



RESIDENTIAL DEMONSTRATION LANDSCAPES

Structural and Nonstructural Best Management Practices

Structural:

To increase permeability within the hardscape, you may replace impervious concrete with the some of the following variations:

- Catch driveway run-off utilizing a slot drain(s).
- Install flagstone walkway and patio, set on Class II base and sand, joints filled with stabilized decomposed granite
- Concrete interlocking pavers for drive and patio set over Class II base and sand with sand swept joints
- Flagstone stepping pads over Class II base and decomposed granite

To improve drainage utilize any of the following:

- 4" solid drain line daylighting to gravel-filled sump
- Above ground or below ground rainwater collection cisterns to capture precipitation from roof
- 4" perforated drain line in 6" gravel trench to maximize percolation and minimize runoff
- Sumps for water collection from roof gutters

Irrigation runoff may be controlled by:

- Low flow spray nozzles with matched precipitation rates for greater uniformity
- ET based controllers
- Drip irrigation to trees, shrubs and groundcovers
- Subsurface emitter tubing for lawn

Nonstructural:

To reduce sediment and water runoff and improve ground filtration you may:

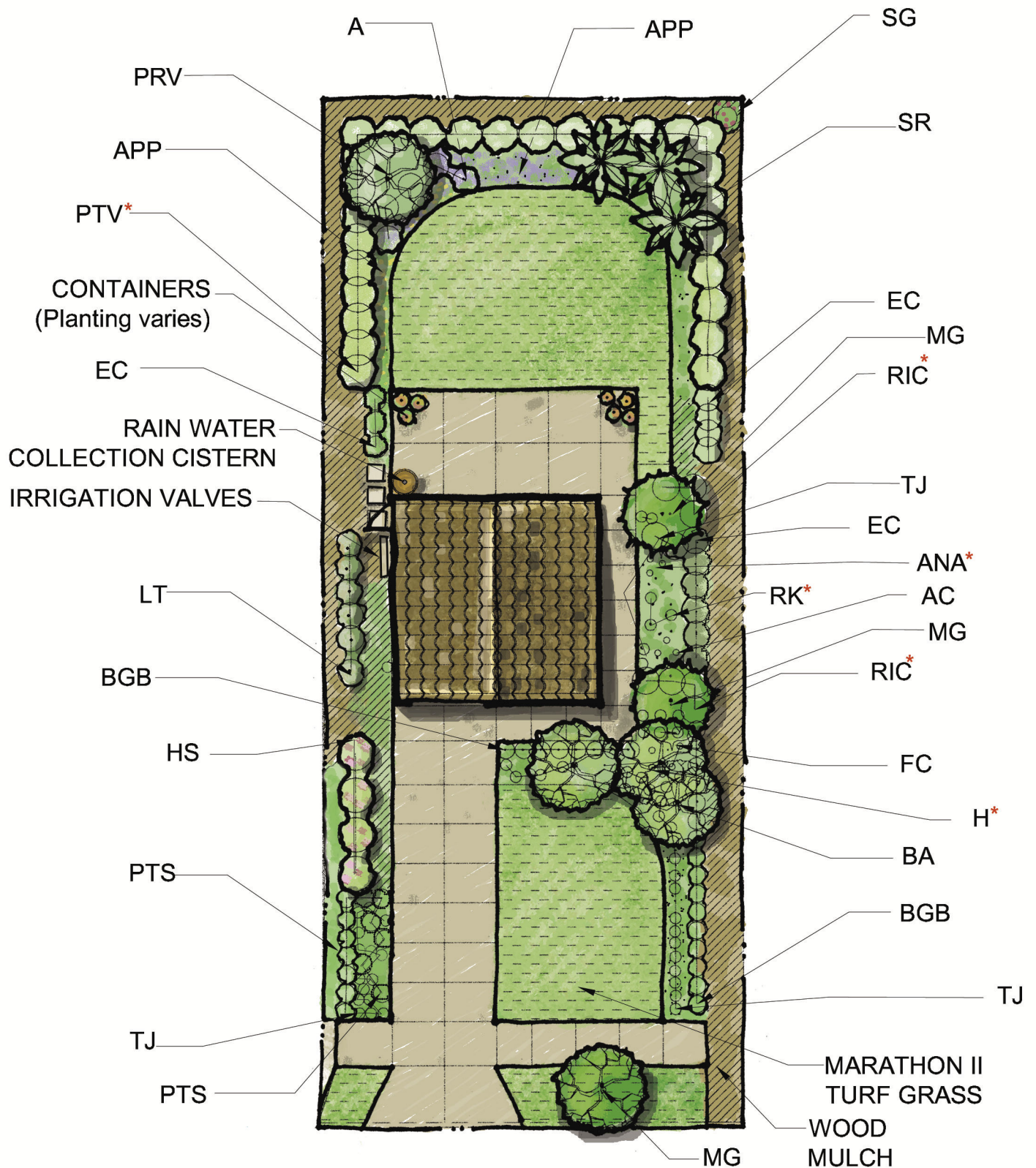
- Use of more drought tolerant shrubs and groundcovers placed in hydrozones, use mostly native plants.
- Use vegetative buffers next to impervious surfaces

Prevent excess pesticide runoff by:

- Use of bait stations rather than broadcast spraying of pesticides
- Use of biopesticides
- Use of nonpersistant pesticides



LANDSCAPE A: CONVENTIONAL RESIDENTIAL LANDSCAPE



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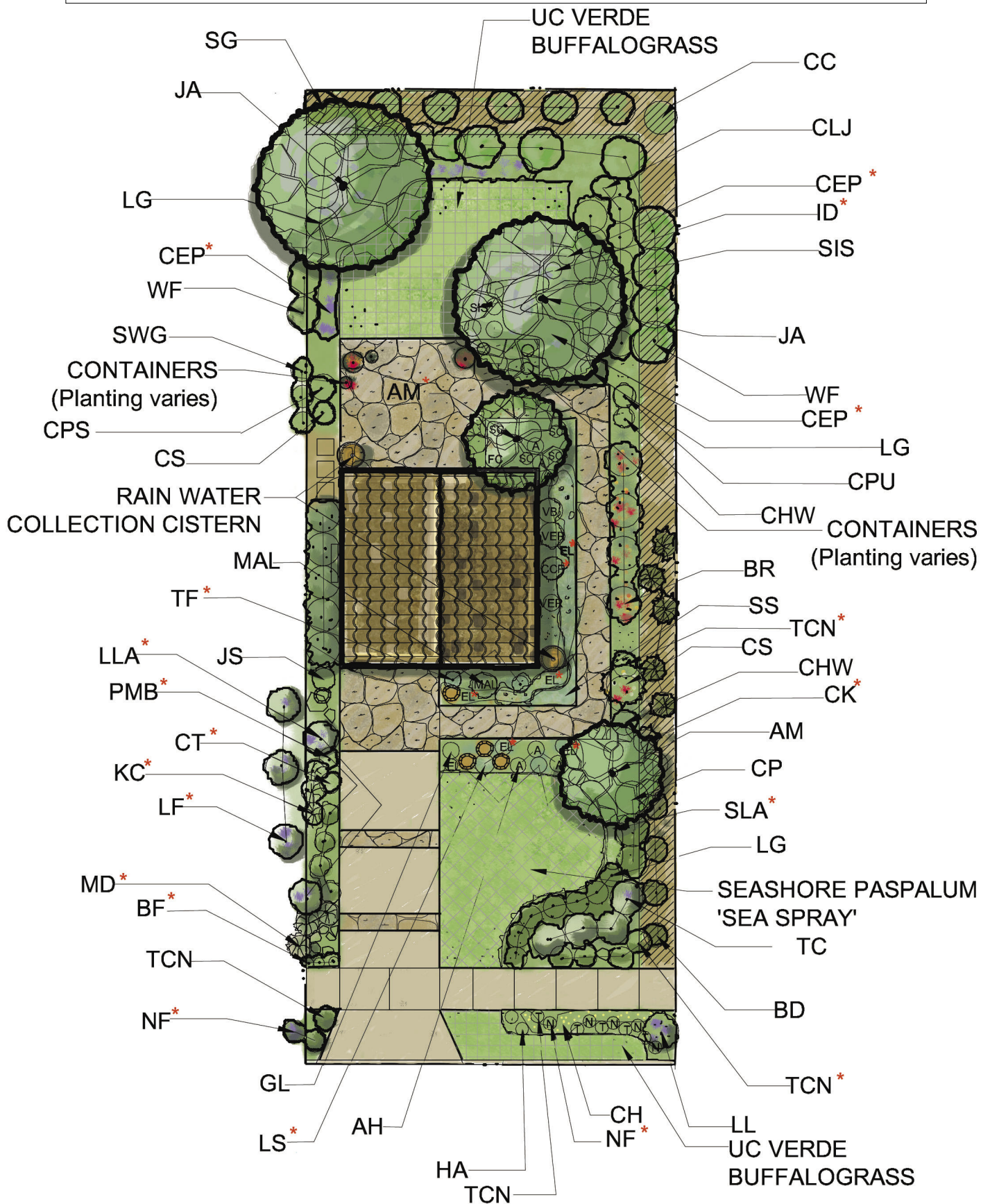
A 'typical' design including features found in most Southern California residential landscapes:

- Widely used plant species requiring regular irrigation
- Cool season tall fescue turf (Marathon II)
- Concrete driveway, walkways and patio
- Landscape drains are connected directly to street
- Automatic irrigation timer utilizing watering index
 - Controls 4 irrigation zones
 - Standard spray heads (1.5" to 2" per hour)

Average Daily Water Use:		Average daily water Runoff:
Landscape A:	485 gallons	19 gallons
Landscape B:	224 gallons	4 gallons
Landscape C:	219 gallons	7 gallons

KEY A	BOTANICAL NAME	COMMON NAME
TREES		
BA	<i>Betula pendula</i>	European white birch
MG	<i>Magnolia grandiflora</i> 'Little gem'	Southern magnolia
PRV	<i>Prunus cerasifera</i> 'Krauter Vesuvius'	purple leaf plum
SR	<i>Syagrus romanzoffianum</i>	queen palm
SHRUBS/GRASSES/PERENNIALS		
A	<i>Agapanthus</i> 'Midnight Blue'	lily-of-the-Nile
APP	<i>Agapanthus</i> 'Peter Pan'	lily-of-the-Nile
AC	<i>Aster chilensis</i>	California aster
ANA	 <i>Aster novae-angliae</i> 'Purple Dome'	Michaelmas daisy
BGB	<i>Buxus microphylla japonica</i> 'Green Beauty'	Japanese boxwood
EC	<i>Escallonia</i> 'Compakta'	escallonia
FC	<i>Fragaria californica</i>	woodland strawberry
H	 <i>Helleborous x hybridus</i> 'Red Lady'	lenten rose
HS	<i>Hibiscus rosa-sinensis</i> 'Monria'	Itsy Bitsy Kona Princess™ I
LT	<i>Ligustrum japonicum</i> 'Texanum'	wax leaf privet
PTV	<i>Pittosporum tobira</i> 'Variegata'	Japanese mock orange
PTS	<i>Pittosporum tobira</i> 'Shima'	Cream de Mint™ dwarf moc
RIC	<i>Raphiolepis indica</i> 'Clara'	Indian hawthorn
RK	 <i>Rosa</i> 'Korbin'	iceberg rose
	 <i>Rosa x odorata</i> 'Mutabilis'	butterfly rose
TJ	<i>Trachelospermum jasminoides</i>	star jasmine
TURF GRASS		
	<i>Festuca arundinacea</i> 'Marathon 2'	dwarf tall fescue

LANDSCAPE B: LOW IMPACT (TYPE I) RESIDENTIAL LANDSCAPE



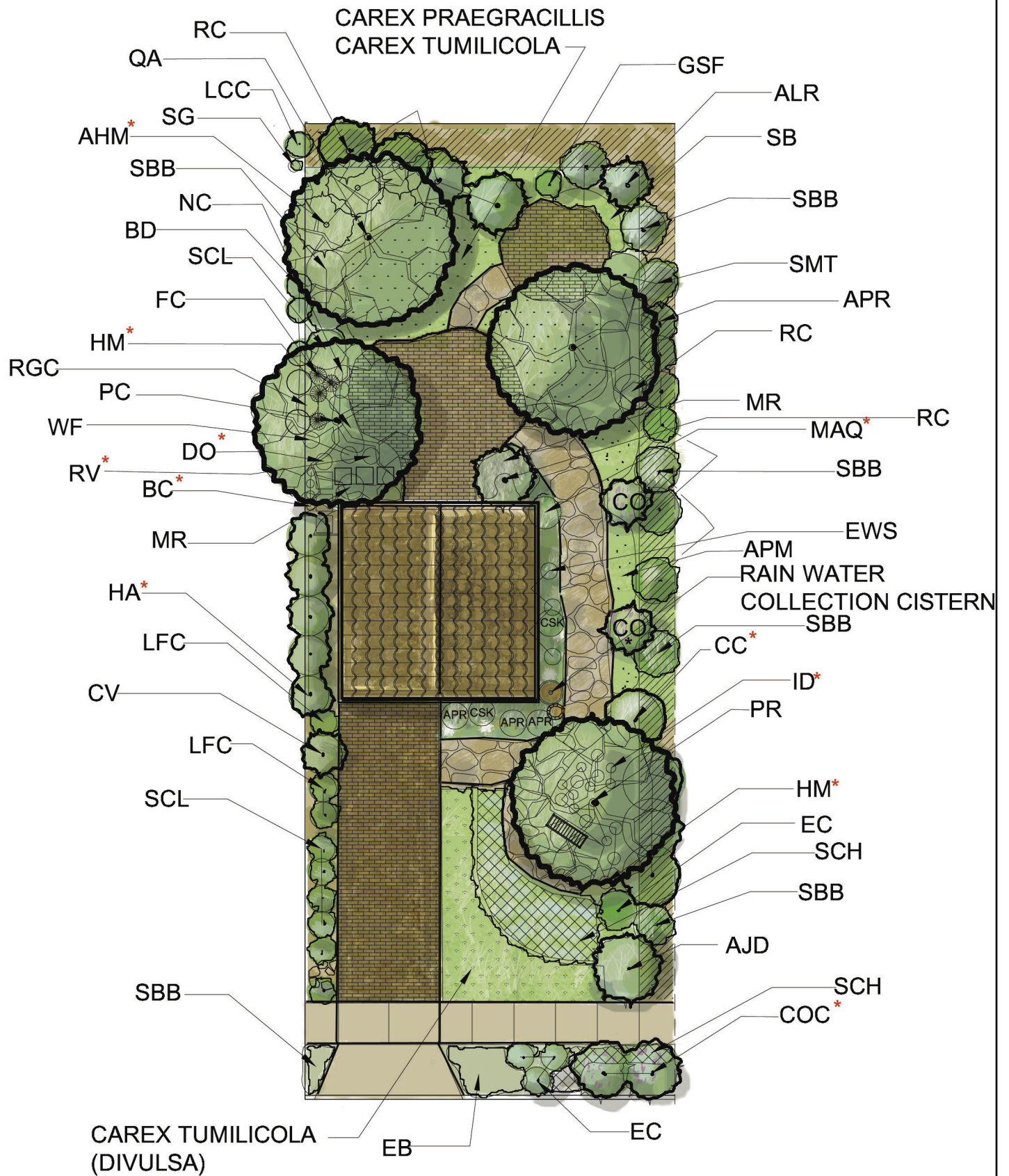
LANDSCAPE B: LOW IMPACT (TYPE I) RESIDENTIAL LANDSCAPE

- Plants used are adapted to a Mediterranean climate
- Warm season turf species
 - 'UC Verde' Buffalo Grass
 - 'Sea Spray' Seashore Paspalum
- Slot drains in driveway to catch runoff
- Walkways and patio composed of flagstone set in decomposed granite
- Automatic irrigation timer
 - 10 hydrozones
 - 8 soil moisture sensor zones
 - Low precipitation spray heads in turf areas
- Rain harvesting from roof

Average Daily Water Use:		Average daily water Runoff:
Landscape A:	485 gallons	19 gallons
Landscape B:	224 gallons	4 gallons
Landscape C:	219 gallons	7 gallons

KEY B	BOTANICAL NAME	COMMON NAME
TREES		
AM	 <i>Arbutus 'Marina'</i>	madrone
JA	<i>Jacaranda mimosifolia</i>	jacaranda
SHRUBS/GRASSES/PERENNIALS		
TURF GRASS		
AH	<i>Arctotis hybrid 'Cherry Frost'</i>	African daisy
AJ	<i>Ajuga reptans</i>	carpet bugleweed
BR	<i>Bougainvillea 'Rosenka'</i>	Bougainvillea
BD	<i>Buddleia davidii</i>	butterfly bush
BF	 <i>Bulbine frutescens 'Hallmark'</i>	cape balsam
CC	<i>Caesalpinia pulcherrima</i>	dwarf poinciana
CK	 <i>Calamagrostis acutiflora 'Karl Foerster'</i>	feather reed grass
	<i>Callaeum Macropterum</i>	yellow orchid vine
CLJ	<i>Callistemon viminalis 'Little John'</i>	dwarf bottlebrush
CH	<i>Calylophus hartwegii</i>	sundrops
CVV	 <i>Ceanothus maritimus 'Valley Violet'</i>	maritime ceanothus
CP	 <i>Ceanothus x pallidus 'Marie Simon'</i>	California lilac
CT	 <i>Cerastium tomentosum</i>	snow-in-summer
CEP	 <i>Ceratostigma plumbaginoides</i>	dwarf plumbago
CCP	<i>Chamaelucium uncinatum</i>	Gerlادت waxflower
CHW	<i>Cistus hybrid</i>	white rockrose
CPS	<i>Cistus pulverulentus 'Sunset'</i>	magenta rockrose
CPU	<i>Cistus purpureus</i>	purple rockrose
CS	<i>Cistus x skanbergii</i>	pink rockrose
COC	<i>Coprosma 'Cappuccino'</i>	coprosma
DO	 <i>Daphne odora 'Aureomarginata'</i>	winter daphne
EL	 <i>Echeveria imbricata</i>	hens and chicks
FC	<i>Fragaria californica</i>	woodland strawberry
GL	<i>Grevillea lanigera 'Coastal Gem'</i>	wooly grevillea (UCSC Introduction)
HA	<i>Hypericum aegypticum</i>	dwarf St. John's wort
ID	 <i>Iris douglasiana 'Canyon Snow'</i>	Pacific coast iris
KC	 <i>Kniphofia 'Christmas Cheer'</i>	poker plant
LG	<i>Lantana montevidensis 'Gold Mound'</i>	lantana
LS	 <i>Lavandula stoechas 'Otto Quast'</i>	Spanish lavender
LF	 <i>Leucophyllum frutescens</i>	Texas ranger
LLA	 <i>Leucophyllum langmaniae 'Lynn's Legacy'</i>	Texas ranger
ST	<i>Limonium</i>	statice
LL	<i>Lobelia laxiflora</i>	Mexican lobelia
MAL	<i>Melaleuca thymifolia</i>	thyme honey myrtle
MD	 <i>Muhlenbergia dubia</i>	pine muhly
NC	 <i>Neomarica caerulea</i>	walking iris
NF	 <i>Nepeta x faassenii</i>	hybrid catmint
PMB	 <i>Penstemon heterophyllus 'Margarita B.O.P.'</i>	foothill penstemon
JS	<i>Phlomis lanata</i>	Jerusalem sage
PC	<i>Prunus caroliniana 'Bright and Tight'</i>	Carolina laurel cherry
SWG	<i>Salvia clevelandii 'Winnifred Gilman'</i>	musk sage
SG	<i>Salvia gregii</i>	autumn sage
SIS	<i>Salvia 'Indigo Spires'</i>	sage
SLA	 <i>Saponaria x lempergii 'Max Frei'</i>	soapwort
SC	<i>Scabiosa</i>	scabiosa
	 <i>Sedum palmeri</i>	Palmer's sedum
SS	<i>Sedum spurium 'Fuldaglut'</i>	stonecrop
	<i>Teucrium chamaedrys</i>	wall germander
TCN	<i>Teucrium chamaedrys 'Nana'</i>	dwarf wall germander
TCN	 <i>Teucrium chamaedrys 'Nanum'</i>	dwarf wall germander
TF	 <i>Teucrium fruticans 'Azuerum'</i>	bush germander
VB	<i>Verbena bonariensis 'Little One'</i>	purpletop vervain
VER	<i>Verbena lilacina</i>	lilac verbena
WF	<i>Westringia fruticosa</i>	coast rosemary

LANDSCAPE C: LOW IMPACT (TYPE II) RESIDENTIAL LANDSCAPE



LANDSCAPE C: LOW IMPACT (TYPE II) RESIDENTIAL LANDSCAPE

- Predominantly native California plant species
- Meadow replaces turf
 - Carex species
- Interlocking pavers used in driveway and patio
- Walkways composed of flagstone set in decomposed granite
- Automatic irrigation timer
 - 24 hydrozones
 - SMART controller with weather station
 - Combination of drip and spray heads
- Underground infiltration device to capture and infiltrate runoff

Average Daily Water Use:

Average daily water Runoff:

Landscape A:	485 gallons	19 gallons
Landscape B:	224 gallons	4 gallons
Landscape C:	219 gallons	7 gallons

KEY c	BOTANICAL NAME	COMMON NAME
TREES		
COC	 <i>Cercis occidentalis</i>	western redbud
PR	<i>Platanus racemosa</i>	California sycamore
PC	<i>Prosopis chilensis</i>	Chilean mesquite
QA	<i>Quercus agrifolia</i>	Coast live oak
SHRUBS/GRASSES/PERENNIALS		
AL	<i>Antigonon leptopus</i>	coral vine
AHM	 <i>Arctostaphylos densiflora</i> 'Howard McMinn'	Vine Hill manzanita
AJD	<i>Arctostaphylos</i> 'John Dourley'	manzanita
ALR	<i>Arctostaphylos</i> 'Lester Rowntree'	manzanita
APM	<i>Arctostaphylos uva-ursi</i> 'Pacific Mist'	manzanita
APR	<i>Arctostaphylos</i> 'Point Reyes'	manzanita
BC	 <i>Bergenia crassifolia</i>	pigsqueak
BD	<i>Buddleia davidii</i> 'Petite Indigo'	butterfly bush
CC	<i>Ceanothus</i> 'Concha'	California lilac
CVV	 <i>Ceanothus maritimus</i> 'Valley Violet'	maritime ceanothus
CSK	<i>Ceanothus</i> 'Skylark'	California lilac
CV	<i>Ceanothus thyrsiflorus</i> 'El Dorado'	variegated California lilac
DO	 <i>Daphne odora</i> 'Aureomarginata'	winter daphne
DP	<i>Dudleya brittonii</i>	chalk dudleya
EC	<i>Epilobium californicum</i> 'Catalina'	California fuchsia
EWS	<i>Epilobium septentrionale</i> 'Wayne's Silver'	silver California fuchsia
EB	<i>Erigeron glaucus</i> 'Bountiful'	seaside daisy
FC	<i>Festuca californica</i>	California fescue
GSF	<i>Galvezia speciosa</i> 'Fire Cracker'	island bush snapdragon
HA	 <i>Heteromeles arbutifolia</i>	Toyon
HM	 <i>Heuchera maxima</i>	Island™ alumroot
HHY	<i>Heuchera</i> (mixed natives from ToFL)	coral bells
	<i>Heuchera</i> 'Green Spice'	coral bells
	<i>Heuchera</i> 'Purple Petticoats'	coral bells
	<i>Heuchera</i> 'Silver Scrolls'	coral bells
	<i>Heuchera</i> 'Swirling Fantasy'	coral bells
ID	 <i>Iris douglasiana</i> 'Canyon Snow'	Pacific coast iris
ID	<i>Iris douglasiana</i>	Pacific coast iris
LFC	<i>Lessingia filaginifolia</i> var. <i>californica</i>	Carmel aster
LCC	<i>Leymus condensatus</i> 'Canyon Prince'	giant wild rye
MAC	 <i>Mahonia (Berberis) aquifolium</i> 'Compactum'	compact Oregon grape holly
MR	<i>Mahonia repens</i>	creeping barberry
MAQ	<i>Mahonia pinnata</i>	California holly grape
MA	<i>Mimulus aurantiacus</i>	sticky monkey-flower
NC	<i>Neomaria caerulea</i>	walking iris
PMB	 <i>Penstemon</i> 'Margarita BOP'	foothill penstemon
RC	<i>Rhamnus californica</i> 'Eve Case'	coffeeberry
RGC	<i>Ribes malvaceum</i> 'Dancing Tassels'	chaparral currant
RV	 <i>Ribes viburnifolium</i>	evergreen currant, Catalina Perfume
SCL	<i>Salvia clevelandii</i> 'Allen Chickering'	Allen Chickering Sage
SBB	<i>Salvia</i> 'Bees' Bliss'	creeping sage
SCH	<i>Salvia chamaedryoides</i>	electric blue sage
SG	<i>Salvia gregii</i>	autumn sage
SMT	<i>Salvia mellifera</i> 'Terra Seca'	dwarf black sage
SB	<i>Sisyrinchium bellum</i>	blue-eyed grass
WF	 <i>Woodwardia fimbriata</i>	giant chain fern
GRASSES		
	<i>Carex praegracillilis</i>	clustered field sedge
	<i>Carex tumulicola</i>	foothill sedge

BETTER GARDENING PRACTICES TO IMPROVE WATER QUALITY ORANGE COUNTY RESOURCE GUIDE

GENERAL INFORMATION

"Better Gardening Practices To Improve Water Quality" Website	http://ucanr.org/sites/urbanwatermgmt/	Project information, newsletters, event dates, and photos
Univ. of California Cooperative Extension	http://ceorange.ucdavis.edu/	Orange County office and links
OC UCCE Master Gardeners	http://www.uccemg.com/	Activities, events, links
OC UCCE Master Gardeners Hotline	phone: 714-708-1647 email: hotline@uccemg.com	Gardening question assistance

INTEGRATED PEST MANAGEMENT

Statewide IPM Services	http://www.ipm.ucdavis.edu/	UC guideline for specific pests
OC Agricultural Commissioner	http://www.ocagcomm.com	Pest identification
CDFA Integrated Pest Control Branch	www.cdca.ca.gov/phpps/ipc	Information on exotic pests in CA.
APHIS Federal Noxious Weeds Program	www.aphis.usda.gov/ppq/weeds/	Invasive weed species information
UC IPM Weed Photo Gallery	www.ipm.ucdavis.edu/PMG/weeds_common.html	Composite photo database
Soil and Plant Laboratory	714-282-8777	Diagnostics, soil, plant nutrient analyses

PUBLICATIONS

UC ANR Publications Catalog	www.anrcatalog.ucdavis.edu	Online catalog from ANR
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IRRIGATION MANAGEMENT

California Landscape Contractors Assoc.	http://www.clca.org/	Assist with hiring contractor
Irrrometer Co.	http://www.irrometer.com/agcat.htm	Watermark Soil Moisture Sensor
MP Rotator	http://www.mprotator.com/	Rotary nozzle information
Rain Bird	http://www.rainbird.com/landscape/products/index.html	Rotary /Micro Spray Head information
Ewing – Lake Forest, CA	http://www.ewing1.com/general/ews_loc_038map.htm	Specialty Irrigation Supplies
Horizon Irrigation – Orange, CA	(714)279-8060 www.horizononline.com	Specialty Irrigation Supplies
Smartwater Application Technologies	http://www.irrigation.org/SWAT/Industry/	"Smart" irrigation information
Metropolitan Water District of So. Ca.	http://www.bewaterwise.com/knowledge01.html	Irrigation and water saving tips

LOCAL SOURCES FOR CALIFORNIA NATIVES

UC Davis Arboretum All-Stars	http://arboretum.ucdavis.edu/arboretum_all_stars.aspx	Plant photos, descriptions, resources
Tree of Life Nursery	(949) 728-0685 – limited hours, call first	www.treeoflifenuresery.com
Green Thumb	(949) 837-3040	www.supergarden.com
Plant Depot	(949) 240-2107	www.plantdepot.com
Rogers Gardens	(714) 721-2100	www.rogersgardens.com
Ito Nursery	(949) 661-7291	

BULK SOURCES FOR ORGANIC MULCH

Tierra Verde	(949) 728 -0401 or (949) 551-0363	Bulk purchase of mulch
Aguinaga Fertilizer	(949) 786-9558	Bulk purchase of mulch, top soil
Orange County Farm Supply	(714) 978-6500	Bulk bags at reduced prices

GREENWASTE DIVERSION FACILITY

Tierra Verde	(949) 728 -0401 or (949) 551-0363	Accepts large quantities of yard waste
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O.C. HAZARDOUS WASTE COLLECTION

Integrated Waste Management	www.oclandfills.com	Main page
Irvine Regional HHWCC	6411 Oak Canyon Irvine, CA	Household Hazardous Waste Center
Prima Deshecha Landfill	32250 La Plata Ave San Juan Capistrano	Household Hazardous Waste Center

EQUIPMENT RENTAL/SERVICES – So OC

Home Depot	www.homedepot.com	Rental of Aerators, Tillers etc.
El Toro Lawn Mower Repair	(949) 830-2618	Blade Sharpening, Repairs
ET's Lawnmower	(949) 770-3032	Blade Sharpening, Repairs
Lawn and Turf Equipment Repair	(949) 443-5147	Blade Sharpening, Repairs

WEATHER SERVICES

AccuWeather	www.accuweather.com	Provides hourly forecasts
National Weather Service	http://www.nws.noaa.gov/	Good use of forecast maps
Weather.com	www.weather.com	Weather forecasts
Orange County Storm Water Data	http://www.ocgov/pfrd/envres/Rainfall/intro.asp	Current rainfall totals for Orange Co.



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