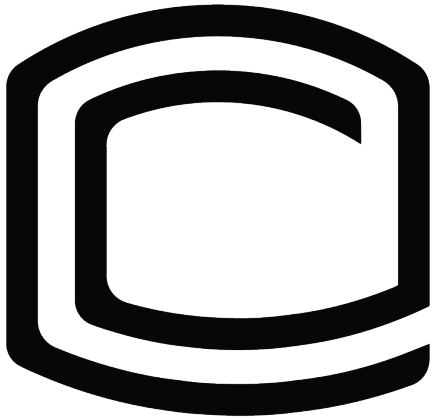


CULTIVATE

Rainwater Harvesting Systems

License #1079400

CULTIVATE

Rainwater Harvesting Systems

WHY harvest rainwater?

*FREE source of water.

* Water your landscape without drawing from your well or local water supply.

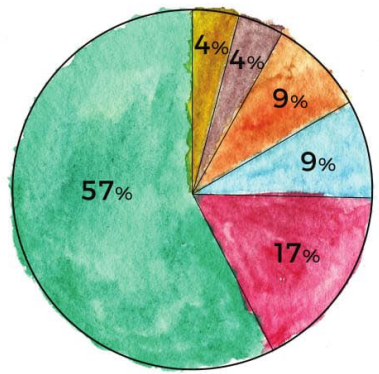
* Readily available water storage for fire suppression.

*Onsite emergency water storage.

*Minimizes your environmental footprint.

*Rainwater is pure, soft, and reduces corrosion on irrigation lines.

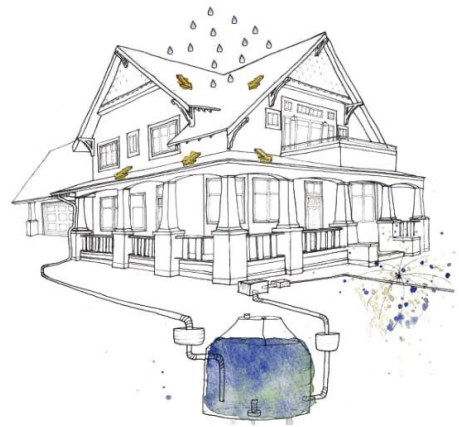
Average CA Home **WATER USAGE**



- **4%** Toilets
- **4%** Laundry
- **9%** Kitchen/Bathroom faucets
- **9%** Overwatering landscape
- **17%** Shower
- **57%** Landscaping

WHAT is rainwater harvesting?

Rainwater harvesting is the collection of rainfall which falls on the roof of your home and stores it for future use. In a typical Central Coast residential landscape, a homeowner can store and reuse, on average, 25,000 gallons per year... enough to maintain a 400 square foot lawn and 100 landscape plants!

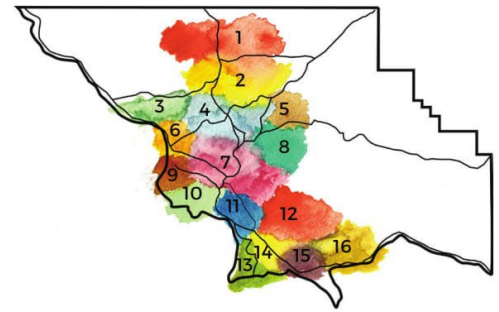


Simple diagram of Rainwater Harvesting process

5 - 5,000 gallon storage tanks

HOW much water can I save?

SLO County Map



Average Annual Precipitation

1. Paso Robles	17"	9. Los Osos	19"
2. Templeton	19"	10. Avila Beach	19"
3. Cayucos	19"	11. Pismo Beach	17"
4. Atascadero	18"	12. Arroyo Grande	19"
5. Creston	13"	13. Oceano	17"
6. Morro Bay	17"	14. Lompoc	16"
7. San Luis Obispo	19"	15. Nipomo	14"
8. Santa Margarita	19"	16. Santa Maria	14"

Last 10 years of precipitation in SLO
High: 27.85" Low: 2.64"

CALCULATE YOUR SAVINGS:

620 gallons of water can be collected on a 1,000 sq. ft. roof with 1 inch of rain.

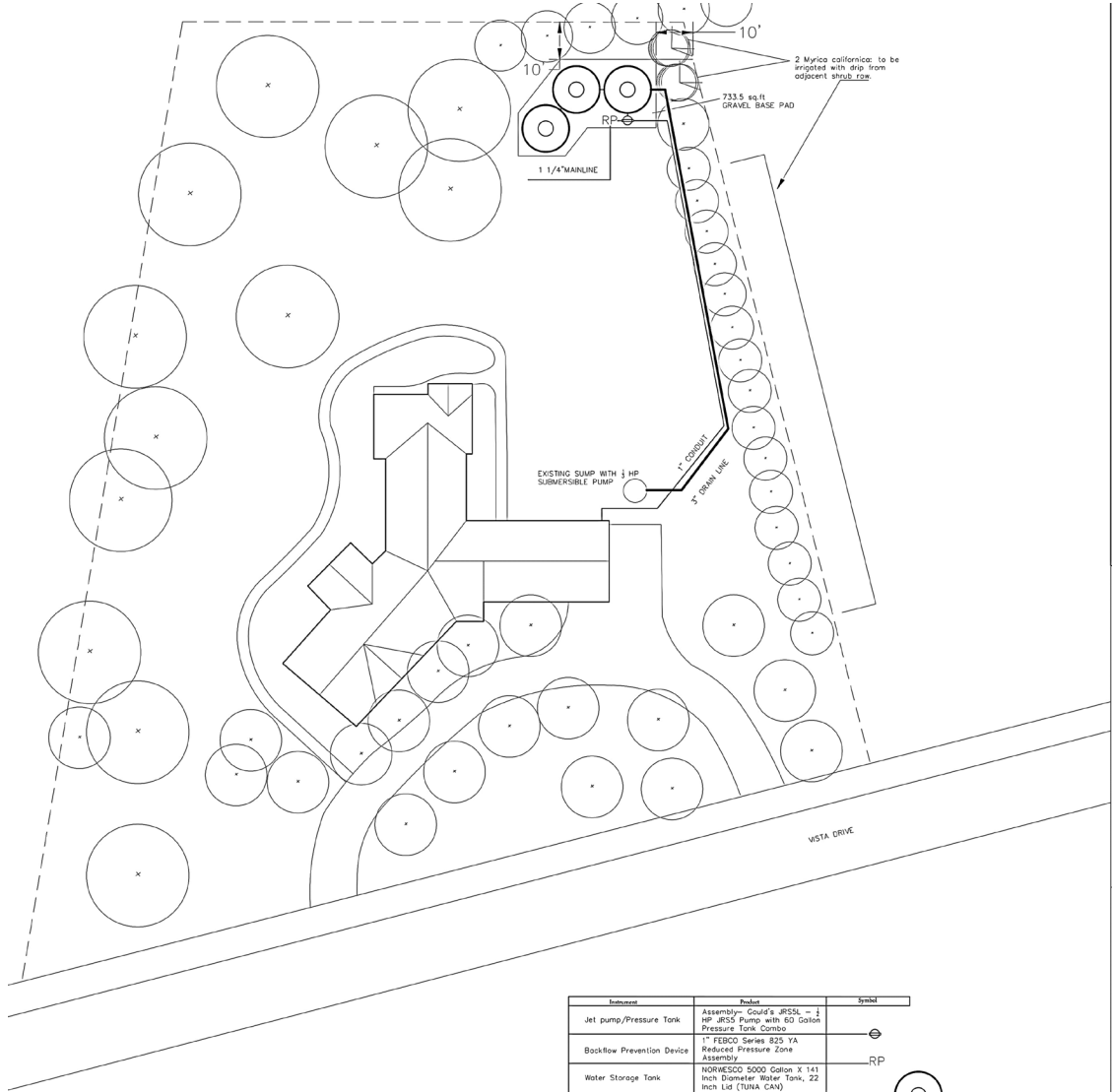
Therefore, .62 becomes our multiplier...

A 2,000 sq. ft. home in San Luis Obispo will receive an average of 19 inches of rain per year.

2,000 sq. ft. x (19 x .62) =

SAVE and REUSE 23,560 gal. per year!


Zigelman Rainwater Harvesting System
Existing Sump and Transfer Pump
Rainwater Conveyance Line
Electrical Conduit
Proposed Tank Pad
5,000 Gallon RWH Tank
Future 5,000 Gallon RWH Tanks
Pump and Pressure Tank
Irrigation Mainline
© 2016 Google
Google earth
1994
Imagery Date: 8/23/2013 35°08'23.41" N 120°35'35.97" W elev 312 ft eye alt 598 ft



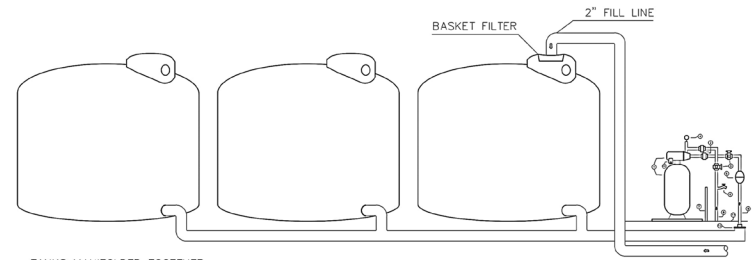
Instrument	Product	Symbol
Jet pump/Pressure Tank	Assembly- Gould's JRS5L – ½ HP JRS5 Pump with 60 Gallon Pressure Tank Combo	
Backflow Prevention Device	1" FEBCO Series 825 YA Reduced Pressure Zone Assembly	RP
Water Storage Tank	NORWESCO 5000 Gallon X 141 Inch Diameter Water Tank, 22 Inch Lid (TUNA CAN)	
Existing Trees	Pre-existing Trees and Shrubs	
Additional Trees for Screen	Myrika californica	

Piping	Linear feet	Symbol
1" Sch/Swit 1 1R	440 Hebbs feet	
3" Drainline	130 Linear feet	
1 ¼" Mainline	45 Linear feet	

North 5' 10' 20'

SCALE : NTS

TANK AND PUMP CONFIGURATION

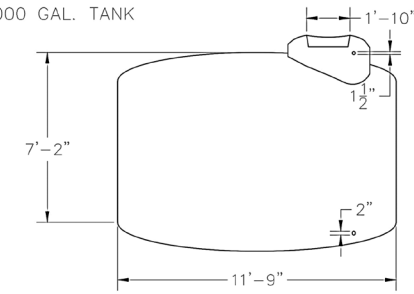


TANKS MANIFOLDED TOGETHER. SUBTERRANEAN 2" SCH 40 WITH BALL VALVES, UNIONS, AND INTERSECTIONS.

1. 1/2 HP PUMP WITH PRESSURE TANK
2. PVC SCH 80 UNION
3. PVC SCH 80 BALL VALVE
4. PRESSURE GAUGE
5. CHECK VALVE
6. HOSE BIB
7. CONDUIT
8. 1" MAINLINE TO GARDEN
9. 1.25" SUCTION LINE
10. PRESSURE SWITCH
11. FINISH GRADE
12. 2" TO 1.25" CONVERTER

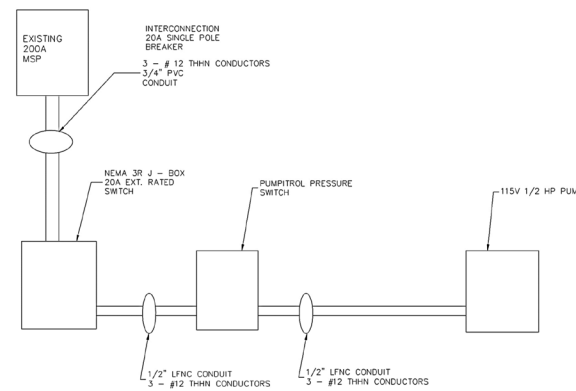
SCALE : NTS

NORWESCO 5000 GAL. TANK



SCALE : 1:1

PUMP: ELECTRICAL DIAGRAM



SCALE : NTS

4420 Broad St. D2
San Luis Obispo, Ca 93401
805.709.6319

DESIGNED BY

Landscape Designer
Michael H. Vogt

REVISIONS

IBSEN

2565 Carpenter Canyon Rd. // San Luis Obispo 93401

CLIENT

Madrone Landscapes
8045 Morro Road
Atascadero, California 93422
T: 805.466.6263

DATE 06.22.2018
SCALE NTS
SHEET NO.

AS - BUILT

Estimated Total Water Use

Equation:

ETWU = (ET_o) x (0.62) x [(PF x HA/IE) + SLA]

Enter values in Pale Blue Cells
Tan Cells Show Results
Messages and Warnings

Enter Irrigation Efficiency (equal to or greater than 0.71)	0.91
Irrigation Efficiency Default Value	0.71

Plant Water Use Type	Plant Factor
Low	0 - 0.3
Medium	0.4 - 0.6
High	0.7 - 1.0
SLA	1.00

Hydrozone	Plant Water Use Type (s) (low, medium, high)	Plant Factor (PF)	Hydrozone Area (HA) (ft^2)	PF x HA (ft^2)
1	Medium	0.50	1,600	800
2	Medium	0.40	750	300
3	Medium	0.60	200	120
4	Low	0.30	750	225
5	high	0.70	600	420
				0
				0
				0
				0
				0
				0
				0
				0
				0
				1,865
	SLA	1	600	600
		Sum	4,500	

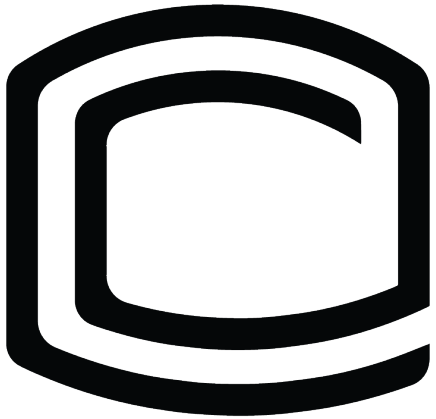
Results

MAWA =	60,417	ETWU=	56,704	Gallons
			7,580	Cubic Feet
			76	HCF
			0.17	Acre-feet
			0.06	Millions of Gallons

ETWU complies with MAWA

15,000 Gallon Capacity

- 1,450 SF Collection Surface = 16,200 gallons at 18” per year
- 27% of landscape water needs were met with this system
- Site has room to accommodate a total of 50,000 gallons of storage
- 5,017 SF Entire house Collection could Net zero Irrigation Needs for the Year



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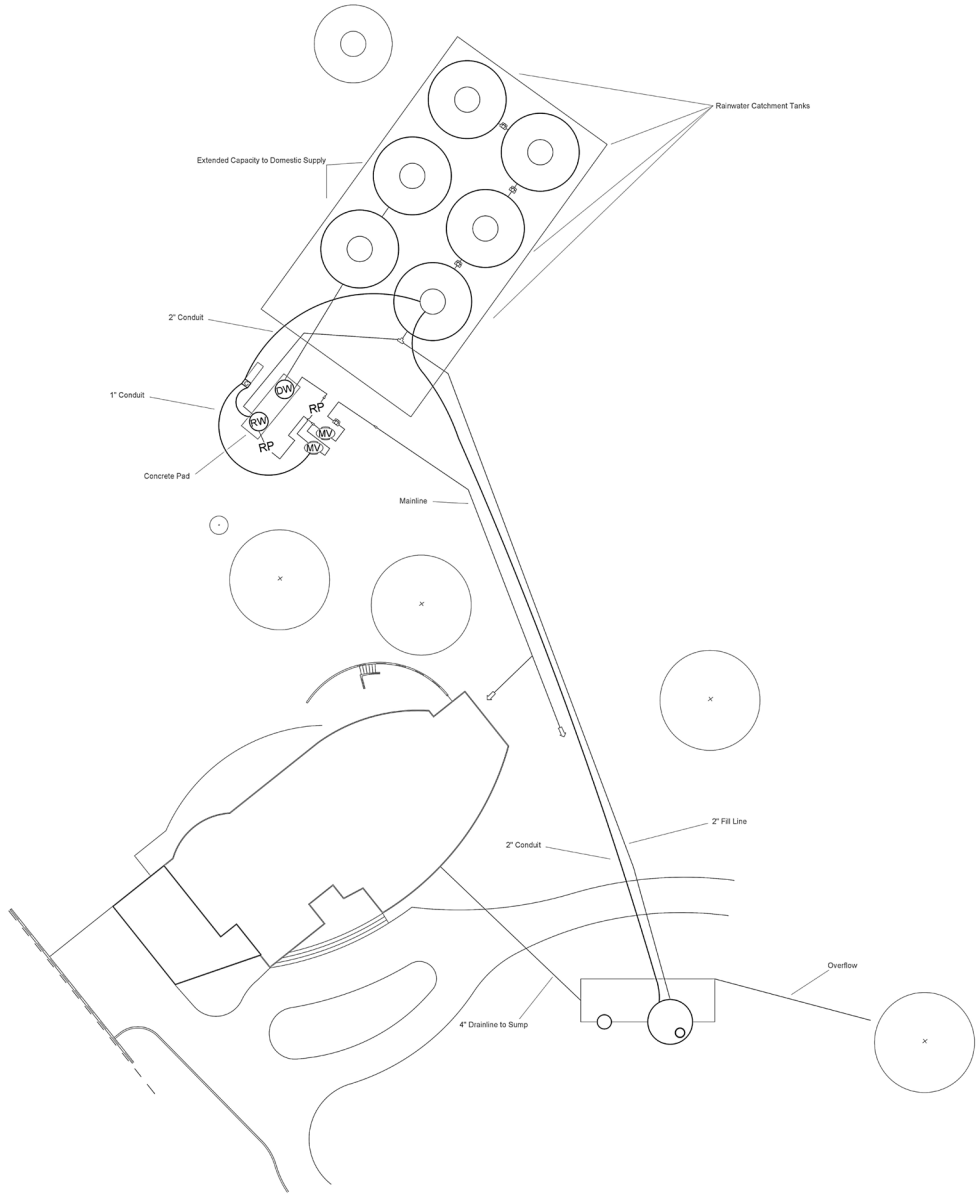
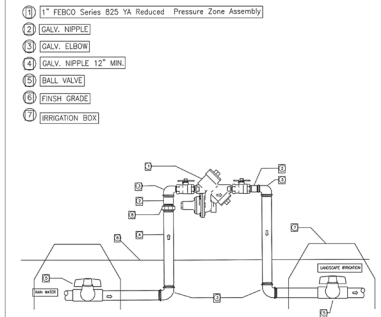
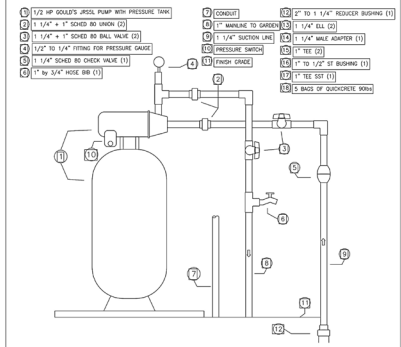


☐ RAINWATER SYSTEM AS - BUILT

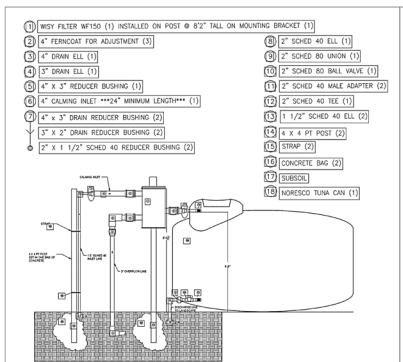
NORTH



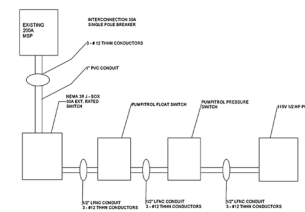
A BACKFLOW PREVENTION DEVICE



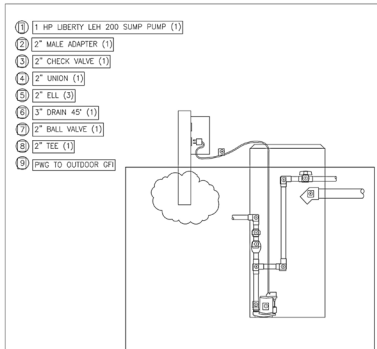
B 1/2 HP DISTRIBUTION PUMP



C WISY FILTER INLET



D STANDARD ELECTRICAL DIAGRAM



E 500 GAL SUMP TRANSFER TANK

Symbol Description

	Noresco 5000 gal Tuna Can
RP	*1" FEBCO 825 Y Backflow Prevention Device*
RW	*Assembly Gould's 1/2 HP 80 gal Pressure Tank*
C	*Controller*
	WISY Filter
	500 gal Sump Tank and 1 HP Liberty Transfer Pump
DW	*Domestic Water Pressure tank*
MV	*Master Valve*
	Flow Directions
	Shut - Off Valve

G Legend

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805.709.6319

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Plant Water Use Type	Plant Factor
Low	0 - 0.3
Medium	0.4 - 0.6
High	0.7 - 1.0
SLA	1.00

Hydrozone	Plant Water Use Type (s) (low, medium, high)	Plant Factor (PF)	Hydrozone Area (HA) (ft^2)	PF x HA (ft^2)
1	Low	0.30	20,530	6,159
2	Medium	0.60	913	548
3	High	0.80	0	0
4	Low	0.10	0	0
0	0	0.70	0	0
				0
				0
				0
				0
				0
				0
				0
				0
				0
				6,707
	SLA	1	0	0
		Sum	21,443	

Results

MAWA =	287,364	ETWU=	173,817	Gallons	ETWU complies with MAWA
			23,236	Cubic Feet	
			232	HCF	
			0.53	Acre-feet	
			0.17	Millions of Gallons	

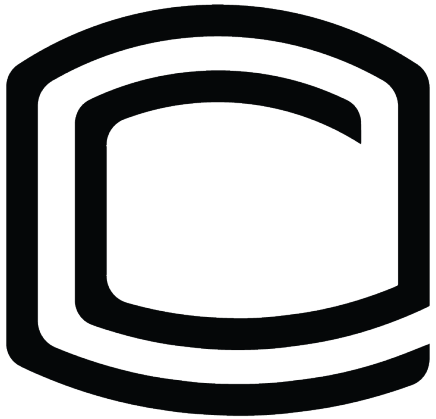

RMS

Code Requirements
Chapter 16

All rainwater catchment systems must be permitted by the Authority Having Jurisdiction

Some Important aspects:

- Complete plumbing plans with necessary data must be submitted for permit
- Collection surfaces include: roof surfaces, impervious man-made, above-ground surfaces 1602.9.3 and 1504.0
- Certified Reduced Pressure Backflow prevention device on all cross connection points 1602.4
- Rainwater Catchment systems, spigots, valves and outlet points shall be marked, in lettering in accordance with Section 601.3.3, with the words: “CAUTION: NONPOTABLE RAINWATER, DO NOT DRINK” 1602.8
- Filtration for Drip Irrigation: Debris excluder 1602.9.10 and 100 Micron filter 1602.9.11
- Filtration for Spray Irrigation: Debris excluder and disinfection in accordance with 1602.9.10
- Conveyance system to storage tanks comply with requirements in Chapter 11
- Operation and Maintenance Manual 1601.5



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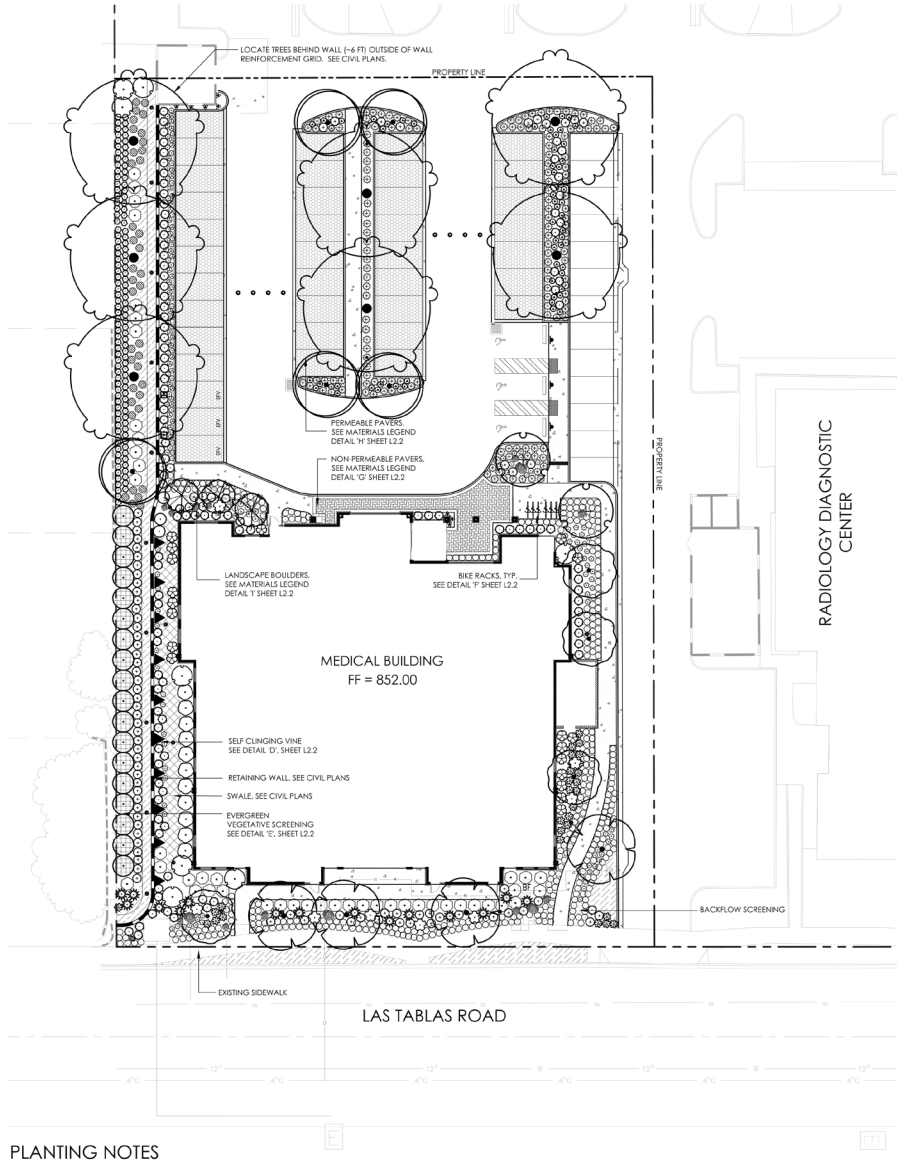
CHC
Community Health Centers



PLANT SCHEDULE

TREES	BOTANICAL NAME	COMMON NAME	CONT		QTY	DETAIL
	ACER PALMATUM 'BLOODGOOD'	BLOODGOOD JAPANESE MAPLE	24"BOX		3	E/L-2.1
	ARBUTUS X 'MARINA'	ARBUTUS MULTI-TRUNK	24"BOX		4	E/L-2.1
	GINKGO BILOBA 'AUTUMN GOLD' TM	MAIDENHAIR TREE	36"BOX		4	E/L-2.1
	LAGERSTROEMIA INDICA 'WATERMELON RED'	WATERMELON RED CRAPE MYRTLE	15 GAL		5	
	LAGERSTROEMIA X 'TUSKEGEE'	TUSKEGEE CRAPE MYRTLE'	24"BOX		2	E/L-2.1
	PODOCARPUS MACROPHYLLUS	YEW PINE	24"BOX		18	E/L-2.1
	ULMUS PARVIFOLIA 'SEMPERVIRENS'	CHINESE EVERGREEN ELM	15 GAL		7	E/L-2.1
SHRUBS	BOTANICAL NAME	COMMON NAME	CONT		QTY	DETAIL
	CALAMAGROSTIS X ACUTIFLORA 'KARL FOERSTER'	FEATHER REED GRASS	1 GAL		127	B/L-2.1
	CARPENTERIA CALIFORNICA 'ELIZABETH'	BUSH ANEMONE	5 GAL		11	
	CERCIS CANADENSIS 'HEARTS OF GOLD'	FOREST PANSY REDBUD	15 GAL		8	
	CHONDROPETALUM TECTORUM 'EL CAMPO'	CAPE RUSH	1 GAL		117	B/L-2.1
	CISTUS PULVERULENTUS 'SUNSET'	ROCKROSE	5 GAL		45	B/L-2.1
	KNIPHOFIA UVARIA 'ECHO MANGO'	REBLOOMING TORCHLILY	1 GAL		111	
	KNIPHOFIA UVARIA 'FLAMENCO'	FLAMENCO RED HOT POKER	1 GAL		58	B/L-2.1
	LOMANDRA CONFERTIFOLIA 'LITTLE CON'	SMALL MAT RUSH	1 GAL		370	B/L-2.1
	LOMANDRA LONGIFOLIA 'BREEZE'	DWARF MAT RUSH	1 GAL		149	B/L-2.1
	MUHLENBERGIA RIGENS	DEER GRASS	1 GAL		15	B/L-2.1
	NEPETA X FAASSENII 'SIX HILLS GIANT'	GIANT CATMINT	1 GAL		38	B/L-2.1
	PENSTEMON HETEROPHYLLUS 'MARGARITA BOP'	BEARD TONGUE	1 GAL		11	B/L-2.1
	PEROVSKIA ATRIPLICIFOLIA 'BLUE SPIRES'	RUSSIAN SAGE	1 GAL		38	B/L-2.1
	PHORMIUM TENAX 'YELLOW WAVE'	NEW ZEALAND FLAX	5 GAL		30	B/L-2.1
	PHORMIUM X 'SEA JADE'	NEW ZEALAND FLAX	5 GAL		3	B/L-2.1
	PICEA PUNGENS 'GLOBOSA'	DWARF GLOBE BLUE SPRUCE	15 GAL		8	B/L-2.1
	RIBES SANGUINEUM 'CLAREMONT'	CLAREMONT FLOWERING CURRANT	5 GAL		19	B/L-2.1
	SALVIA CLEVELANDII 'WINIFRED GILLMAN'	CLEVELAND SAGE	5 GAL		82	B/L-2.1
VINE/ESPALIER	BOTANICAL NAME	COMMON NAME	CONT		QTY	DETAIL
	CAMPSIS RADICANS 'INDIAN SUMMER'	TRUMPET CREEPER	1 GAL		8	B/L-2.1 D/L-2.1
	FICUS PUMILA 'MONER'S HARDY'	MONER'S HARDY CREEPING FIG	1 GAL		10	D/L-2.1
GROUND COVERS	BOTANICAL NAME	COMMON NAME	CONT	SPACING	QTY	DETAIL
	FRAGARIA CHILOENSIS	BEACH STRAWBERRY	4" POT	18" o.c.	227	
	ROSMARINUS OFFICINALIS 'PROSTRATUS'	DWARF ROSEMARY	1 GALLON	4' o.c.	10,750	
	VERBENA X 'BALENDAKLE' TM	ENDURASCAPE PURPLE VERBENA	4" POT	16" o.c.	418	A/L-2.1

MATERIALS LEGEND

BOULDER SIZE 1:
APPROXIMATE SIZE 36" X 48"
SANTA BARBARA BOULDERS
AVAILABLE FROM AIR VOL BLOCK OR EQUAL.

BOULDER SIZE 2:
APPROXIMATE SIZE 24" X 36"
SANTA BARBARA BOULDERS
AVAILABLE FROM AIR VOL BLOCK OR EQUAL.

BOULDER SIZE 3:
APPROXIMATE SIZE 18" X 24"
SANTA BARBARA BOULDERS
AVAILABLE FROM AIR VOL BLOCK OR EQUAL.

CONCRETE PAVERS, TYPE 1:
60 MM STANDARD ROMAN COBBLE - GREY/CHARCOAL BLEND
COMBINATION HERRINGBONE PATTERN, STANDARD SMOOTH FINISH
AVAILABLE FROM AIR VOL BLOCK OR APPROVED EQUAL

CONCRETE PAVERS, TYPE 2 (PERMEABLE):
80 MM PERMEABLE ROMAN - GREY/CHARCOAL BLEND
COMBINATION HERRINGBONE PATTERN, STANDARD SMOOTH FINISH
AVAILABLE FROM AIR VOL BLOCK OR APPROVED EQUAL

PLANTING NOTES

CONTRACTOR SHALL SUBMIT LABELED PHOTOS OF ALL BOULDERS, PLANT MATERIAL, TREES AND GROUNDCOVERS. PHOTOS SHALL BE OF THE SPECIFIED CONTAINER SIZE. PHOTOS SHALL BE SUBMITTED AS A COMPLETE SUBMITTAL PACKAGE FOR REVIEW AND APPROVAL. INCLUDE PHOTOS OF ANY SUBSTITUTES, CLEARLY LABELED. LANDSCAPE ARCHITECT SHALL BE PRESENT WHEN PLACING BOULDERS

CONTRACTOR SHALL PROVIDE ALL LABOR, MATERIALS, AND EQUIPMENT NECESSARY TO FURNISH AND INSTALL PLANT MATERIAL AS SHOWN ON THE DRAWINGS AND AS DESCRIBED IN THE SPECIFICATIONS.

PLANT SCHEDULE ON THE DRAWINGS SHALL BE USED AS A GUIDE ONLY. CONTRACTOR SHALL TAKEOFF AND VERIFY SIZES AND QUANTITIES BY PLAN CHECK. NOTIFY PROJECT LANDSCAPE ARCHITECT OF ANY MAJOR DISCREPANCIES.

UNLESS DESIGNATED ON THE DRAWINGS OTHERWISE, ALL STRUCTURAL AND HARDSCAPE IMPROVEMENTS SHALL BE CONSTRUCTED AND FINISHED AHEAD OF PLANTING.
ADJUST PLANT MATERIAL AS NECESSARY AROUND UTILITY LOCATIONS. NOTIFY LANDSCAPE ARCHITECT OF ANY MAJOR CONFLICTS OR NECESSARY ADJUSTMENTS.

SOILS SHALL BE PREPARED AND AMENDED PER THE SPECIFICATIONS. SOIL AMENDMENTS AND PREPARATION SHALL CONFORM TO STATE AB1881 AND LOCAL WATER EFFICIENT LANDSCAPE ORDINANCES. ALLWORK ON THE IRRIGATION SYSTEM INCLUDING OPERATIONAL TESTS, AND BACKFILLING OF TRENCHES SHALL BE COMPLETED AHEAD OF PLANTING.

LOCATIONS OF ALL PLANT MATERIAL SHALL BE REVIEWED ON SITE BY THE OWNER'S AUTHORIZED REPRESENTATIVE PRIOR TO PLANTING.
THE REPRESENTATIVE RESERVES THE RIGHT TO MAKE ANY ADJUSTMENTS, SUBSTITUTIONS, ADDITIONS, AND DELETIONS TO THE PLANT LAYOUT AS WORK PROGRESSES.

ALL PLANTING AREAS TO RECEIVE 3" THICK MIN. LAYER OF WALK ON BARK MULCH. PROVIDE SAMPLE FOR APPROVAL.

REFER TO SPECIFICATIONS AND PLANTING DETAILS FOR ADDITIONAL INFORMATION.

rrm design group
rrmdesign.com | (805) 543-1794
3765 S. Higuera, San Luis Obispo, CA 93401

LICENSED LANDSCAPE ARCHITECT
CHRISTOPHER B. DUFOUR No. 5641
09/30/18
RENEWAL DATE
STATE OF CALIFORNIA

Las Tablas Road Templeton
CHCCC
Las Tablas, Templeton , CA 93465

LANDSCAPE PLAN

CDN#2920A-088
5-1-2018

NO.	REVISION	DATE

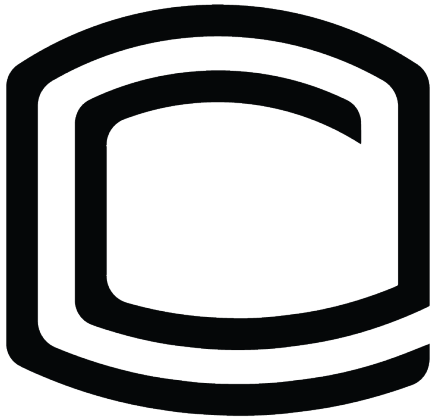
PROJECT MANAGER
CHRIS DUFOUR
DRAWN BY
AS/CM
CHECKED BY
CBD
DATE
SEPTEMBER 14, 2017
PROJECT NUMBER
0248-03-CO16
SHEET
L2.1

Storm Tech System
Capture and Reinfiltration

29,590 SF of collection surface

238,495 gallons of rainfall per year

Total Landscape Needs: 126,250
Just 52% of the potential yield!



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