

Rebuilding Landscapes

Permit Ready Front Yard Landscape Templates



A Project of the Sonoma -Marin Water Saving Partnership











PANORAMIC DESIGN GROUP LANDSCAPE ARCHITECTURE



because every choice matters

Project Goals

- Streamline permitting
- Save homeowner cost
- Water saving designs
- Fire Safer designs
- Attractive front yard plans
- Integrate sustainability elements
- Restore neighborhood vitality and ecology
- Improve climate adaptability

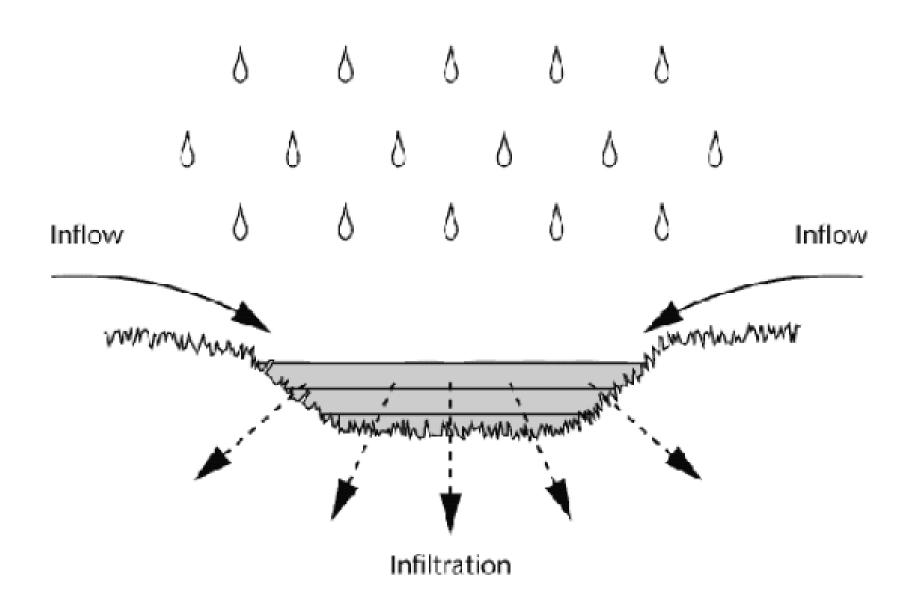
Sustainable Design Elements

Increase Permeability & Reduce Water Use

- Soil Restoration
- Disconnected downspouts and paving
- Permeable Paving
- Raingardens & Swales
- Greywater & Rainwater Harvesting

Cool Urban Heat - Shade Trees Increase Habitat and Edible Plantings

Slow, spread, sink rain into the earth



Permeable Paving

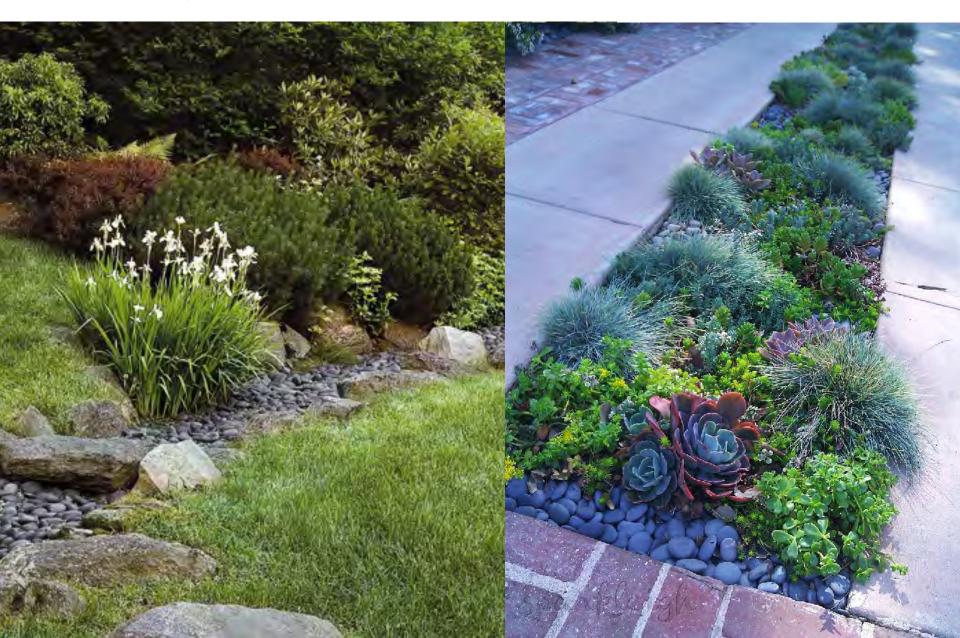




Decorative Aggregate

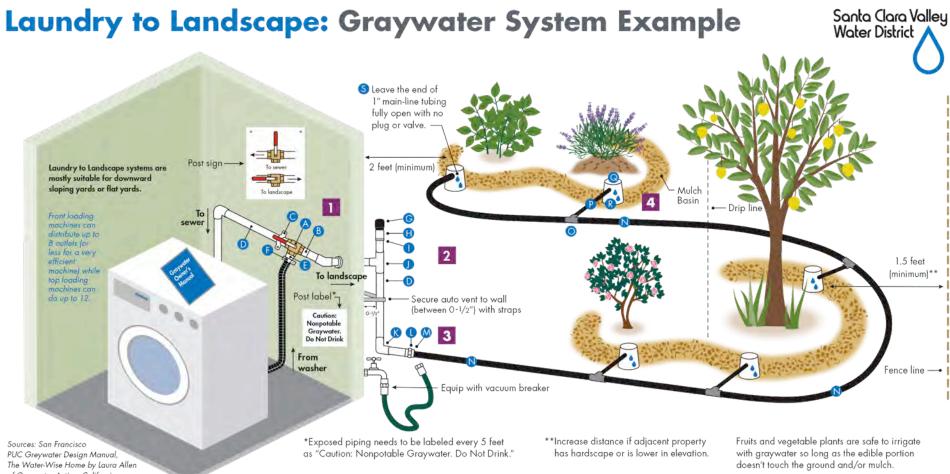


Raingardens, Swales, Biorention



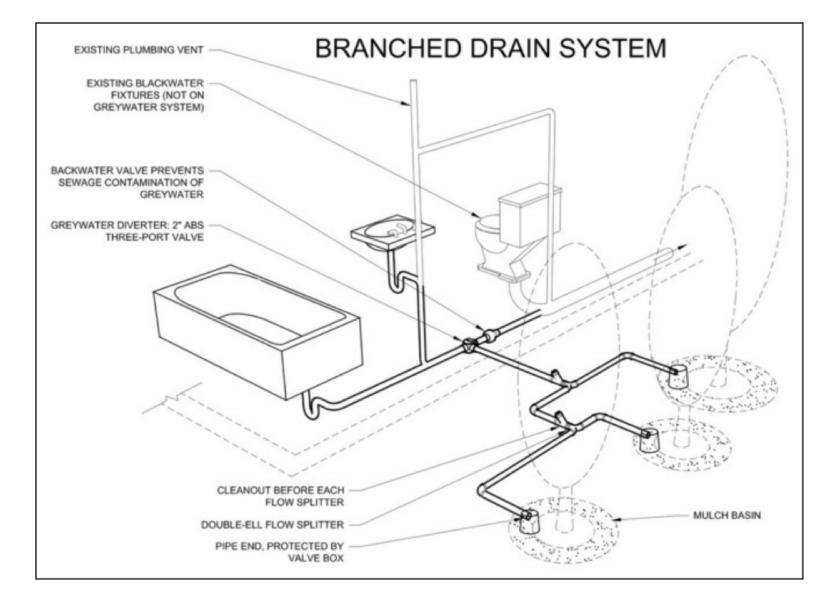


Greywater Laundry to Landscape



The Water-Wise Home by Laura Allen of Greywater Action, California Plumbing Code 2016 (Chapter 15)

Greywater Branched Drain



Greywater Template Sheet

APPLICANT INFORMATION:

LANDSCAPE TO LAUNDRY SYSTEM OVERVIEW:

A LAUNDRY-TO-LANDSCAPE GRAYWATER SYSTEM CAPTURES LIGHTLY USED WATER FROM THE DISCHARGE HOSE OF YOUR WASHING MACH NEAND PUMPS IT OUT TO THE LANDSCAPE THROUGH 1-INCH TUBING. THE SYSTEM DOES NOT ALTER THE EXISTING FLUMBING AND THEREFORE DOES NOT REQUIRE A PERMIT A THREE-WAY DIVERTER VALVE IS A NECESSARY COMPONENT, ALLOWING YOU TO SEND DISCHARGE WATER BACK TO THE SEWER SYSTEM WHEN NEEDED OR DURING THE RAINY SEASON

INSTALLATION & DESIGN CONSIDERATIONS

LAUNDRY TO LANDSCAPE GRAMWATER SYSTEMS ARE EASY TO INSTALL FOR THE DO-T-YOURSELFER OR A PROFESSIONAL, ESPECIALLY IF THE WASHING MACHINE IS LOCATED ON AN EXTERNAL WALLAND IS IN CLOSE PROXIMITY TO THE LANDSCAPE AREA BEING IRRIGATED, NOTE THE WASHING MACHINE PUMP WILL PROVIDE. SUFFICIENT PRESSURE THROUGH A 1-INCH IRRIGATION LINE FOR 100-FEET ON FLAT GROUND, IF THE SYSTEM IS DESIGNED TO IRRIGATE UPHILL FROM THE WASHING MACHINE. THE DISTANCE SHOULD BE REDUCED TO 30 50 FEET WITH NO MORE THAN A 5 & SLOPE. FITHE SYSTEM IS DESIGNED TO IRRIGATE DOWNHILL FROM THE WASHING MACHINE THE DISTANCE MAY INCREASE TO 199-FEET DEPENDING ON SLOPE.

GRAYWATER REQUIREMENTS TO COMPLY WITH CALIFORNIA PLUMBING CODE (" GPC") STANDARDS:

- 0 NOTIEX ENEORGING AGENC
- O BEABLE TO REDIRECT TO SEWER
- NO FOTABLE WATER CONNECTION
- **Q. CONTAIN GRAYWETER ON SITE**
- O. DIRECTAND CONTAIN GRAVWATER WITH NIMULCH BASINS (IRRIGATION OR DISPOSAL FIELD) BELOW THE GROUND SURFACE O INC PONDING OF RUNCER
- 0. OUTLETS COVERED BY AT LEAST 2- NORES OF MULCH, ROCK, OR A SHIFLD (E.G. VALVE BOX LD).
- O. MINIVIZE CONTACT WITH HUMANS AND ANIMALS.
- O. DIVERT WATER TO THE SEWER, FIT CONTAINS DIAPERS, OIL, OTHER CHEMICALS.
- 0. GRAYWATER DIVERTED TO LANDSCAPE SHALL NOT CONTAIN HAZARDOUS CHEMICALS.
- O. PERMIT EXEMPTION DOES NOT GRANT INSTALLATION THAT VIOLATES OTHER CODE OR LAWS
- O POST OPERATION AND MAINTENANCE MANUAL

MINIMUM HORIZON TAL DISTANCE IN CLEAR REQUILIED FROM	SUBSURFACE AND SUBSOIL IRRIGATED
B Jilling contribute	,
Property has adjusting private property	15
victors, poly wells	100
the amount least	100
Second plate program.	5
Texange disponel Beld	4
replic	1
The talk introducing the second state	0

CALCULATIONS SECTION

- 1. Estimate Daily Graywater Production
- Calculation Method (choose one and check bor)

Coldomia Flambing Code Enterette (Asson 2 accounts to manor parlament and 1 account to each add tional become - Second patiday

occupants x 15 gallors/day

Estimate of unsymptom produced from winter (Der Feb) we argue records preimme why to? i ogó (ogek) – Zideg (ogek) (callens/ cal*) ×

⁴ spire gale/period: aset heree 15, Tag hade 70.	TOTAL	g a\/44

2. Determine Minimum Mulch Basin Size

fig-d/das?		Edit 74or	1	- 1 ²	
Trens 7 Server	Monther Sleeveller Country Sectionary Hauther Minut				

	e worke officients of the second and three second one	
Develope of the Soft Types	Min GP FD of billigenized least ting days #0 100 Foctors of Forder and Geny water Discharge for the	Mus Shooger to Copyring 11 Se 3.0 ST of Internation/ Learning & as Shifteer Decision

Discharge Per Say		an 7-b H terr Berland	
Consumend or gives	20	51	
Fire land	71	4.0	
builty again	a;	25	
Same Day	60		
Carporth consensable said or graval	90		
City, with small am parts of sand in group!	. 20	C.8	

Determining Weekly Water Needs By Water needs - (3.52 x Arca v Bto x Ph / 4 weeks 70.62 - 18 of gallin 21 at water ower

Area – min² – 5 (Aix (cancey, radius of existing alant)² GR – (Lengthix Width) for humber of gaveen bods Despatransplication rates (DTo) - Choose L. o for hottest manth, "July = 6.53"/movim (or South Rose Plant factor (PF) = 0.3 (Low water use), O.5 (Moderate water use) "check kindscope plan for water use) of plants in the

na L M

ADDITIONAL INFORMATION

GRAYWATER IS RECEIVED BEST BY TREES, BUSHES, SHRUBS, SMALL, PERENNIALS AND LARGER ANNUALS, BUT IS PROHIBITED ON LAWN, RAISED BEDS, ROOT AND LEAPY VEGETABLES. MODERATE WATER USERS SUCH AS FRUIT TREES. ARE ALSO AN IDEA _ APP _ IDATION_GRAMWATER IS SOMEWHAT A _KALINE (HIGH pH) AND NOT RECOMMENDED FOR PLANTS THAT PREFER ACIDIC SOILS (LOW pH) LIKE BLUEBERRIES AND RHODEDENDRONS SOIL TYPE WILL DETERMINE 30" HIGW QUICKLY GRAYWATER IS ABSORBED IN YOUR LANDSCAPE AND THE SIZE OF THE MULCH BASING NEEDED TO NEUTRATE THE GRAYWATER.

THE KEY TO PROPER. RRIGATION WITH CRAYWATER IS TO KNOW HOW MUCH THE CHOSEN PLANTS NEED GIVEN EVAPOTRANSPIRATION RATES, PLANT WATERING NEEDS, AND EXISTING CANOPY.

SECONMENDED DELERGEN S

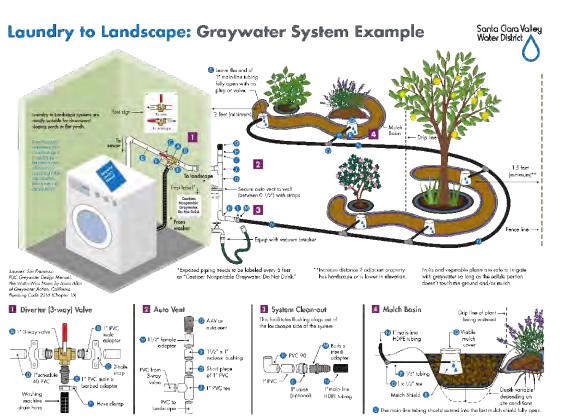
TO ENSURE PLANT SURVIVAL AVOID SOAPS AND DETERGENTS THAT CONTAIN BORON, SOCIUM AND CHLORINE. COMPOUNDS. THE FOLLOWING LIST OF COMMERCIAL DETERGENTS ARE RECOMMENDED FOR USE WITH LAUNDRY TO JANDSCAPE GRAYWATER SYSTEMS.

LIGHID FOOS LIQUID DETERGENT.

LIFE TREE LAUNDRY LIQUID.

- CASIS AUNDRY.
- BIO PAC LAUNDRY LIQUID
- BIOK_EEN LAUNDRY LIQUID MOUNTAIN GREEN LAUNDRY DETERGENT ECOVER LAUNDRY WASH (SOME SAUT).
 - WASKA HERBATERIGENT

- APPLICANT INSTRUCTIONS
- EST MATE YOUR GRAYWATER SUPPLY USING THE CALCULATION PROCESS IN CALCULATIONS SECTION BELOW
- COMPLETE CALCULATIONS TO DETERMINE THE MINIMUM REQUIRED MULCH BASIN SIZE PER YOUR SOLITYPE. MEASURE ACTUAL IRR GATION FIELD AREA;S) ON SITE AND DEVELOP NUMBER AND SIZE OF MULCH BASINS TO USE
- IIS VOLUME THAT FIT IN THE LANDSCAPE AREAS.
- REVIEW REQUIRED SETBACKS SHOWN IN GROTABLE 1502 4THIS SHEET. DEVELOPA SITE PLAN LLUSTRATING THE FOLLOWING: REQUIRED SETBACKS, PROPOSED MULCH BASINS, VALVE
- LOCATIONS, PIPING DIAGRAM, AND TREE AND PLANT LOCATIONS TO BENEFIT FROM GRAYWATER. IF IN BUILDING DESIGN AND/OR CONSTRUCTION PROCESS REVIEW PLAN WITH ARCHITECT (FOR LOCATION OF LAUNDRY NEAR GRAYWATER SUFPLIED LANDSCAPE AREA). CML ENGINEER (FOR ANY POTENTIAL CONFLICTS WITH STORMWATER DRAINAGE), AND GENERAL & LANDSCAPE CONTRACTORS TO REVIEW THREE WAY VALVE LOCATION AND SUPPLY PIPE LOCATION.



This diagram is not drawn to scale and is provided for reference a This diagram is not drawn to cash and is provided for reference purposes only. It is your responsibility to properly design, install, maintain, and use your kondry to know a graywoter system. If you are unsure of the intricates of your plumbing system or how to properly design or install a graywoter system, please consult with a professional. The Detrict does not accept any llability and responsibility for any direct, special, indirect or consequential lass or damage whatsoever arising out of or in connection with providing you with access to this diagram.



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ForeSite

Sherwood

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HON ENGINE

Equinox

(3)

HEET



SHEET TITLE

GREYWATER

LAUNDRY TO

LANDSCAPE

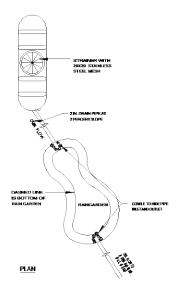
PERMIT PLAN MAY 18, 2018

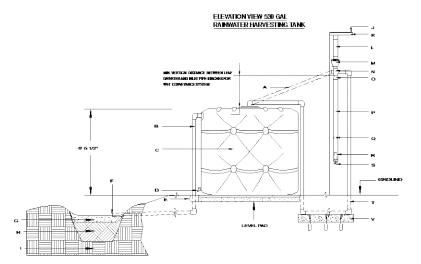
GW-1.0

Rainwater Harvesting



Rainwater Template Sheet





SECTION VIEW RAIN GARDEN

L NORMAL DOWNSPOUT

Plan Est		
	A PREFERRED DRY CONVEYANCE IF TANKS ARE NEXT TO DOWNSPOUL	M. OFTIONAL BUSHMAN LEAF DIVERTER (WITH 20/20 SCREEN IF
	8. OVERFLOW: 3 IN. DRAINAGE PIPE: SLOPED 2 PERCENT FOR HORIZONTAL SECTIONS	USING WET CONVEYANCE) (REDUNDANT WITH LEAF GUARD ON GUTTERS)
	C. 1320 GALLON BUSHMAN SUMULNE RAIN HARVESTING TANK OR FOUTVALENT	N. 3 IN. PVC DRAINAGE TEE
	C. BS/GALLON BOSHIAN SCHEDRE RAW HARVESTING DORLOW EQUIVALENT	
	D. HOSE BIB OR OPTIONAL CONNECTION TO PUMP AND PRESSURE TANK (SEE NOTE 2)	0.4 IN. TO 3 IN PVC DRAINAGE REDUCER
	E.4 INCHES COMPACTED BASEROCK WITH 2 INCHES OF PEAGRAMEL ON TOP	P.4 IN. DRAMAGE PIPE FOR THE FIRST FLUSH (THIS REMOVES THE FIRST, DIRTY WATER FROM A RAINSTORM)
NOTES:	F. OVERFLOW TO RAINGARDEN (SHOWN)/SWALE/SPLASHBLOCK	Q. BUSHWAN FLOKT BALL
1. A RAINWATER CATCHMENT SYSTEM MAY NOT REQUIRE A BUILDING PERMIT PROVIDED ALL OF THE FOLLOWING ARE MET (CALIFORNIA PLIMBING CODE 1601.3 ():		
- WATER WILL BE USED FOR OUTBOOR NON-SPRAY IRRIGATION	G. 5 INCHES OF DECORATIVE GRAVEL WITH 2 INCHES OF PONDED WATERABOVE	R. BUSHMAN FIRST FLUSH FILTERS (TO KEEP EMITTER FROM CLOGGING)
- MAXIMUM STORAGE CAPACITY OF 5,000 GALLONS		
- TANK IS SUPPORTED DIRECTLY UPON GRADE	H. 12 INCHES AMENDED SOL: 1/2 COMPOST, 1/2 NATIVE SOL	S. BUSHMAN DRIP EMITTER TO DRAIN DIRTY WATER BETWEEN STORMS
- RATIO OF HEIGHT TO DIMALETER OR WIDTH DOES NOT EXCEED 2 TO 1		
• DOES NOT REQUIRE ELECTRICAL POWER OR MARELP WATER SUPPLY CONNECTION (SEE NOTE 2 AND 3)	LUNDISTURBED MATINE SOL	T WET CONVEYENACES N. DRAINAGE PIPE
ALL OTHER RANWATER CATCHMENT SYSTEMS MUST BE SURMITTED FOR BUILDING PERMIT.		(WATER STAYS IN PIPE BETWEEN STORMS)
2. PUMP AND PRESSURE TANK LIKELY REQUIRE INEXPENSIVE. OVER-THE-COUNTER. ELECTRICAL PERMIT.	1 FIRE SAFER LEAF GUARD	(Investational Investations)
3 IF CITY WATER PUBLICED TO TANKE OF MAKE 101 ISING FLOAT VALVE OF MANUALLY OPERATED VALVE THEN A PERMIT IS REDURED AND AN AIR CAP IS REDURED		U. THREE SEPARATE 3/32 INCH HOLES TO DRAW WATER FOR MOSQUITO CONTROL
RETWICE RAINWATER HARVESTING SYSTEM AND DOMESTIC WATER SYSTEM.	K. GUTTER	a much do really and really and to other more real model to compare
4. TANKS CAN BE DASY CHANED AT POINT TO USING FLEXIBLE PIPE ONLY TO REDUCE CHANCE OF LEAKAGE IN EARTHQUAKES.		V CLEAN GRAVE TO IMPROVE ORAINAGE FROM ORILLED HOLES
	I NORMAN DOMESTICS	CLEAR GROUPL TO THE ROTE DRAW MEET ROM DRALED HOLES

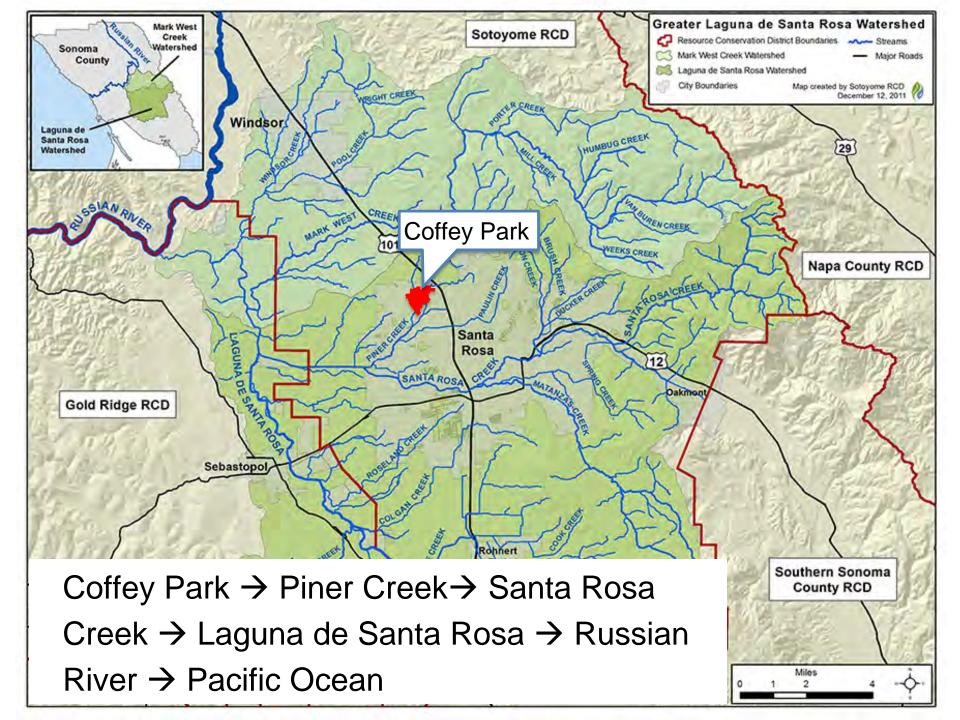
E I DUT MILE PULIERE TO TANKFOR MAKE UP USING R. LOUTE VALVE OR WALKLI'S OPERATED VALVE, THEN A PENIIT IS REPURED AND AN AIR GAP IS REQUIRED 5 THERE ARE NO REQUIRED SETRICKS FROM BUILDINGS OF SIDERACK PROPERTY LINES, THOUGH & CONVERSATION WITH YOUR MEIGHBOR COULD BE HELPFUL





RW-1.0

PERMIT PLAN AMERICA, 2011



Coffey Park – Back of the envelope calculation

Coffey Park	Acres (Total 262)	Percentage of total
Buildings	63	24%
Hardscape	46	18%
Roads	40	15%

(Numbers reflect conditions before the fire)



Sonoma Veg Map

Coffey Park – Back of the envelope calculation

- 40% (~100 ac) of Coffey Park is impermeable to stormwater (roads deducted)
- 4% rule = 4 acres of raingardens total
- Per 6,000 sf residential lot = 240 sf of raingarden
- Design storm: 1" depth
- Implementing green infrastructure would allow ~ 8 acre feet of water or 2,600,000 gallons detained/retained per storm
- = Annual water use of 26 families in Santa Rosa

Analysis Courtesy of Sherwood Design Engineers

Public Meetings and Dialogue

- Engage the public
- Hear community priorities
- Understand design and rebuild context
- Increase knowledge of sustainable design & materials
- Increase implementation of sustainable techniques and methods





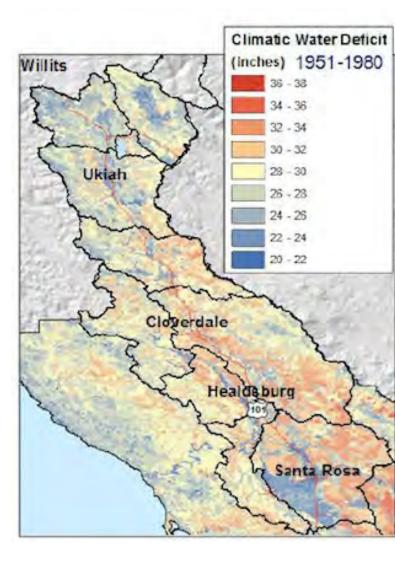


Key Feedback:

- •Wanted a menu of items: details, plant lists Ability to mix and match
- •Low cost options (Contemporary, Native)
- •Low Maintenance (Contemporary, Native)
- Ease of Permitting all elements approved by Planning and DPW
- •County and City: Support the process with trainings, demo gardens and workshops

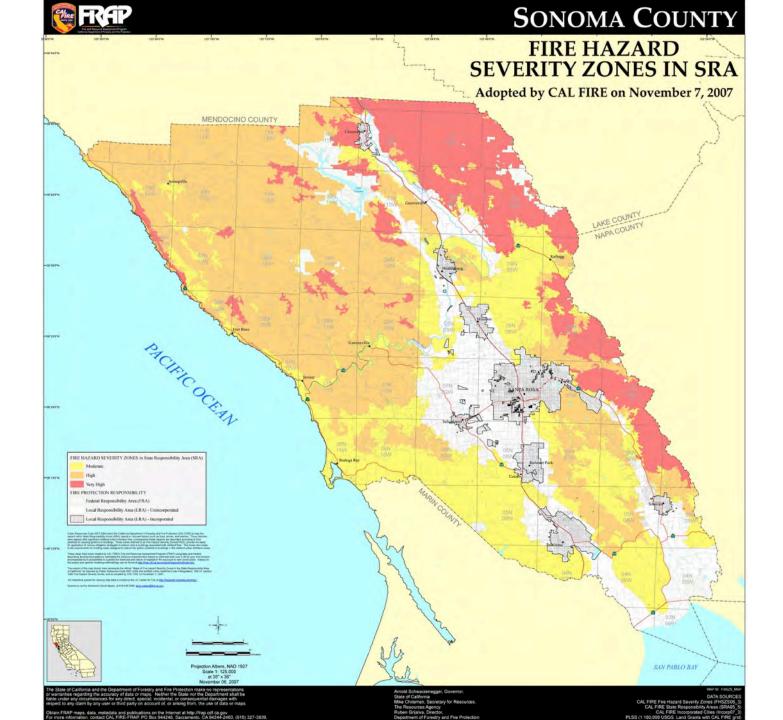
Landscape Permit Requirements

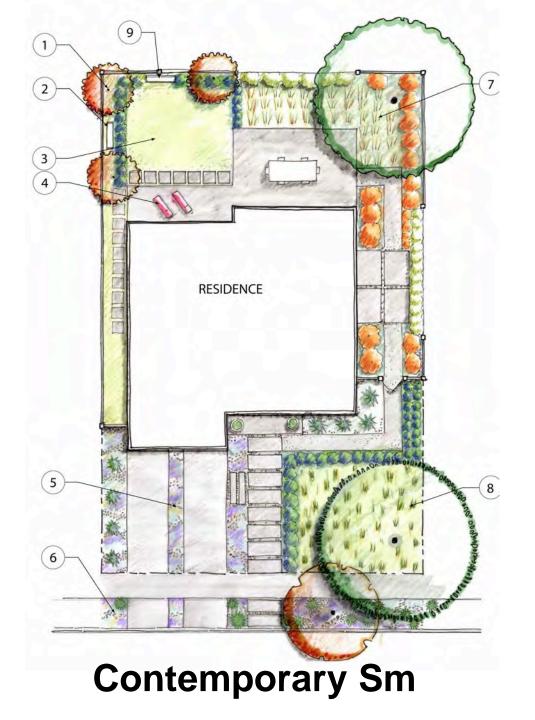
- •Landscape area < 2500 sf
- Smart irrigation controllers
 with weather sensor
- •75% low water use plants
- •25% medium max
- Drip irrigation systems
- Owners self certify
- Simplified inspection



Fire Safer Guidelines

- Within 5' of house plantings < 3' tall, low fuel
- Plants "Clean and Green" esp. in 5' area
- Defensible spaces front and back
- Place trees away from structures
- Fire safer plant selection Agency lists
- Reduce connectivity of fuels
- Consider wind direction of fire weather
- For SRA, LRA more stringent WUI guidelines





Contemporary Lg

