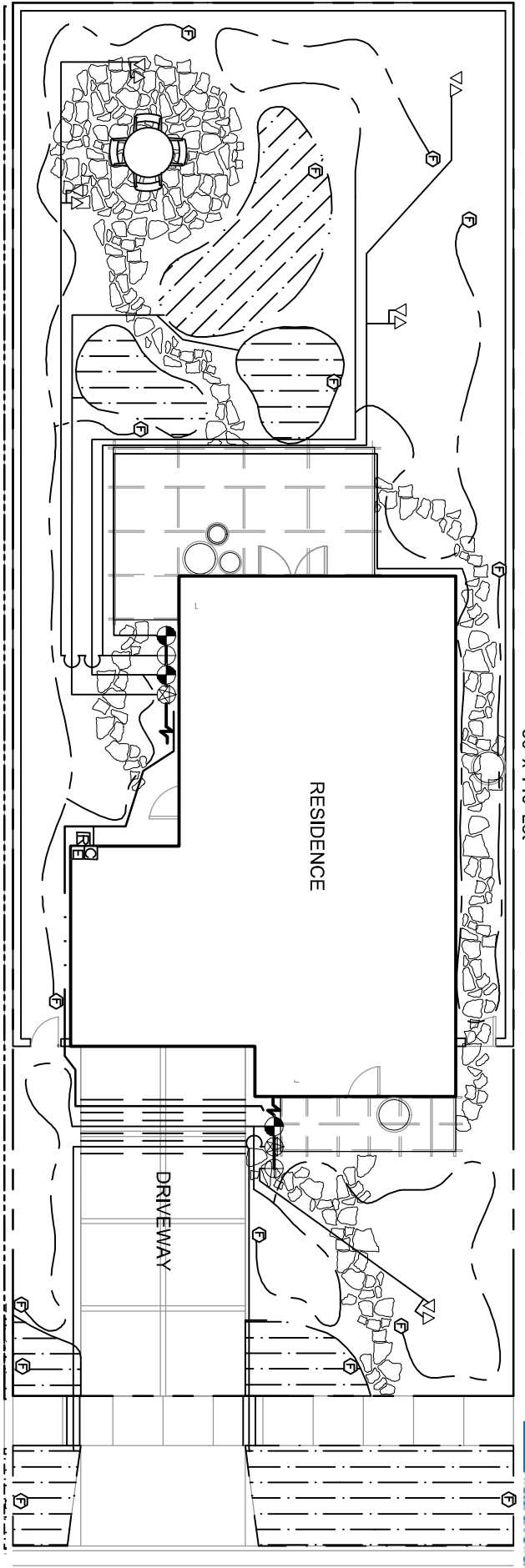
**Pipes include:**

- Above the ground pipe—PVC schedule 80 or copper
- Below the ground pipe - PVC schedule 40

IMAGE COURTESY OF SANTA MONICA OFFICE OF SUSTAINABILITY AND THE ENVIRONMENT

# L.A. BASIN Irrigation Plan

50' x 140' Lot



## LEGEND

SYMBOL	EQUIPMENT	DESCRIPTION
	EXISTING IRRIGATION MAINLINE	CONNECT TO EXISTING IRRIGATION MAINLINE
	PVC LATERAL	PVC PIPE 3/4" - 1" SCHEDULE 40
	PVC SLEEVE	PVC PIPE SCHEDULE 40 SLEEVING
	VALVE WIRE	IRRIGATION CONTROL WIRE #18UF
	SMART CONTROLLER	WEATHER BASED CONTROLLER
	SENSOR	RAIN/TEMPERATURE SENSOR
	N/A	ELECTRICAL OUTLET
	SHRUB DRIP VALVE	DRIP AUTOMATIC CONTROL VALVE ASSEMBLY
	GROUNDCOVER DRIP VALVE	DRIP AUTOMATIC CONTROL VALVE ASSEMBLY
	TREE VALVE	AUTOMATIC CONTROL VALVE ASSEMBLY
	BLANK DRIP TUBING FOR SHRUB AREAS	1/2" BLANK FLEXIBLE TUBING
	GROUNDCOVER DRIP TUBING	INLINE DRIP TUBING WITH BUILT-IN EMITTERS
	FLUSH CAP	SELF-FLUSHING END VALVE
	BUBBLER FOR TREES	2 BUBBLERS PER TREE

NOTE: LAYOUT SHOWN IS DIAGRAMMATIC.  
 ADJUST TO FIT ACTUAL CONDITIONS.



2 BUBBLERS PER TREE  
 (≤ 4 GAL/HR)



DRIP TUBING WITH 1 OR 2 DRIP  
 EMITTER(S) PER SHRUB



INLINE DRIP TUBING GRID  
 WITH EVEN SPACING  
 BETWEEN DRIP LINES FOR  
 GROUNDCOVER AREAS



SMART CONTROLLER  
 USING REAL TIME  
 WEATHER DATA



RAIN SENSOR

















AUTOMATIC CONTROL  
 VALVE ASSEMBLY



MICRO-SPRAY DRIP  
 SPRINKLER

# L.A. BASIN Irrigation Installation

## LEGEND

SYMBOL	EQUIPMENT	INSTALLATION
	EXISTING IRRIGATION MAINLINE	CONNECT TO EXISTING IRRIGATION MAINLINE BY REPLACING EXISTING SPRINKLER VALVES WITH NEW REDUCED PRESSURE DRIP VALVES (10 GALLONS PER MIN. MAX. FLOW) USING 1" PVC SCHEDULE 40 PIPE. STATIC WATER PRESSURE TO BE 45 POUNDS PER SQUARE INCH TO ACCOMMODATE THIS DESIGN.
	PVC LATERAL	PVC PIPE 3/4" - 1" SCHEDULE 40 LATERAL LINES. 12" BELOW GRADE.
	PVC SLEEVE	PVC PIPE SCHEDULE 40 SLEEVING. TWICE THE DIAMETER OF PIPE OR WIRE BUNDLE CARRIED. PLACE BELOW PAVING.
	VALVE WIRE	IRRIGATION CONTROL WIRE #18UF ALUMINUM WIRE GAUGE DIRECT BURIAL. 6 -WIRE STRAND. BURIED 6" DEEP (U.L. APPROVED).
NO SYMBOL	WIRE NUT	WATER-PROOF WIRE CONNECTORS FOR USE ON ALL WIRE CONNECTIONS (U.L. APPROVED).
	SMART CONTROLLER	WEATHER BASED CONTROLLER UTILIZING PAID WEATHER SUBSCRIPTION, RAIN/TEMPERATURE SENSOR OR WIFI. INTERIOR WALL MOUNT.
	SENSOR	RAIN/TEMPERATURE SENSOR. MOUNT TO EAVE OF ROOF IN FULL SUN EXPOSURE AND WIRE TO CONTROLLER.
	N/A	120 VOLT ELECTRICAL POWER OULET.
	SHRUB DRIP VALVE	1" DRIP AUTOMATIC CONTROL VALVE ASSEMBLY W/ ANTI-SIPHON VALVE, 1" FILTER AND 40 PSI REGULATOR. INSTALL 6" ABOVE HIGHEST POINT.
	GROUNDCOVER DRIP VALVE	3/4" DRIP VALVE ASSEMBLES CAN BE USED FOR FLOWS LESS THAN 5 GALLONS PER MINUTE.
	TREE VALVE	3/4" DRIP VALVE ASSEMBLES CAN BE USED FOR FLOWS LESS THAN 5 GALLONS PER MINUTE.
	BLANK DRIP TUBING FOR SHRUBS	3/4" AUTOMATIC CONTROL VALVE ASSEMBLY W/ ANTI-SIPHON VALVE. INSTALL 6" ABOVE HIGHEST POINT.
NO SYMBOL	MICRO-SPRAY DRIP EMITTERS FOR SHRUBS	1/2" BLANK FLEXIBLE TUBING (100' MAX. LENGTH), CONNECTED TO PVC LATERAL LINE WITH 2 MICRO-SPRAY DRIP EMITTERS PUNCHED INTO TUBING AT EACH SHRUB. INSTALL ON-GRADE BELOW MULCH.
NO SYMBOL	EMITTER STAKE FOR SHRUBS	PRESSURE COMPENSATING MICRO-SPRAY DRIP EMITTERS (1.0 GALLON PER HOUR); TWO PER SHRUB. 300 SHRUBS CAN BE PLANTED USING A 1" VALVE AT ROUGHLY 10 GALLONS PER MINUTE. 150 SHRUBS CAN BE PLANTED USING A 3/4" VALVE AT ROUGHLY 5 GALLONS PER MINUTE.
	GROUNDCOVER DRIP TUBING	ONE EMITTER STAKE PER MICRO-SPRAY DRIP EMITTER CONNECTED WITH 6 OF 1/4" TUBING TO BLANK DRIP TUBING.
	FLUSH CAP	INLINE DRIP TUBING WITH BUILT-IN EMITTERS EVERY 18" ON CENTER WITH A ROW SPACING OF 18" AND AN EMITTER FLOW OF 0.6 GPH. ALL TUBING SHALL BE INSTALLED ON GRADE BELOW MULCH W/ WIRE STAKES EVERY 5' ON CENTER. 2000 S.F. MAXIMUM AREA TO CREATE A FLOW OF ROUGHLY 10 GALLONS PER MINUTE. 1000 S.F. MAXIMUM AREA TO CREATE A FLOW OF ROUGHLY 5 GALLONS PER MINUTE.
NO SYMBOL	DRIP FITTINGS	1/2" BARB X 3/4" THREAD W/ PLASTIC CAP AS A FLUSH POINT. ONE REQUIRED AT THE END OF EACH TUBING LENGTH.
	BUBBLERS FOR TREES	ALL CONNECTIONS BETWEEN DRIPLINE TUBING SHALL BE MADE USING 1/2" BARB X BARB FITTINGS. ALL CONNECTIONS BETWEEN DRIPLINE TUBING AND PVC SHALL BE MADE USING 1/2" BARB X 1/2" THREAD. BUBBLER ON PVC SCHEDULE 80 RISER, TWO PER TREE.

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**Drip Irrigation Valve Kit comes with the following:**

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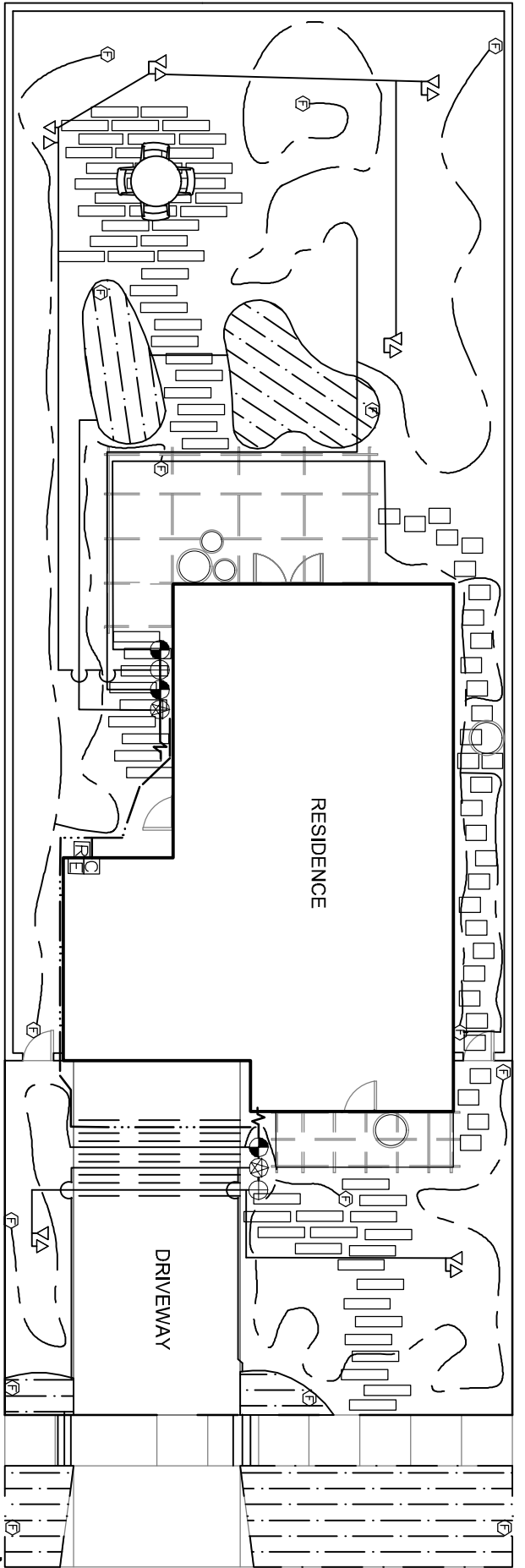
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IMAGE COURTESY OF SANTA MONICA OFFICE OF SUSTAINABILITY AND THE ENVIRONMENT

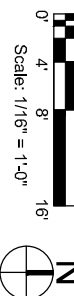
# VALLEY Irrigation Plan

50' x 140' Lot



**LEGEND**

SYMBOL	EQUIPMENT	DESCRIPTION
	EXISTING IRRIGATION MAINLINE	CONNECT TO EXISTING IRRIGATION MAINLINE
	PVC LATERAL	PVC PIPE 3/4" - 1" SCHEDULE 40
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	SMART CONTROLLER	WEATHER BASED CONTROLLER
	SENSOR	RAIN/TEMPERATURE SENSOR
	N/A	ELECTRICAL OUTLET
	SHRUB DRIP VALVE	DRIP AUTOMATIC CONTROL VALVE ASSEMBLY
	GROUNDCOVER DRIP VALVE	DRIP AUTOMATIC CONTROL VALVE ASSEMBLY
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	BLANK DRIP TUBING FOR SHRUB AREAS	1/2" BLANK FLEXIBLE TUBING
	GROUNDCOVER DRIP TUBING	INLINE DRIP TUBING WITH BUILT-IN EMITTERS
	FLUSH CAP	SELF-FLUSHING END VALVE
	BUBBLER FOR TREES	2 BUBBLERS PER TREE



2 BUBBLERS PER TREE  
 (≤ 4 GAL/HR)



DRIP TUBING WITH 1 OR 2 DRIP  
 EMITTERS) PER SHRUB



INLINE DRIP TUBING GRID  
 WITH EVEN SPACING  
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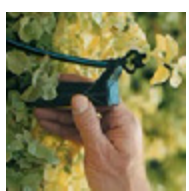
SMART CONTROLLER  
 USING REAL TIME  
 WEATHER DATA



RAIN SENSOR



AUTOMATIC CONTROL  
 VALVE ASSEMBLY



MICRO-SPRAY DRIP  
 SPRINKLER

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# VALLEY Irrigation Installation

## LEGEND

SYMBOL	EQUIPMENT	INSTALLATION
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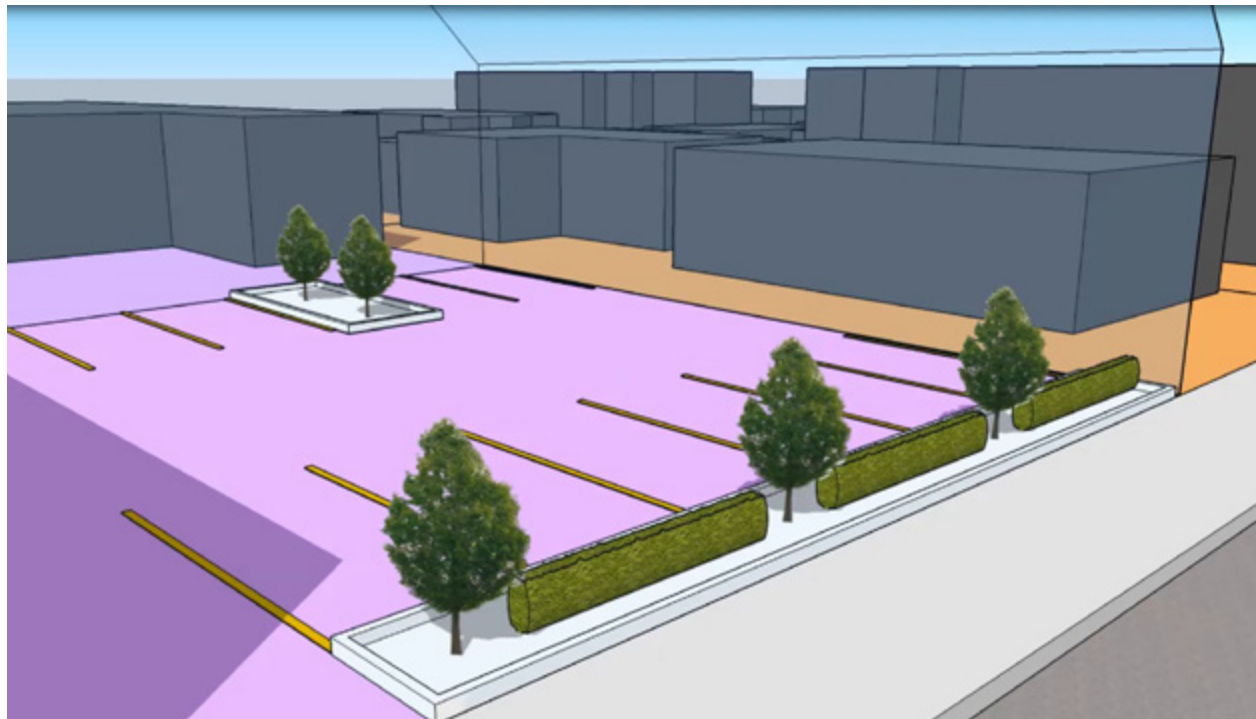
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IMAGE COURTESY OF SANTA MONICA OFFICE OF SUSTAINABILITY AND THE ENVIRONMENT





**LAMC SEC. 111.03**  
**TABLE II**  
**SOUND LEVEL “A” DECIBELS**

(In this chart, daytime levels are to be used from 7:00 a.m. to 10:00 p.m. and nighttime levels from 10:00 p.m. to 7:00 a.m.)

ZONE	PRESUMED AMBIENT NOISE LEVEL (dB(A))	
	DAY	NIGHT
A1, A2, RA, RE, RS, RD, RW1, RW2, R1, R2, R3, R4, and R5	50	40
P, PB, CR, C1, C1.5, C2, C4, C5, and CM	60	55
M1, MR1, and MR2	60	55
M2 and M3	65	65

At the boundary line between two zones, the presumed ambient noise level of the quieter zone shall be used.

## **NOTICE**

**Air pollution studies show a strong link between the chronic exposure of populations to vehicle exhaust and particulate matter from major roads and freeways and elevated risk of adverse health impacts, particularly in sensitive populations such as young children and older adults. Areas located within 500 feet of the freeway are known to experience the greatest concentration of ultrafine particulate matter and other pollutants implicated in asthma and other health conditions.**