DESIGN INTENT

THE LANDSCAPE IS DESIGNED TO COMPLY WITH THE PRESCRIPTIVE COMPLIANCE OPTION OF THE LOCALLY ADOPTED STATE OF CALIFORNIA MODEL WATER EFFICIENT LANDSCAPE ORDINANCE ("WELO"). COMPLIANCE WITH MANDATORY ELEMENTS OF WELO MUST BE DOCUMENTED ON LANDSCAPE PLANS.

THE PLANS ARE DESIGNED TO DEMONSTRATE FIRE SAFER LANDSCAPING APPROACHES WITH LOWER, LESS WOODY PLANTS CLOSE TO BUILDINGS, AND TREES POSITIONED TO ALLOW MAINTENANCE OF BRANCHES 10' AWAY FROM BUILDINGS.

LOW IMPACT DEVELOPMENT ("LID") ELEMENTS SUCH AS PERMEABLE PAVING, AND DOWNSPOUTS DISCONNECTED FROM STORM SEWERS AND DRAINING TO RAINGARDENS OR LANDSCAPE STRIPS, ARE PROVIDED TO INFILTRATE MORE STORMWATER RUN-OFF ON SITE, INCREASE GROUNDWATER RECHARGE AND IMPROVE THE AMOUNT OF SOIL MOISTURE AVAILABLE TO PLANTS THEREBY REDUCING IRRIGATION NEEDS.

LANDSCAPE DESIGN REQUIREMENTS

THE PLANTINGS ARE DESIGNED TO COMPLY WITH THE APPENDIX D "PRESCRIPTIVE COMPLIANCE" OPTION OF WELO:

- 1. MEDIUM WATER USE PLANTINGS DO NOT EXCEED 25 PERCENT OF THE TOTAL PLANTED AND IRRIGATED AREA.
- 2. LOW WATER USE OR CLIMATE-ADAPTED SPECIES THAT REQUIRE LITTLE OR NO SUMMER WATER ARE SELECTED FOR AT LEAST 75 PERCENT OF THE PLANTED AND IRRIGATED AREA
- 3. PERMITTED LANDSCAPE AREA MUST BE SMALLER THAN 2500 SF OF PLANTED AND IRRIGATED AREA 4. PLANS ARE INTENDED FOR USE ON SITES WITH LESS THAN 8% SLOPES.

ADDITIONAL GUIDELINES FOR THE PLANTINGS:

- A. FIRE SAFER PLANTINGS ARE INDICATED ON PLANT LISTS AND USED WITHIN 5' OF HOMES.
- B. CONVENTIONAL TURF IS NOT PROVIDED DUE TO HIGH WATER USE.
- C. TREES ARE LOCATED FOR SHADE ON GARDEN AREAS AND TO PROVIDE SOLAR ACCESS FOR SOLAR PANELS ON ROOFS. TREES ARE LOCATED AWAY FROM BUILDING STRUCTURES SO THAT BRANCHES CAN BE MAINTAINED 10' FROM ROOFS AND CHIMNEYS.
- D. PLANTS ARE PLACED IN APPROPRIATE MICROCLIMATES BY EVALUATING THE DIRECTION THE FRONT YARD IS FACING AND NORTH ARROWS ARE INDICATED ON PLANS.
- E. PLANTS ARE GROUPED IN IRRIGATION ZONES ("HYDROZONES") BASED ON SIMILAR WATER NEEDS AS DEFINED BY THE STATE WATER USE CLASSIFICATIONS OF LANDSCAPE SPECIES IV ("WUCOLS IV") **REGION 1 LIST**
- F. RAINWATER AND STORMWATER ELEMENTS SHOULD BE REVIEWED WITH SITE DESIGN TEAM AND GENERAL CONTRACTOR PRIOR TO SITE GRADING
- G. PERVIOUS PAVING OPTIONS SHOULD BE REVIEWED WITH SITE DESIGN TEAM AND GENERAL CONTRACTOR
- H. SEE SONOMA- MARIN SAVING WATER PARTNERSHIP WEBSITE FOR FURTHER INFORMATION AND FAQ: http://www.savingwaterpartnership.org/landscape-design-templates/

IRRIGATION DESIGN REQUIREMENTS AND GUIDELINES

THE IRRIGATION SYSTEM IS DESIGNED TO COMPLY WITH THE PRESCRIPTIVE COMPLIANCE OPTION OF WELO:

- 1. INSTALL AN AUTOMATIC IRRIGATION CONTROLLER THAT DOES NOT LOSE PROGRAMMING DATA AFTER A POWER FAILURE (NON-VOLATILE MEMORY) AND UTILIZES EVAPOTRANSPIRATION OR SOIL MOISTURE SENSOR DATA.
- 2. INSTALL A RAIN SENSOR.

ADDITIONAL GUIDELINES FOR THE IRRIGATION SYSTEMS:

- 3. SYSTEM IS DESIGNED TO REDUCE WATER USE TO THE MINIMUM AMOUNT TO SUSTAIN HEALTHY PLANT GROWTH AND TO PREVENT RUNOFF.
- 4. A MANUAL SHUT-OFF VALVE IS INSTALLED AS CLOSE AS POSSIBLE TO THE POINT OF CONNECTION.
- 5. PRESSURE REGULATION IS PROVIDED TO ENSURE THE DYNAMIC PRESSURE OF THE SYSTEM IS WITHIN
- THE MANUFACTURERS RECOMMENDED PRESSURE RANGE FOR THE IRRIGATION COMPONENTS. 6. ALL IRRIGATION EMISSION DEVICES MUST MEET THE ANSI STANDARD, ASABE/ICC 802-2014 LANDSCAPE IRRIGATION SPRINKLER AND EMITTER STANDARD. SPRINKLER HEADS MUST DOCUMENT A DISTRIBUTION
- UNIFORMITY LOW QUARTER OF 0.65 OR HIGHER. 7. ALL AREAS UTILIZE DRIP IRRIGATION ASSEMBLIES TO ENABLE THE SCALING OF PLANS. 8. SPRAY IRRIGATION NOT ALLOWED.

TREE IRRIGATION:

- 9. ALLOW DEEP ROOT WATERING OF THE ENTIRE TREE ROOT SYSTEM WHICH EXTENDS WELL BEYOND THE DRIPLINE OF THE TREE CANOPY.
- 10. ALLOW FOR MOVING THE TREE IRRIGATION DISTRIBUTION LINES AWAY FROM TREE TRUNK AFTER
- ESTABLISHMENT AND EXPANDING THE LINE OUTWARD WITH ROOT DEVELOPMENT.
- 11. PROVIDE SEPARATE TREE VALVES SO THE TREE VALVE CAN BE LEFT ON DURING PERIODS OF DROUGHT.

SOIL MANAGEMENT REQUIREMENTS

SOIL MANAGEMENT IS DESIGNED TO COMPLY WITH THE PRESCRIPTIVE COMPLIANCE OPTION OF WELO: 1. INCORPORATE COMPOST AT A RATE OF AT LEAST FOUR CUBIC YARDS PER 1,000 SQUARE FEET TO A

- DEPTH OF SIX INCHES INTO THE LANDSCAPE AREA. AFTER PLANTING, A MINIMUM THREE INCH LAYER OF MULCH SHALL BE APPLIED ON ALL EXPOSED SOIL SURFACES OF PLANTING AREAS.
- 3. MULCH CAN BE REDUCED FOR NATIVE GRASS AND/OR WILDFLOWER AREAS.

STEP

APPL	
STE	EP 6
YES	

SYMBO

CLIMA 2. INVASIVE PLANTS: CALIFORNIA INVASIVE PLANT COUNCIL ("Cal-IPC") DEFINES INVASIVE PLANTS AS: PLANTS THAT ARE NOT NATIVE TO AN ENVIRONMENT, AND ONCE INTRODUCED, THEY ESTABLISH, QUICKLY REPRODUCE AND SPREAD, AND CAUSE HARM TO THE ENVIRONMENT, ECONOMY, OR HUMAN HEALTH. 3. HYDROZONE: AN AREA OF THE LANDSCAPE HAVING PLANTS WITH SIMILAR WATER NEEDS AND ROOTING DEPTHS AND THE SAME MICRO-CLIMATE.

4.	IRRIG
	DATA

5. MICROCLIMATE: THE CLIMATE WITHIN EACH DIFFERENT SUB-AREA OF THE LANDSCAPE WHICH DEPENDS ON ITS SUN AND WIND EXPOSURE, PROXIMITY TO REFLECTIVE SURFACES, PLANT DENSITY AND OTHER FACTORS.

- 6.

REFERENCE

TITLE 23 CHAPTER 2.7 MWELO: THE MODEL WATER EFFICIENT LANDSCAPE ORDINANCE

MWELO SECTIONS:

491 DEFINITIONS SECTION 492.7

POST-CON	STRUCTION REQUIREMENTS
STEP 5: PC	ST-CONSTRUCTION CERTIFICATION
TO BE SIGNED B	Y APPLICANT
	D WITH THE REQUIREMENTS OF THE PRESCRIPTIVE COMPLIANCE OPTION OF THE IT LANDSCAPE ORDINANCE
APPLICANT NAM	E (PLEASE PRINT)
APPLICANT SIGN	IATURE DATE
	LO FINAL INSPECTION CHECKLIST
YES NO NA	PLANTING
	1. ALL PLANTS INSTALLED ARE LISTED ON PLANS OR ON APPROVED PLANT SUBSTITUTION LIST
	2. 75% OR MORE OF THE PLANTS ARE LOW WATER USE PER WUCOLS REGION 1
	3. NO STANDARD HIGH WATER USE TURF HAS BEEN INSTALLED SOIL
	 COMPOST HAS BEEN APPLIED AT A RATE OF AT LEAST FOUR (4) CUBIC YARDS PER ONE THOUSAND (1,000) SQUARE FEET AND HAS BEEN INCORPORATED TO A DEPTH OF SIX (6) INCHES INTO THE LANDSAPE AREA.
	2. A THREE (3) INCH LAYER OF ORGANIC MULCH HAS BEEN APPLIED OVER ALL SHRUB PLANTING AREAS
	IRRIGATION
	1. NO SPRAY IRRIGATION IS USED
	2. STATIC AND DYNAMIC WATER PRESSURE NOTED AT THE POINT OF CONNECTION
	3. WEATHER BASED SELF ADJUSTING CONTROLLER WITH NON-VOLATILE MEMORY IS INSTALLED PER MANUFACTURERS SPECIFICATIONS
	4. RAINSENSOR AND WEATHER SENSOR (IF REQUIRED FOR WEATHER DATA) INSTALLED PER MANUFACTUERS
	SPECIFICATION AND IS FUNCTIONING
	5. CONTROLLER IS ACURATELY PROGRAMMED
	6. CONTROLLER CHART IS PLACED IN CONTROLLER HOUSING OR ADJACENT TO CONTROLLER
	7. CONTROLLER CHART CLEARLY INDICATES STATIONS & VALVE ZONES
	 CONTROLLER CHART CLEARLY INDICATES JULY IRRIGATION SCHEDULE FOR EACH ZONE AND INCLUDES PROGRAMS, DAYS PER WEEK, START TIME, AND RUN TIMES
	9. IRRIGATION SYSTEM SHUT OFF VALVE INSTALLED
	10. IRRIGATION SYSTEM SHUT OFF VALVE LOCATION IS AS SHOWN ON PLAN OR ON AS-BUILT
	11. DRIP IRRIGATION CONTROL ZONE ASSEMBLIES ARE INSTALLED AND FUNCTIONING
	12. DRIP IRRIGATION LINES ARE INSTALLED AS SHOWN ON PLAN & DETAILS
	13. DRIP FLUSHOUTS ARE INSTALLED LOWEST POINT OF EACH ZONE AND ARE FUNCTIONING
	14. SYSTEM OPERATES WITHOUT LEAKS, BREAKS OR RUNOFF
	15. EQUIPMENT INSTALLED IS AS SHOWN ON APPROVED IRRIGATION EQUIPMENT LIST, OR EQUAL
	GENERAL
	1. CHANGES ARE NOTED ON AS-BUILT PLAN AND IS PROVIDED AT TIME OF INSPECTION
SYMBOLS 8	DEFINITIONS
	APTIVE: NON-NATIVE PLANTS WHICH ARE ADAPTED TO LOCAL MICROCLIMATES. ANTS: CALIFORNIA INVASIVE PLANT COUNCIL ("Cal-IPC") DEFINES INVASIVE PLANTS AS: PLANTS THAT ARE NOT NATIVE TO AN

GATION CONTROLLER: SMART CONTROLLERS ARE REQUIRED. THESE ADJUST AUTOMATICALLY USING WEATHER OR SOIL MOISTURE

WELO: THE CALIFORNIA MODEL WATER EFFICIENT LANDSCAPE ORDINANCE THAT REQUIRES WATER CONSERVATION MEASURES TO BE IMPLEMENTED IN LANDSCAPES AND HAS BEEN IN EFFECT SINCE 1990. 7. PLANT WATER USE: AN ESTIMATE OF THE AMOUNT OF WATER NEEDED BY PLANTS TO THRIVE IN WARM/DRY PERIODS. PLANTS ARE

GROUPED INTO VERY LOW, LOW, MODERATE AND HIGH WATER USE AND ARE ASSIGNED PLANT FACTOR VALUES. 8. TURF: A GROUND COVER SURFACE OF MOWED GRASS (CONVENTIONAL LAWN)

9. TURF ALTERNATIVE: A LOW WATER USE GRASS OR GROUNDCOVER PLANTING THAT SPREADS TO FORM A LOW COVER THAT CAN BE OCCASIONALLY WALKED UPON.

10. WEATHER SENSOR: SENSOR CONNECTED TO THE IRRIGATION CONTROLLER WHICH DETECTS RAIN, FREEZE, WIND ETC. AND SUSPENDS OR ADJUSTS IRRIGATION OPERATION.

490.1 (c) & D 9 (a): APPLICABILITY

D (b) (A-H): PROJECT INFORMATION

D (b) (H): LANDSCAPE DOCUMENTATION PACKAGE

D (b) (5): IRRIGATION DESIGN PLAN

D (b) (2) & (3) (B): SOIL MANAGEMENT

D(c) MWELO FINAL INSPECTION CHECKLIST

(a)(1)(B) IRRIGATION CONTROLLER

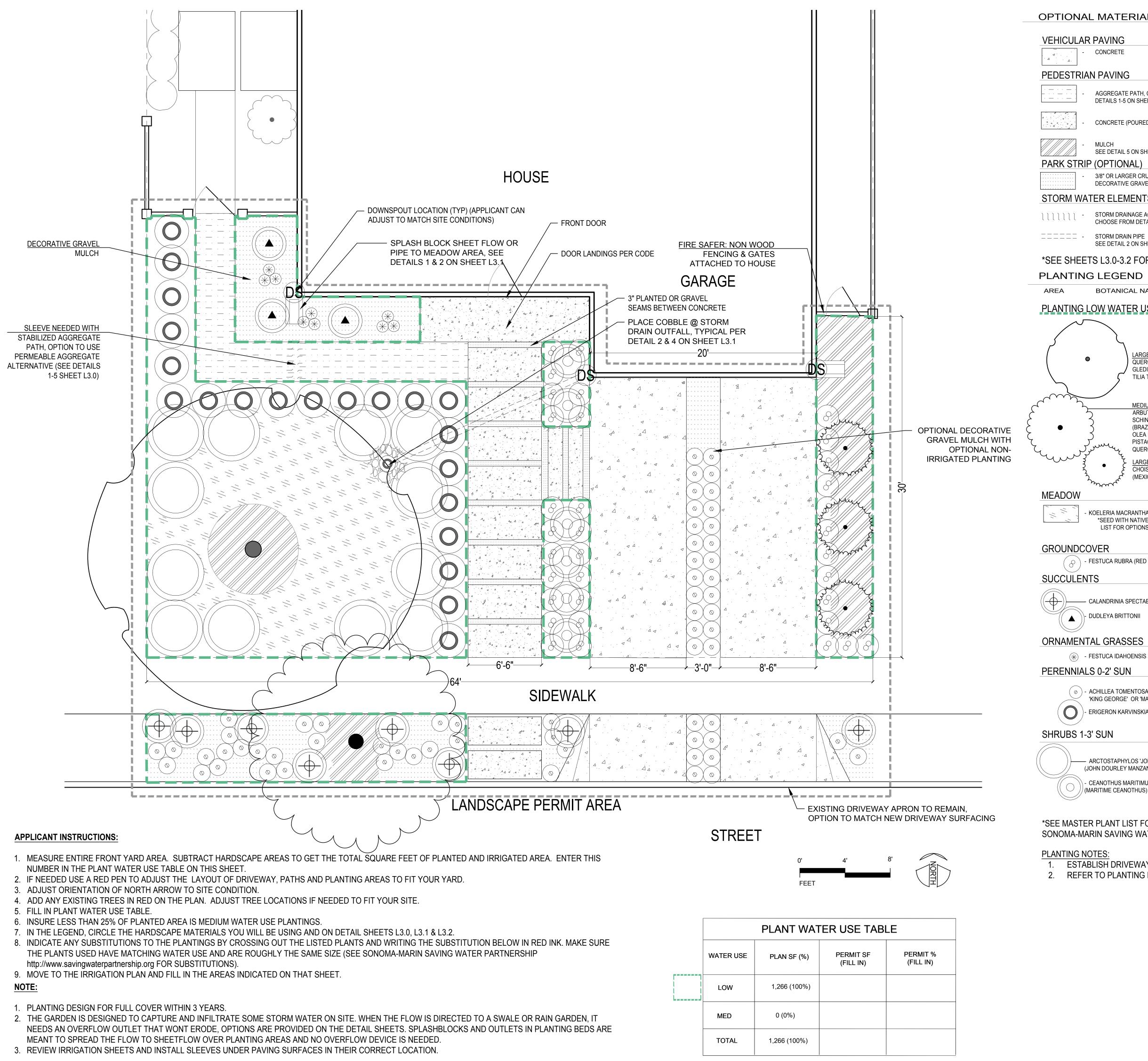
(a)(1)(D) WEATHER SENSOR



OFF ALL ARIS THA ARE ORD



PRE CONSTRUCTION - PERMIT APPLICATION BY OWNER - FILL I AREAS BELOW	
CONFIRM APPLICABILITY	
THIS PLAN SHEET IS FOR USE FOR: 1) FRONT YARD LANDSCAPES UP TO 2,500 SF WHICH THE LOCAL JURISDICTION PERMIT AGENCY ALLOWS TO COMPLY WITH PRESCRIPTIVE COMPLIANCE MEASURES. SEE APPENDIX D OF MWELO.	
STEP 1: PROJECT INFORMATION	ABLA
TO BE FILLED OUT BY APPLICANT	ANN BAKER LANDSCAPE ARCHITECTURE 625 2ND ST., STE 110
DATE:	PETALUMA, CA 94952 TEL.: (707) 772-5062 EMAIL: landarches@gmail.com
PROJECT APPLICANT (NAME):	daily acts
PROJECT ADDRESS:	because every choice matters
TOTAL PROJECT LANDSCAPE AREA (≤ 2500):(SF)	digital mapping solutions
MEDIUM WATER USE PLANT MATERIAL AREA (≤ 25%):(SF)	
LOW TO VERY LOW NON-TURF PLANT MATERIAL AREA (≥ 75%):(SF)	The second secon
PROJECT TYPE: NEW RESIDENTIAL	
WATER SUPPLY TYPE : (POTABLE/RECYCLED/WELL)	SHERWOOD
LOCAL WATER PURVEYOR:	DESIGN ENGINEERS
STEP 2: SIGN PRE-CONSTRUCTION AGREEMENT TO BY SIGNED BY APPLICANT	PANORAMIC DESIGN GROUP
I AGREE TO COMPLY WITH THE REQUIREMENTS OF THE PRESCRIPTIVE COMPLIANCE OPTION OF THE WATER EFFICIENT LANDSCAPE ORDINANCE	LANDSCAPE ARCHITECTURE
APPLICANT NAME (PLEASE PRINT)	PLATE
APPLICANT SIGNATURE DATE STEP 3: PROVIDE PERMIT AGENCY REQUIRED PLANS	GN TEMPI
PLANS TO BE PROVIDED BY APPLICANT: OPTIONAL PLANS	ER P
· L-0.0 PERMIT COVER SHEET GW-1.0	
 L-1.0 LANDSCAPE DESIGN PLAN GW-1.1 L-2.0 IRRIGATION DESIGN PLAN RW-1.0 L-2.1 IRRIGATION DETAIL SHEET L-3.0 PAVING DETAILS L-3.1 L.I.D. DETAILS L-3.2 PLANTING DETAILS 	LANDSCAF IN SAVING V
STEP 4: SIGN DISCLAIMER TO BE SIGNED BY APPLICANT	ENTIAI A-MAR ingwater DRESS:
BY USING THESE PLANS, I AGREE TO DEFEND, INDEMNIFY AND HOLD HARMLESS THE SONOMA-MARIN SAVING WATER PARTNERSHIP, ITS MEMBERS (SONOMA COUNTY WATER AGENCY, CITY OF SANTA ROSA, MARIN MUNICIPAL WATER DISTRICT, NORTH MARIN WATER DISTRICT, CITY OF ROHNERT PARK, CITY OF PETALUMA, CITY OF COTATI, CITY OF SONOMA, VALLEY OF THE MOON WATER DISTRICT AND TOWN OF WINDSOR) AND THEIR DIRECTORS, OFFICERS, AGENTS, EMPLOYEES AND LANDSCAPE DESIGN CONSULTANTS AGAINST ANY AND ALL LOSS, LIABILITY, EXPENSE, CLAIMS, SUITS AND DAMAGES, INCLUDING ATTORNEY'S FEES, ARISING OUT OF OR RESULTING FROM THE USE OF THIS LANDSCAPE PLAN. I UNDERSTAND THAT IT IS MY RESPONSIBILITY AS THE PROJECT OWNER TO ENSURE THAT PLAN ELEMENTS ARE IMPLEMENTED SAFELY AND ACCORDING TO APPLICABLE STATUTES, RULES, REGULATIONS ORDINANCES AND/OR CODES.	E SIDENTIA RESIDENTIA SONOMA-MAF www.savingwate NAME: SITE ADDRESS
SONOMA-MARIN SAVING WATER PARTNERSHIP, ITS MEMBERS AND LANDSCAPE DESIGN CONSULTANTS MAKE NO REPRESENTATIONS AND GRANT NO WARRANTIES, EXPRESS OR IMPLIED, EITHER IN FACT OR BY OPERATION OF LAW, BY STATUTE OR OTHERWISE, AND SONOMA-MARIN SAVING WATER PARTNERSHIP, ITS MEMBERS AND DESIGN CONSULTANTS EACH SPECIFICALLY DISCLAIM ANY OTHER WARRANTIES, WHETHER WRITTEN OR ORAL, OR EXPRESS OR IMPLIED, INCLUDING ANY WARRANTY OF QUALITY, MERCHANTABILITY OR FITNESS FOR A PARTICULAR USE OR PURPOSE OR ANY WARRANTY AS TO THE VALIDITY OF ANY PATENTS OR THE NON-INFRINGEMENT OF ANY INTELLECTUAL PROPERTY RIGHTS OF THIRD PARTIES.	
APPLICANT NAME (PLEASE PRINT)	RESIDENTIAL LANDSCAPE PERMIT COVER SHEET
APPLICANT SIGNATURE DATE	
AGENCY STAMP	DATE permit plan september 26, 2018
	L-0.0
	SHEET OF



OPTIONAL MATERIALS LEGEND

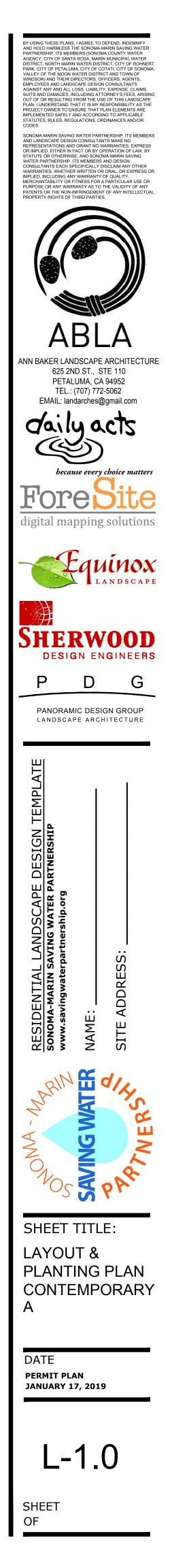
ATERIALS LEGEND			
	UNITS	PLAN	PERMIT]
		QUANTITY	QUANTITY
NG			(FILL IN)
RETE	SF	420	
			i i
/ING			!!!
VING			i i
EGATE PATH, CHOOSE FROM			j j
LS 1-5 ON SHEET L3.0	SF	120	
			į į
			1 I 1 I
RETE (POURED IN PLACE)	SF	280	į į
			ļ ļ
1	SF		i i
ETAIL 5 ON SHEET L3.2	•		!!
ΓΙΟΝΑL)			i i
R LARGER CRUSHED OR ROUND	SF	120	
RATIVE GRAVEL (FREE DRAINING)			į į
			-
ELEMENTS (OPTIONAL)			į — į
M DRAINAGE ACROSS OR UNDER PATH.	EA	1	ł .
SE FROM DETAILS 5 - 7 ON SHEET L3.1	<u> </u>		j j
			!!
	LF	20	i i
ETAIL 2 ON SHEET L3.1			أسيعيهم

*SEE SHEETS L3.0-3.2 FOR MATERIALS OPTIONS

GEND				
ANICAL NAME	SIZE	SPACING	PLAN QUANTITY	PERMIT QUANTITY
VATER USE				(FILL IN)
LARGE TREE (CIRCLE ONE(S) USED) QUERCUS SUBER (CORK OAK) GLEDITSIA TRIACANTHOS (HONEY LOCUST) TILIA TOMENTOSA (SILVER LINDEN)	15G	25-60' O.C.	1	
MEDIUM TREE (CIRCLE ONE(S) USED) ARBUTUS UNEDO (STRAWBERRY TREE) SCHINUS TEREBINTHIFOLIA	15G	20-40' O.C.	1	
(BRAZILIAN PEPPER) OLEA EUROPA (FRUITLESS OLIVE) PISTACIA CHINENSIS (PISTACHE) QUERCUS TOMENTELLA (ISLAND OAK) <u>LARGE SHRUB</u> CHOISYA TURNATA (MEXICAN ORANGE BLOSSOM)	5G	6' O.C.	3	
A MACRANTHA (JUNE GRASS) D WITH NATIVE WILDFLOWERS, SEE MASTER PLANT FOR OPTIONS http://www.savingwaterpartnership.org	2" PLUGS	16" O.C.	140	
A RUBRA (RED CREEPING FESCUE)	2"	2' O.C.	34	
RINIA SPECTABILIS (ROCK PURSLANE) A BRITTONII	4" 5G	3' O.C. 2' O.C.	7 3	
RASSES				
A IDAHOENSIS 'TOMALES BAY' (IDAHO FESCUE)	1G	12" O.C.	9	
A TOMENTOSA (WOOLY YARROW) ORGE' OR 'MAYNARD'S GOLD'	4"	18" O.C.	39 (+24 DRIVE	
ON KARVINSKIANUS (SANTA BARBARA DAISY)	4"	3' O.C.	STRIP) 21	
١				
TAPHYLOS 'JOHN DOURLEY' JRLEY MANZANITA)	1G	5' O.C.	12	
HUS MARITIMUS 'VALLEY VIOLET' E CEANOTHUS)	1G	3' O.C.	6	

*SEE MASTER PLANT LIST FOR PLANT SUBSTITUTIONS AND SHADE ALTERNATES, AVAILABLE FROM SONOMA-MARIN SAVING WATER PARTNERSHIP http://www.savingwaterpartnership.org.

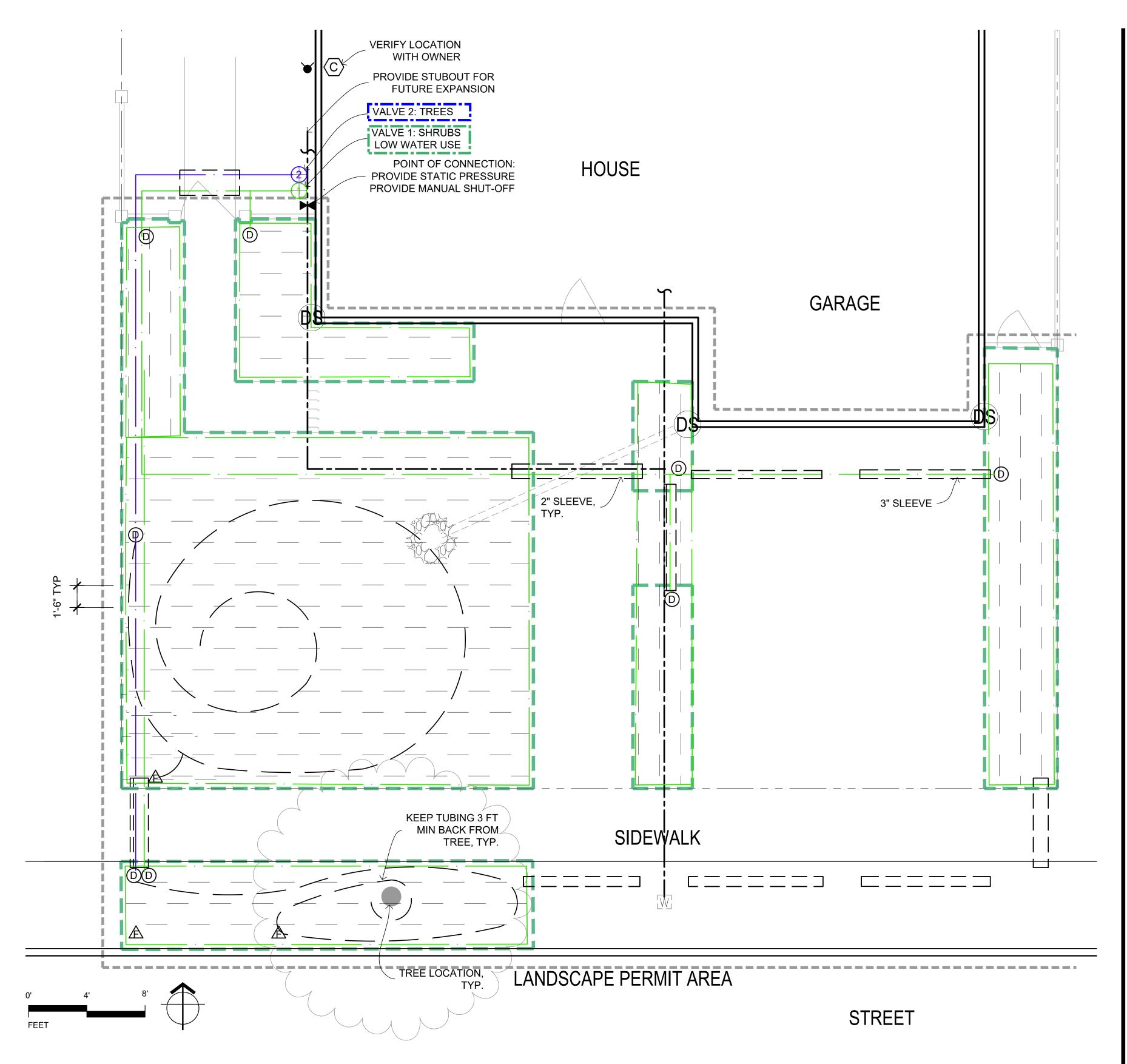
ESTABLISH DRIVEWAY STRIP PLANTINGS IN WINTER WITH OCCASIONAL HAND WATERING 2. REFER TO PLANTING DETAILS ON SHEET L3.2.



APPLICANT CHECK-OFF OMPONENTS	SYMBOL	COMPONENT	MANUFAC - TURER	MODEL	NOTES / SIZE / COLOR
		EXISTING WAT	ER METER		
	< <u>C</u>	CONTROLLER	HUNTER	PRO-C	INDOOR
	۲	WEATHER SENSOR	HUNTER	SOLAR-SYNC -SEN	WIRED
	H	FULL PORT BALL VALVE	NIBCO	585	LINE SIZE
		SLEEVE		PVC SCH 40	
-		MAINLINE		PVC SCH 40 WITH SCH 40 SOLVENT WELD FITTINGS	
Ξ		LATERAL PIPE (COLOR VARIES PER ZONE)		PVC SCH 40 WITH SCH 40 SOLVENT WELD FITTINGS	PIPE SIZE: 0-6 GP 3/4" PIPE; 7-12 GPM: 1" PIPE;
		DRIP IRRIGATI		ALVE ASSEMBL	Y TO INCLUDE:
		ASSEMBLY ANTI-SIPHON		ACZ-075-40 DRIP CONTROL ZONE KIT	ALL-IN-ONE KIT INCLUDES BACKFLOW PREVENTION, FILTER AND PRESSURE REGULATOR 3/4 INCH
	#	VALVE (COLOR VARIES PER ZONE)	HUNTER	PGV-ASV, INCLUDED IN KIT	ANTI-SIPHON VALVE PROVIDES BACKFLOW PREVENTION
		DRIP FILTER		INCLUDED IN KIT	150 MESH STAINLESS STEEI SCREEN
		PRESSURE REGULATION		INCLUDED IN KIT	40 PSI
		NIPPLE			PVC SCH 80 UV RESISTANT
	D	TRANSITION T	O DRIP ZONE		SEE DETAIL
DI	RIP LAYOUT				-
		PLANTING BED	0S		
(TREES		TAFIM TLCV6-12 GPH: EMITTER	201 EMITTER FLOW SPACING: 12".
				TLCV4-1801	CLAY SOIL: EMITTER FLOW: 0 GPH; EMITTER SPACING: 18"; ROW SPACING: 18
INLINE EMITTER TUBING	NETAFIM	TLCV4-1801	LOAM SOIL: EMITTER FLOW: 0 GPH; EMITTER SPACING: 18"; ROW SPACING: 18		
				TLCV6-1201	SANDY SOIL: EMITTER FLOW: 0 GPH; EMITTER SPACING: 12"; ROW SPACING: 18
	A	DRIP FLUSHOUT	NETAFIM	TLFIG8	
SI		OMPONENTS AR			

APPLICANT INSTRUCTIONS:

- 1. ADJUST LAYOUT OF PLANTING BEDS IF CHANGED ON LAYOUT SHEET 1.0.
- 2. REVIEW IRRIGATION VALVE TABLE TO ADJUST SF AREAS OF VALVE ZONES. 3. IF AREAS EXCEED MAX SUBZONE FLOW (3 GPM) DIVIDE INTO ADDITIONAL SUBZONES AND ENTER
- UNDER SUBZONE COLUMN 4. IF AREAS EXCEED MAX ZONE FLOW (7 GPM) ADD A VALVE AND ENTER SF AREA NEXT TO NEW
- VALVE NUMBER ("B" OR "C")
- 5. DRAW OUT NEW SUBZONE AND/OR VALVE ZONE AREA ON PLAN IN NEW COLOR. 6. ADD VALVE AS NEEDED TO VALVE MANIFOLD.
- 7. REVIEW IRRIGATION LEGEND AND CHECK OFF THAT ALL COMPONENTS ARE SHOWN ON
- ADJUSTED PLAN.
- 8. NOTE ANY EQUIPMENT SUBSTITUTIONS.



PLANT WATER USE TABLE				
WATER USE	PLAN SF (%)	PERMIT SF (FILL IN)	PERMIT % (FILL IN)	
LOW	1,266 (100%)			
MED	0 (0%)			
TOTAL	1,266 (100%)			

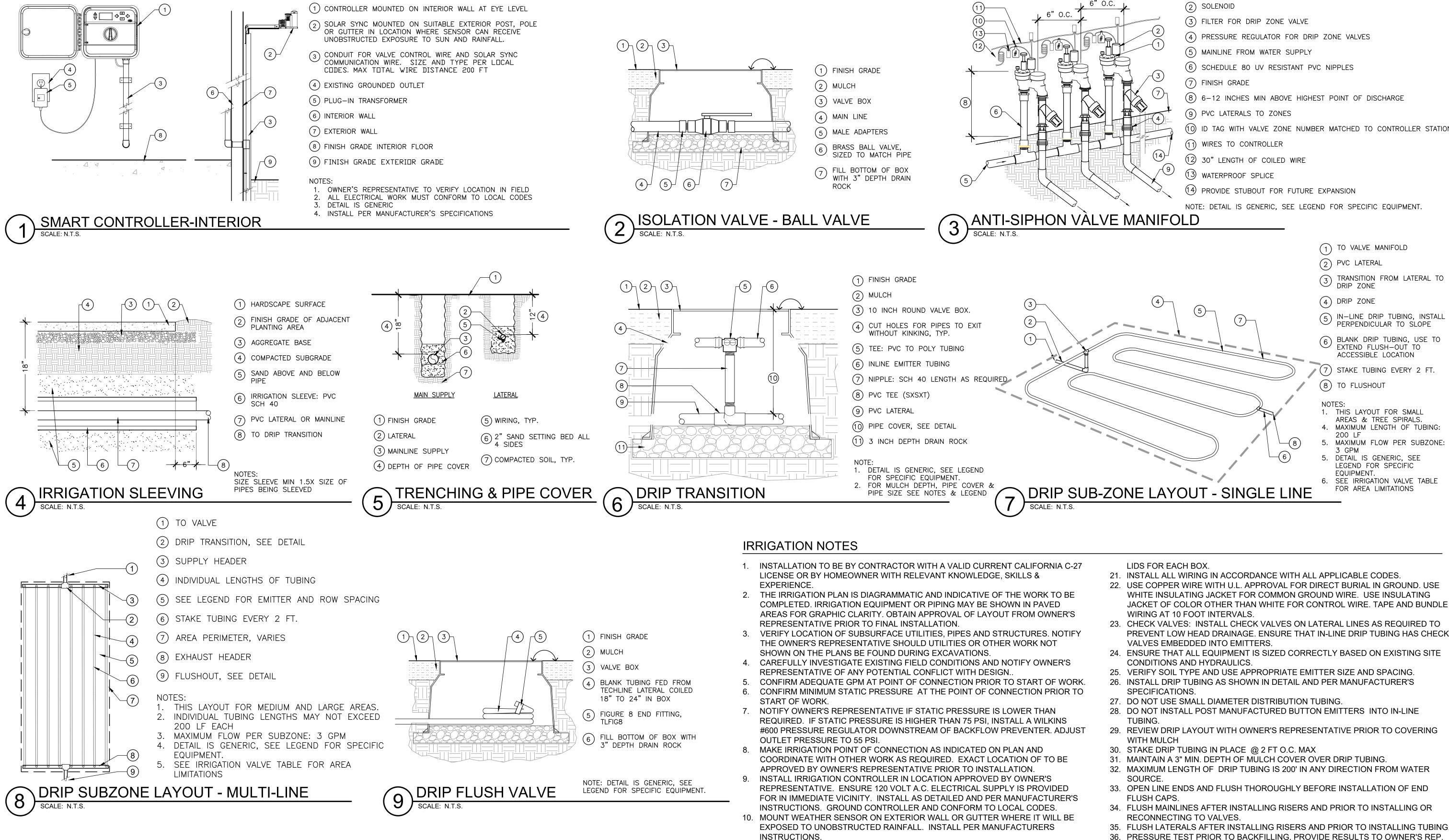
IRRIGATION VALVE TABLE

HYDRO ZONE	WATER USE	VALVE	PLAN SF	SUB - ZONES	PERMIT SF (FILL IN)	SUB - ZONES (FILL IN)	SOIL TYPE (CLAY / LOAM / SAND) (FILL IN)
1	MED	1	0 SF	0			
2	LOW	2	1266 SF	6			
3	TREES	3	150 LF	2			
CLAY SOIL:	DO NOT EXCEE	ED 1100 SF /	3 GPM PER SUBZ	ZONE. IF TOT	AL AREA OF ZO	NE EXCEEDS 22	200 SF, ADD A VALVE.
LOAM SOIL: DO NOT EXCEED 1100 SF / 3 GPM PER SUBZONE. IF TOTAL AREA OF ZONE EXCEEDS 2200 SF, ADD A VALVE.							
SANDY SOIL: DO NOT EXCEED 500 SF / 3 GPM PER SUBZONE. IF TOTAL AREA OF ZONE EXCEEDS 1000 SF, ADD A VALVE.							
TREE EMITTER TUBING 0.6 GPH PER LEGEND: MIN 20 LF PER VALVE; MAX 200 LF PER SUBZONE; MAX 400 LF PER VALVE							
FOR EMITTI	FOR EMITTER FLOW, EMITTER SPACING & ROW SPACING PER SOIL TYPE SEE LEGEND						



FOR IRRIGATION VALVE TABLE SEE IRRIGATION PLAN SHEET L2.0

FOR LEGEND SEE IRRIGATION PLAN SHEET L2.0



- INSTRUCTIONS.
- 11. BACKFLOW PREVENTION IS REQUIRED. IF NOT PROVIDED BY ANTI-SIPHON VALVES THEN CODE APPROVED BACKFLOW PREVENTION DEVICE MUST BE INSTALLED.
- 12. INSTALL ISOLATION VALVE AT POC UPSTREAM OF BACKFLOW PREVENTION (ANTI-SIPHON VALVES)
- 13. ENSURE THAT ALL COMPONENTS ARE CONNECTED AND OPERATIONAL 14. PROVIDE PVC SCH 40 SLEEVES FOR ALL PIPING AND WIRE UNDER PAVING. COORDINATE WITH CONCRETE CONTRACTOR INSTALL SLEEVES PRIOR TO POURING CONCRETE. EXTEND SLEEVE 6 INCHES BEYOND EDGE OF PAVING. ENSURE THAT SLEEVES ARE SIZED ADEQUATELY TO CONTAIN PIPES BEING SLEEVED.
- 15. ENSURE ADEQUATE PIPE SIZE TO PROVIDE REQUIRED FLOW.
- 16. PIPE COVER: SEE DETAIL
- 17. PIPE SIZE: 0-6 GPM: 3/4" PIPE; 7-12 GPM: 1" PIPE;
- 18. INSTALL ALL PLASTIC PIPING IN TRENCHES IN A SERPENTINE MANNER. 19. PROVIDE VALVE BOXES FOR: ISOLATION VALVE, DRIP TRANSITION AND FLUSHOUT VALVE.
- 20. VALVE BOXES: SET PARALLEL TO EACH OTHER AND PERPENDICULAR TO ADJACENT EDGE. SET WITH SUFFICIENT CLEARANCE ABOVE GRADE SO THAT FINAL MULCH GRADE IS FLUSH WITH EDGES OF BOXES. PROVIDE BOLT DOWN

- SHRUBS BECOME ESTABLISHED AND PER WEATHER AND SEASON 43. THE DESIGN INTENT IS TO PROVIDE THE MINIMUM AMOUNT OF WATER TO SUSTAIN HEALTHY PLANT GROWTH AND TO AVOID RUN-OFF, LOW HEAD
- DRAINAGE AND OVERSPRAY. 44. ENSURE THAT CONTROLLER SCHEDULE IS ADJUSTED SEASONALLY AT A
- MINIMUM
- 45. RUN SYSTEM TO CHECK FOR LEAKS AND REPAIR THEM SEASONALLY AT A MINIMUM.

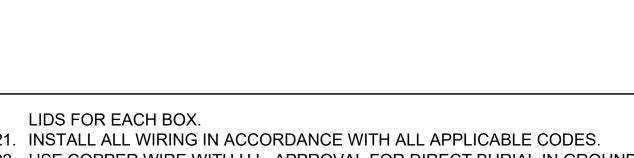
- 37. FILL ALL EXCAVATIONS WITH COMPACTED BACKFILL, IN TWO MECHANICALLY COMPACTED LIFTS. REPAIR ALL SETTLED TRENCHES. 38. PERFORM COVERAGE TEST. ADJUST SYSTEM AS NEEDED TO PROVIDE FULL COVERAGE AND TO AVOID RUNOFF.
- 39. AFTER COMPLETION PROVIDE AS-BUILT PLANS.
- 40. PROVIDE CONTROLLER SCHEDULE.
- 41. SCHEDULE THE TREE ZONE TO RUN AT A LOW FREQUENCY AND LONG DURATION TO PROVIDE DEEP WATERING FOR THE TREES. ADJUST SCHEDULE PER WEATHER AND SEASON.
- 42. SCHEDULE THE SHRUB ZONES TO RUN AT A HIGH FREQUENCY AND SHORT DURATION TO ESTABLISH THE NEW SHRUBS. ADJUST THE SCHEDULE AS THE

- WIRING AT 10 FOOT INTERVALS. 23. CHECK VALVES: INSTALL CHECK VALVES ON LATERAL LINES AS REQUIRED TO PREVENT LOW HEAD DRAINAGE. ENSURE THAT IN-LINE DRIP TUBING HAS CHECK
- 22. USE COPPER WIRE WITH U.L. APPROVAL FOR DIRECT BURIAL IN GROUND. USE WHITE INSULATING JACKET FOR COMMON GROUND WIRE. USE INSULATING

- JACKET OF COLOR OTHER THAN WHITE FOR CONTROL WIRE. TAPE AND BUNDLE

- 21. INSTALL ALL WIRING IN ACCORDANCE WITH ALL APPLICABLE CODES.

- LIDS FOR EACH BOX.



6. SEE IRRIGATION VALVE TABLE **DRIP SUB-ZONE LAYOUT - SINGLE LINE**

-(8)

I. THIS LAYOUT FOR SMALL AREAS & TREE SPIRALS. 4. MAXIMUM LENGTH OF TUBING 200 LF

8 TO FLUSHOUT

3 GPM

EQUIPMENT.

ACCESSIBLE LOCATION (7) STAKE TUBING EVERY 2 FT.

MAXIMUM FLOW PER SUBZONE:

5. DETAIL IS GENERIC, SEE

FOR AREA LIMITATIONS

LEGEND FOR SPECIFIC

- 6 BLANK DRIP TUBING, USE TO EXTEND FLUSH-OUT TO
- 5 IN-LINE DRIP TUBING, INSTALL PERPENDICULAR TO SLOPE
- (4) DRIP ZONE
- 3 TRANSITION FROM LATERAL TO DRIP ZONE
- (2) PVC LATERAL
- (1) TO VALVE MANIFOLD

- (10) ID TAG WITH VALVE ZONE NUMBER MATCHED TO CONTROLLER STATION
- (9) PVC LATERALS TO ZONES

(11) WIRES TO CONTROLLER

(13) WATERPROOF SPLICE

(12) 30" LENGTH OF COILED WIRE

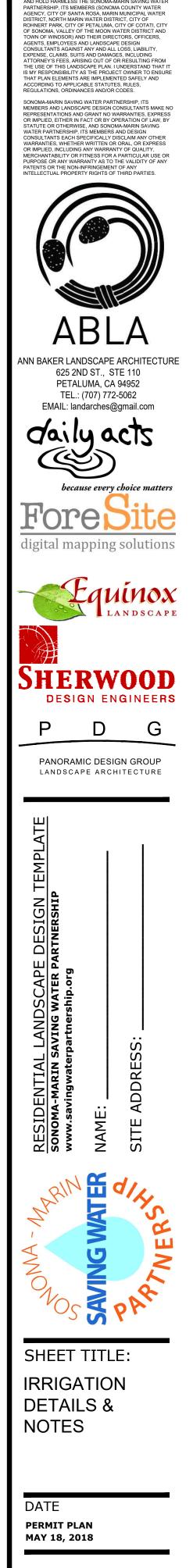
(8) 6-12 INCHES MIN ABOVE HIGHEST POINT OF DISCHARGE

NOTE: DETAIL IS GENERIC, SEE LEGEND FOR SPECIFIC EQUIPMENT.

- (7) FINISH GRADE
- (6) SCHEDULE 80 UV RESISTANT PVC NIPPLES

(14) PROVIDE STUBOUT FOR FUTURE EXPANSION

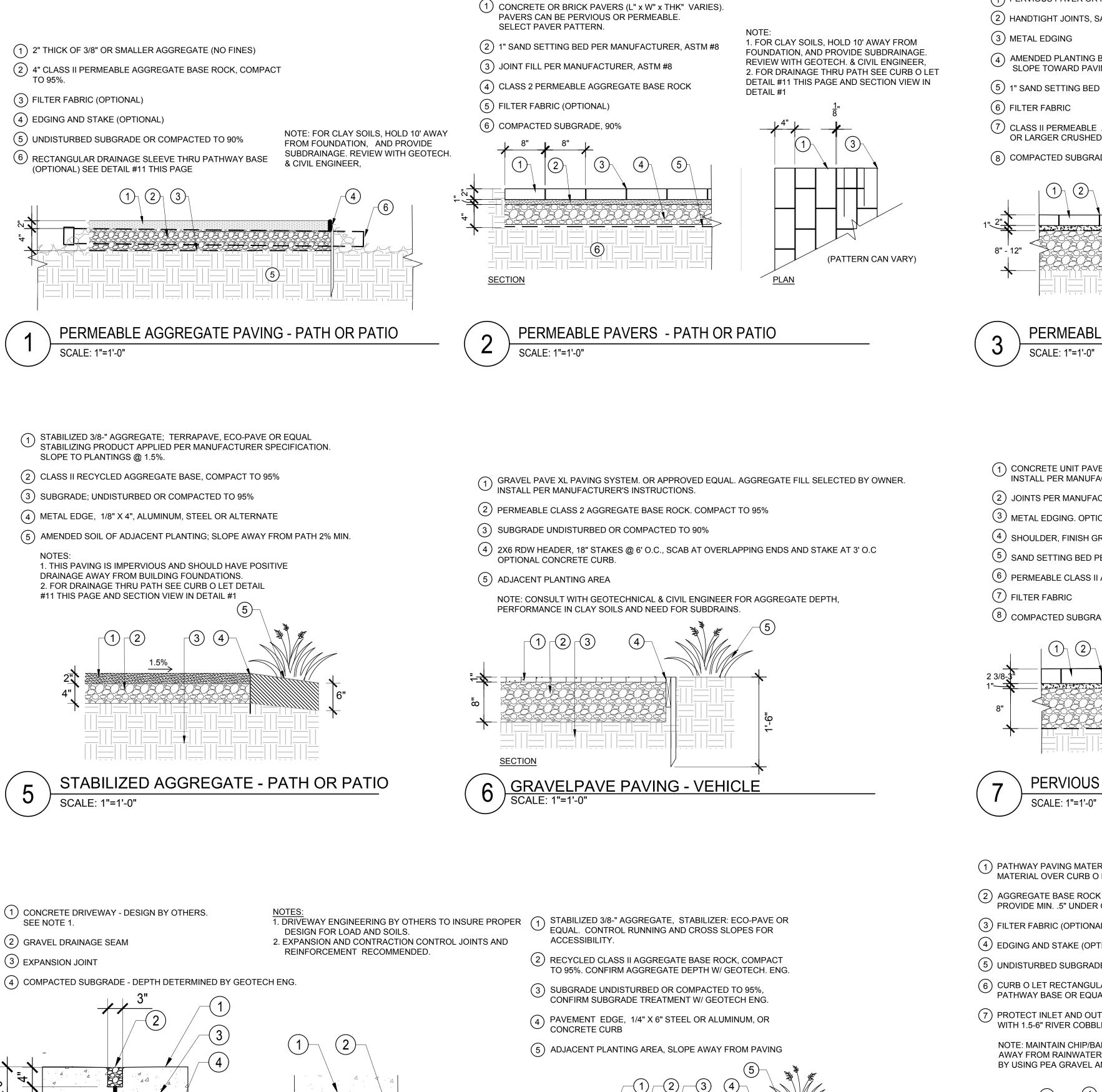
- (5) MAINLINE FROM WATER SUPPLY
- (4) PRESSURE REGULATOR FOR DRIP ZONE VALVES
- (3) FILTER FOR DRIP ZONE VALVE
- 2 SOLENOID
- 1 ANTI-SIPHON VALVE



L-2.1

SHEET

OF



<u>XXXXXXXXXXXX</u>

PLAN

CONCRETE - VEHICLE - GRAVEL DRAINAGE SEAMS

8" -

SCALE: 1"=1'-0"

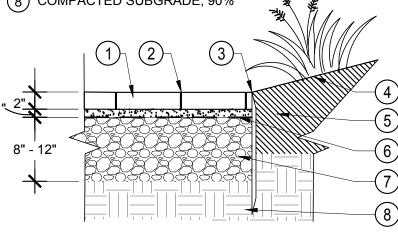
SECTION

9

STABILIZED AGGREGATE - VEHICLE 10 SCALE: 1"=1'-0"

- (1) PERVIOUS PAVER OR PERVIOUS AGGREGATE
- (2) HANDTIGHT JOINTS, SAND SWEPT
- (3) METAL EDGING
- (4) AMENDED PLANTING BED; FINISH GRADE CAN SLOPE TOWARD PAVING TO INFILTRATE

- (7) CLASS II PERMEABLE AGGREGATE BASE ROCK, OR LARGER CRUSHED DRAIN ROCK
- (8) COMPACTED SUBGRADE, 90%

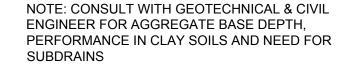


NOTES: 1. FOR CLAY SOILS, HOLD 10' AWAY FROM FOUNDATION, AND PROVIDE SUBDRAINAGE **REVIEW WITH GEOTECH & CIVIL ENGINEER.** 2. FOR DRAINAGE THRU PATH SEE CURB O LET DETAIL #11 THIS PAGE AND SECTION VIEW IN DETAIL #1

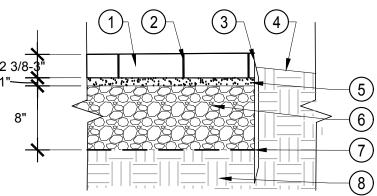


- (1) CONCRETE UNIT PAVER: SELECT PERVIOUS PAVERS OR PERMEABLE PAVERS INSTALL PER MANUFACTURER'S INSTRUCTIONS.
 - (2) JOINTS PER MANUFACTURER'S INSTRUCTIONS
 - 3 METAL EDGING. OPTIONAL CONCRETE CURB.
 - (4) SHOULDER, FINISH GRADE
 - 5 SAND SETTING BED PER MANUFACTURER'S INSTRUCTIONS
 - (6) PERMEABLE CLASS II AGGREGATE BASE ROCK, COMPACTED TO 95%

 - (8) COMPACTED SUBGRADE TO 90%



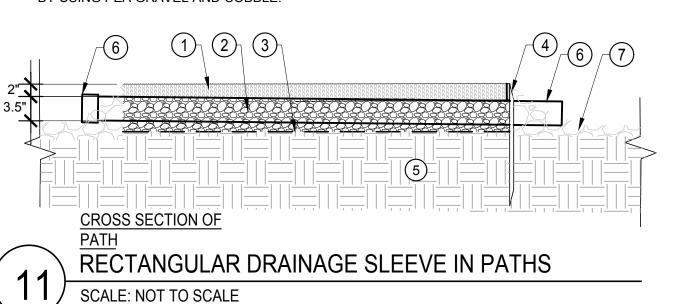
(1) (2) (3)

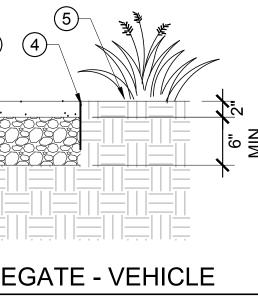


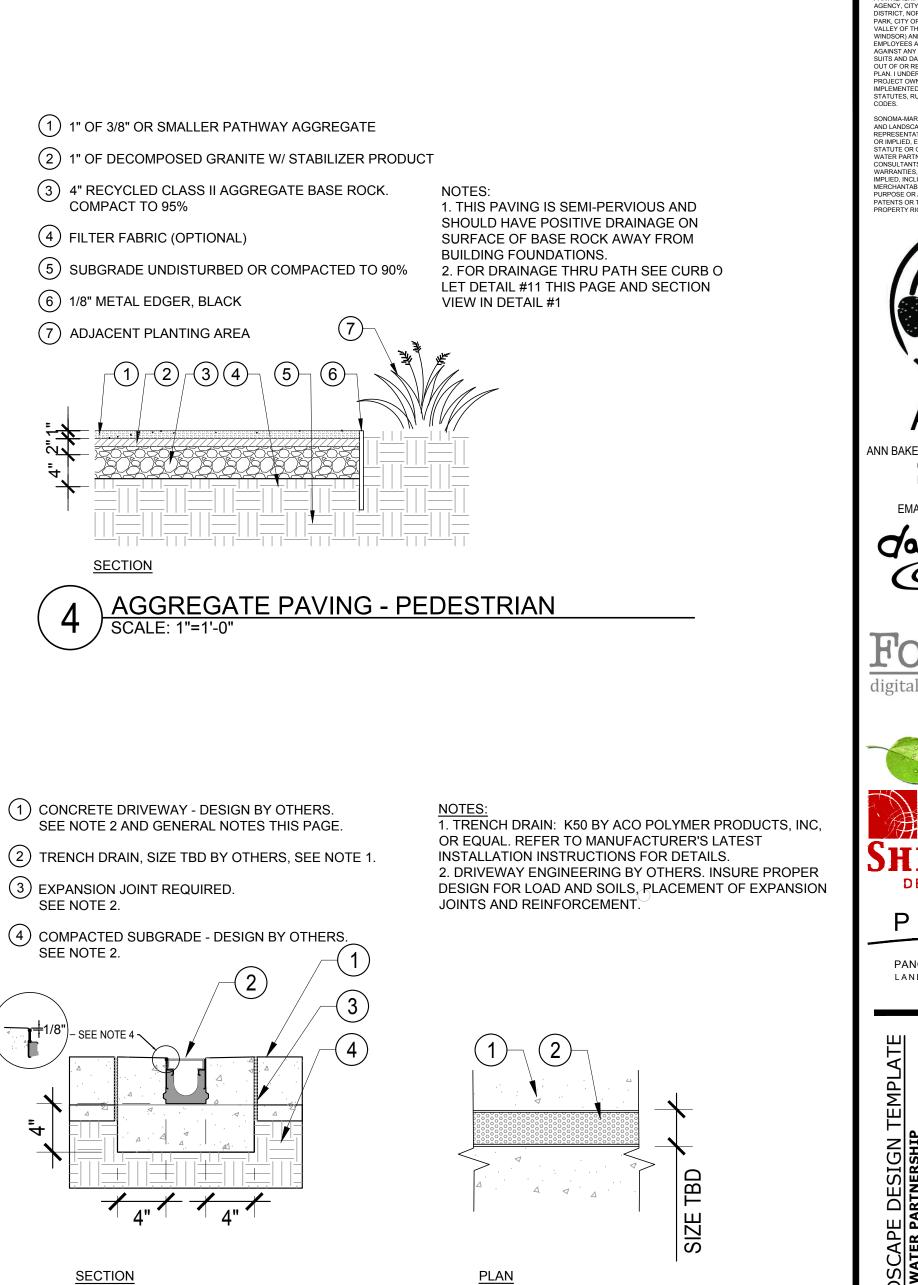
PERVIOUS OR PERMEABLE UNIT PAVER - VEHICLE

- 1 PATHWAY PAVING MATERIAL, PROVIDE 2" SURFACING MATERIAL OVER CURB O LET SLEEVE.
- 2 AGGREGATE BASE ROCK MATERIAL PROVIDE MIN. .5" UNDER CURB O LET SLEEVE.
- (3) FILTER FABRIC (OPTIONAL)
- (4) EDGING AND STAKE (OPTIONAL)
- (5) UNDISTURBED SUBGRADE OR COMPACTED TO 90%
- (6) CURB O LET RECTANGULAR DRAINAGE SLEEVE THRU PATHWAY BASE OR EQUAL. SLOPE SLEEVE 1-2%.
- (7) PROTECT INLET AND OUTLET OF DRAINAGE SLEEVE WITH 1.5-6" RIVER COBBLE.

NOTE: MAINTAIN CHIP/BARK MULCH AWAY FROM RAINWATER SYSTEMS BY USING PEA GRAVEL AND COBBLE









GENERAL NOTES

<u>~6</u><u>7</u>

(5)

LONGITUDINAL SECTION

AT CURB O LET INLET

1. DESIGN STRATEGY: THESE DETAILS ARE PROVIDED TO CREATE OPTIONS FOR PERMEABLE PAVING, AND PAVING STRATEGIES THAT PROMOTE STORMWATER INFILTRATION IN LANDSCAPE SPACES. THESE STRATEGIES HELP CLEAN WATER, INFILTRATE RUN OFF INTO GROUNDWATER, AND PROVIDE MORE SOIL MOISTURE AVAILABILITY FOR LANDSCAPE PLANTINGS.

2. THESE DETAILS SHOULD BE EVALUATED BY THE SITE ENGINEER AND ADJUSTED TO SITE CONDITIONS.

3. PAVING DEPTH, DEPTH OF BASE GRAVEL, SUB-BASE PREPARATION AND CONCRETE REINFORCEMENT SHOULD ALL BE EVALUATED AND ADJUSTED AS NEEDED BY A GEOTECHNICAL ENGINEER.

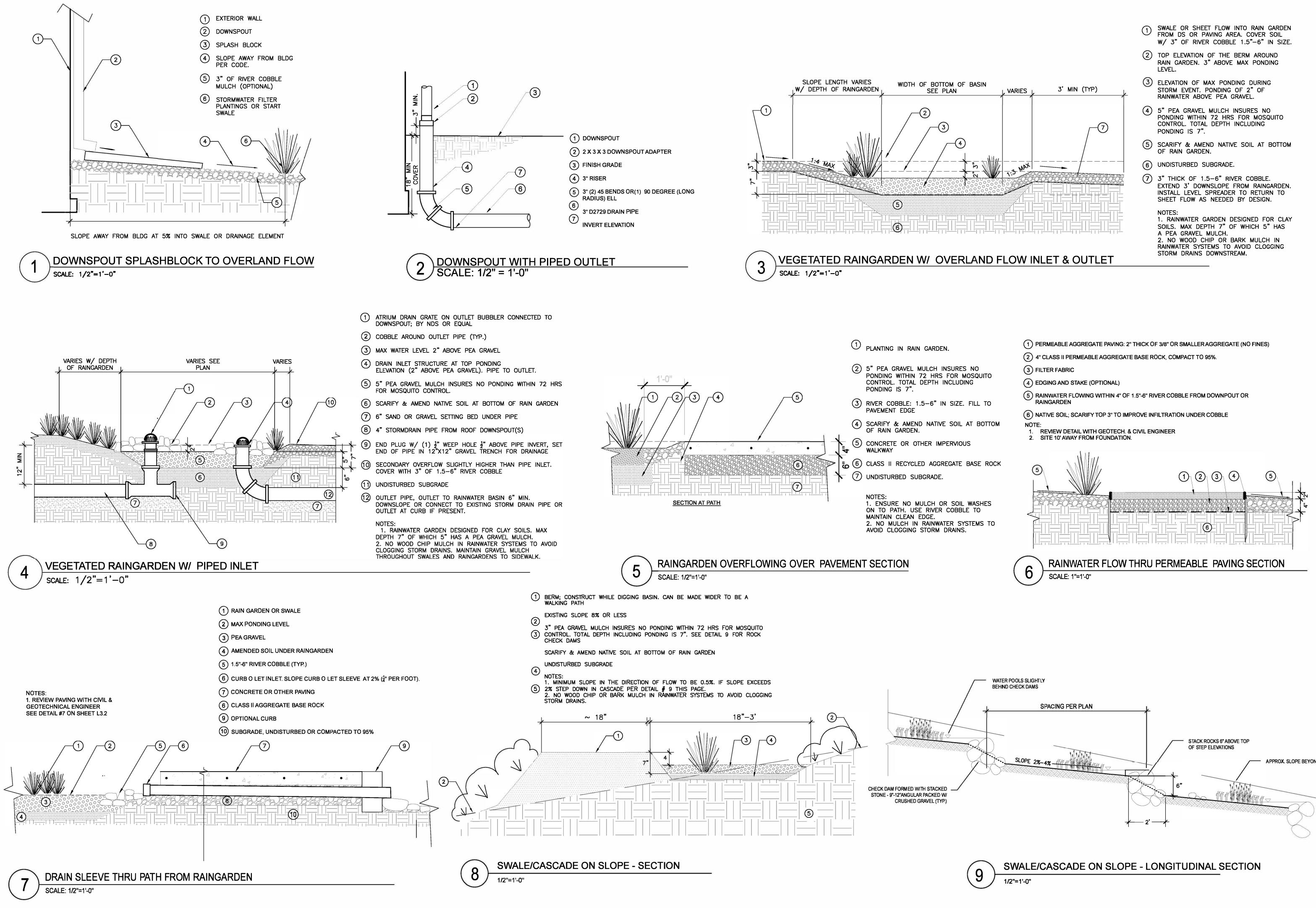
4. SOIL TYPE AFFECTS THE PERFORMANCE OF THESE DETAILS. CLAY SOILS DO NOT INFILTRATE WELL, SO THERE IS A NEED TO EVALUATE WHETHER THE PERMEABLE/PERVIOUS PAVING DETAILS ARE APPROPRIATE FOR SPECIFIC SITES AND ADJUST THEM AS APPROPRIATE TO PROTECT BUILDINGS AND OTHER IMPROVEMENTS.

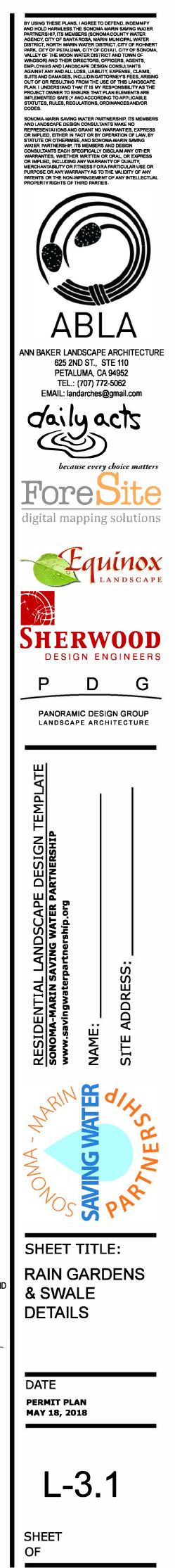
5. ACCESSIBLE PAVING IS SMOOTH, FIRM, AND HAS A CROSS SLOPE NOT TO EXCEED 2%. RUNNING SLOPE SHOULD BE 5% OR LESS UNLESS PAVING RAMP WITH HANDRAILS. SEE TITLE 24 OF CALIFORNIA CODE FOR ACCESSIBILITY REQUIREMENTS AND STANDARDS

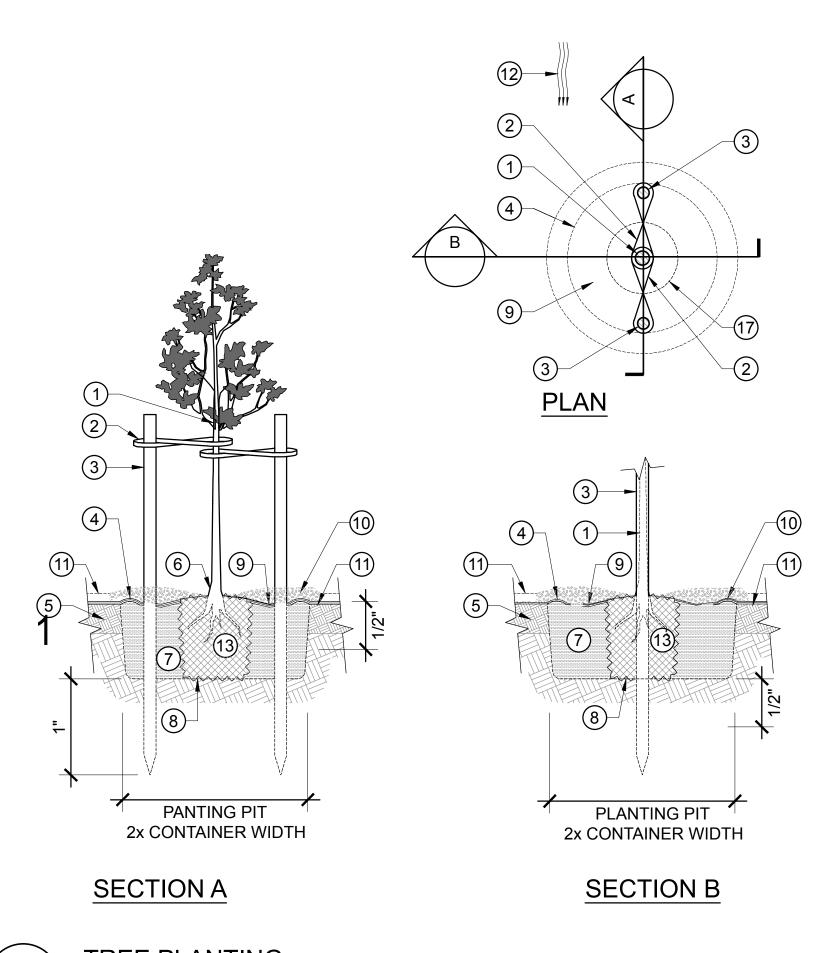
AND THEIR DIRECTORS, OFFICERS, AGEN IST ANY AND ALL LOSS, LIABILITY, EXPENSE, CLAIF ND LANDSCAPE DESIGN CONSULTANTS MAKE NO IEPRESENTATIONS AND GRANT NO WARRANTIES, E DR IMPLIED, EITHER IN FACT OR BY OPERATION OF ITATUTE OR OTHERWISE, AND SONOMA-MARIN SAV VATER PARTNERSHIP, ITS MEMBERS AND DESIGN NSULTANTS EACH SPECIFICALLY DISCLAIM ANY OTHER RRANTIES, WHETHER WRITTEN OR ORAL, OR EXPRESS C IMPLIED, INCLUDING ANY WARRANTY OF QUALITY, MERCHANTABILITY OR FITNESS FOR A PARTICULAR USE OR PURPOSE OR ANY WARRANTY AS TO THE VALIDITY OF ANY PATENTS OR THE NON-INFRINGEMENT OF ANY INTELLECTUAL ABLA ANN BAKER LANDSCAPE ARCHITECTURE 625 2ND ST., STE 110 PETALUMA, CA 94952 TEL.: (707) 772-5062 EMAIL: landarches@gmail.con Jaily act because every choice matter ForeDite digital mapping solutions guinox LANDSCAPE Sherwood DESIGN ENGINEERS D PANORAMIC DESIGN GROUP LANDSCAPE ARCHITECTURE RESIDENTIAL LANDSCAPE DESIGN sonoma-marin saving water partnershi È H DY. WATI **DNI** SHEET TITLE: L.I.D. PAVING DETAILS DATE PERMIT PLAN MAY 18, 2018

SHEET OF

L-3.0

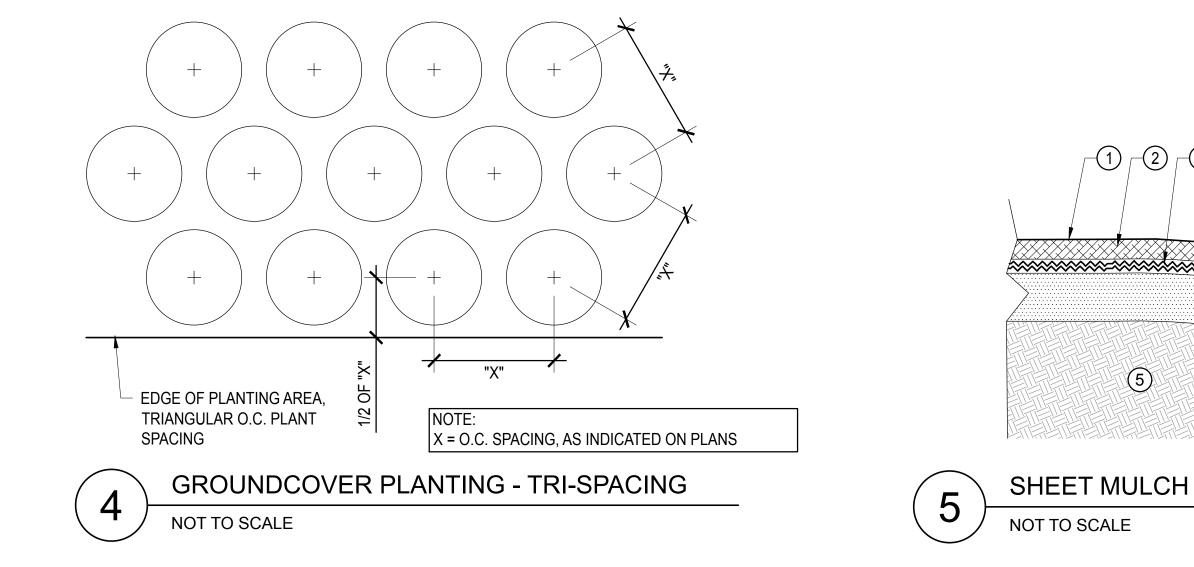








TREE PLANTING NOT TO SCALE



1 TREE, CENTRAL LEADER

2

3

NOTES:

3.

TOP.

THE TREE

SYNTHETIC STRAPPING, LOOP AROUND CENTRAL LEADER BELOW FIRST BRANCH, ONE STRAP PER STAKE, ATTACH TO STAKES W/ SHEET METAL SCREWS

WOOD STAKES, (2) PER TREE, SET PLUMB, OUTSIDE OF ROOTBALL, ON A LINE PARALLEL TO DIRECTION OF PREVAILING WIND, SET FAR ENOUGH FROM TREE THAT BRANCHES DO NOT TOUCH STAKES; STAKES SHALL BE SPACED AN EQUAL DISTANCE FROM THE CENTRAL LEADER.

(4) WATERING BERM, 3"H

5 TOPSOIL, NATIVE. USE DIGGING FORK TO REMOVE COMPACTION, DO NOT TILL

(6) CROWN OF ROOTBALL, SET 3" ABOVE FINISH GRADE

7 PLANTING PIT BACKFILL, PER SPECS

(8) PLANTING PIT, SCARIFY EDGES, INSURE ROOT BALL RESTS ON FIRM SOIL AND WILL NOT SINK OVER TIME.

9 WATERING BASIN

(10) MULCH, PER SPECS, 3" LAYER, KEEP 4" AWAY FROM TRUNK

(11) SHEET MULCH: 2 LAYERS CARDBOARD, OR (5) LAYERS RECYCLED NEWSPAPER. $\frac{1}{2}$ " OF COMPOST UNDER PAPER.

12 DIRECTION OF PREVAILING WIND

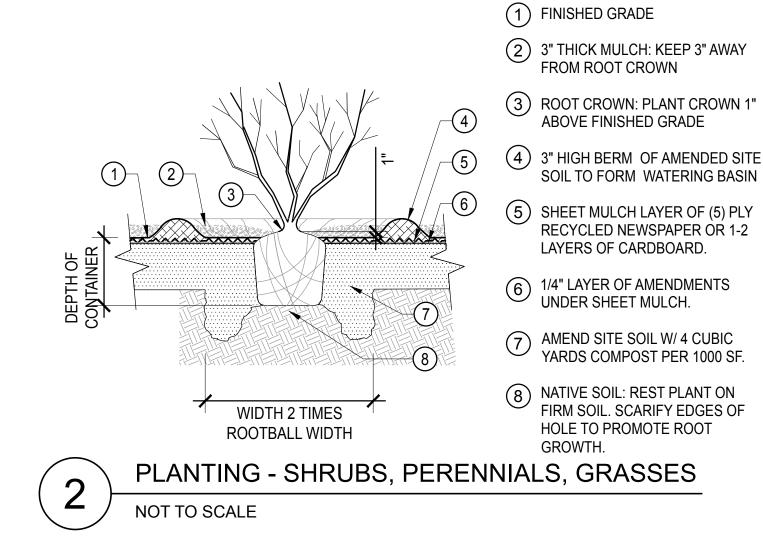
(13) ROOTBALL, SCARIFY OUTER 1"

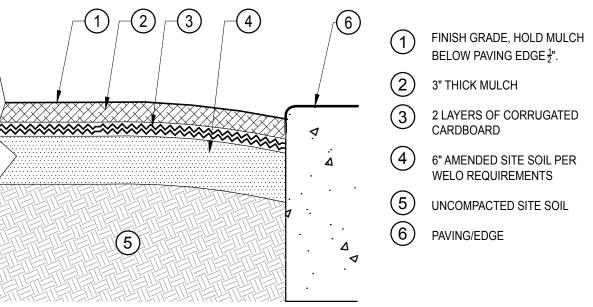
MAKE STAKES AS SHORT AS POSSIBLE, BUT HIGH ENOUGH TO HOLD THE TREE UPRIGHT UNDER CALM CONDITIONS. THE TREE SHOULD RETURN TO VERTICAL AFTER THE WIND HAS BENT THE

2. SUPPORT THE TRUNK AT JUST ONE LEVEL, NEAR THE TOPS OF THE STAKES.

PROVIDE FLEXIBLE MOVEMENT AT THE POINT WHERE STRAPPING WRAPS LOOSLY AROUND THE CENTRAL LEADER OF

4. TAKE CARE NOT TO CAUSE RUBBING OR GIRDLING INJURIES. 5. STAKES ARE FOR PROTECTION OF THE TREE FOR A PERIOD AFTER PLANTING. REMOVE STAKES AS SOON AS TREE ESTABLISHES IT ROOT SYSTEM - WITHIN 18 MONTHS MAX.





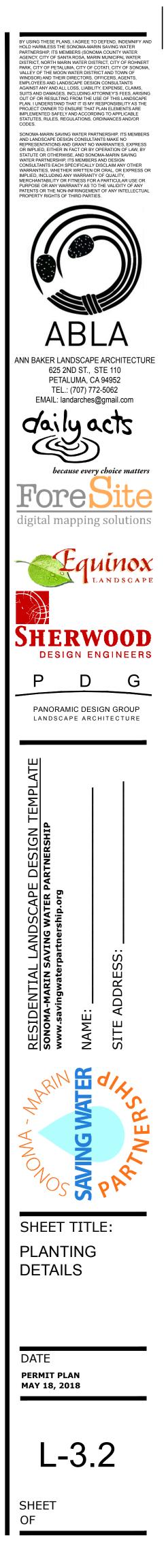
PLANT PIT & WATERING BERM TABLE

CONTAINER SIZE	PLANT PIT DIAMETER	WATERING BERM HEIGHT	WATERING BERM DIAMETER
1 GAL CAN	18" MIN	3" MIN	18" MIN
5 GAL CAN	30" MIN	4" MIN	30" MIN
15 GAL CAN	3' MIN	5" MIN	3' MIN
24" BOX	5' MIN	6" MIN	5' MIN



PLANT PIT AND WATERING BERM

NOT TO SCALE



(4) -3 -(1) -2 DISTANCE ON CENTER ("O.C") LISTED ON LEGEND

1 MULCH: 2" FOR GRASS PLUGS.

2" PLUG OR STUBBIE. PLANT CROWN 1" ABOVE FINISHED

3 6" AMENDED SOIL PER WELO

4 PLANTING HOLE: USE DIBBLE TO

CREATE A HOLE SLIGHTLY LARGER THAN PLUG. PLACE

PLUG FIRMLY IN HOLE WITH

LEAVE NO AIR OR MULCH

CROWN AT OR SLIGHTLY ABOVE

HEIGHT OF SURROUNDING HOLE.

AROUND ROOTS. BACKFILL HOLE

WITH GARDEN SOIL, NOT MULCH.

1. PLANT PLUG STRAIGHT UP

(PLUMB), NOT AT AN ANGLE TO

2. GRASS PLUG PLANTINGS DO BETTER IN CERTIFIED WEED

FREE STRAW MULCH OR 1-2" OF

LESS WOODY MULCH.

REQUIREMENTS.

OF COMPOST.

GRADE

NOTES

THE SLOPE.

IF APPLYING WILDFLOWER SEED

MULCH WITH RICE STRAW OR 3/4"



PLUG PLANTING

NOT TO SCALE

APPLICANT INFORMATION:

LANDSCAPE TO LAUNDRY SYSTEM OVERVIEW:

A LAUNDRY-TO-LANDSCAPE GRAYWATER SYSTEM CAPTURES LIGHTLY USED WATER FROM THE DISCHARGE HOSE OF YOUR WASHING MACHINE AND PUMPS IT OUT TO THE LANDSCAPE THROUGH 1-INCH TUBING. THE SYSTEM DOES NOT ALTER THE EXISTING PLUMBING 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 GRAYWATER SYSTEMS ARE EASY TO INSTALL FOR THE DO-IT-YOURSELFER OR A PROFESSIONAL, ESPECIALLY IF THE WASHING MACHINE IS LOCATED ON AN EXTERNAL WALL AND 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. IF THE SYSTEM IS DESIGNED TO IRRIGATE DOWNHILL FROM THE WASHING MACHINE. THE DISTANCE MAY INCREASE TO 150-FEET DEPENDING ON SLOPE.

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

- O NOTIFY ENFORCING AGENCY
- O BE ABLE TO REDIRECT TO SEWER
- O NO POTABLE WATER CONNECTION
- O CONTAIN GRAYWATER ON SITE
- O DIRECT AND CONTAIN GRAYWATER WITHIN MULCH BASINS (IRRIGATION OR DISPOSAL FIELD) BELOW THE GROUND
- SURFACE
- O NO PONDING OR RUNOFF
- O OUTLETS COVERED BY AT LEAST 2-INCHES OF MULCH, ROCK, OR A SHIELD (E.G. VALVE BOX LID)
- O MINIMIZE CONTACT WITH HUMANS AND ANIMALS
- O DIVERT WATER TO THE SEWER IF IT CONTAINS DIAPERS, OIL, OTHER CHEMICALS
- O 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

CPC Table 1502.4 --- LOCATION OF GREY WATER SYSTEM

MINIMUM HORIZONTAL DISTANCE IN CLEAR REQUIRED FROM	SUBSURFACE AND SUBSOIL IRRIGATION FIELD AND MULCH BASIN (feet)
Building structures	2
Property line adjoining private property	1.5
Water supply wells	100
Streams and lakes	100
Sewage pits or cesspools	5
Sewage disposal field	4
Septic tank	5
On-site domestic water service line	0
Pressurized public water main	10

CALCULATIONS SECTION

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

California Plumbing Code Estimate (Assign 2 occupants to master bedroom and 1 occupant to each additional bedroom) occupants x 15 gallons/day Laundrv gal/day

Estimate of graywater produced from winter (Dec-Feb) water use records (reference utility bill)

Laundry:	(gallons/load*) x(loads/	week) ÷ 7(days/week)	gal/day
	*Typical gals/per load: Front loader 15, Top loader 40	TOTAL	gal/day

2. Determine Minimum Mulch Basin Size

Minimum Mulch Basin Size:

gal/ft²/day = ft² (gal/day) Maximum Absorption Capacity (from column 3 in table below) From 1 above

*Dig mulch basin to a depth of 1 ft to ensure sufficient surge capacity for water leaving the laundry machine.

	Min SQ FT of Irrigation/ Leaching Area Per	Max Absorption Capacity in Gallons Per
Design of Six Soil Types	100 Gallons of Estimated Graywater	SQ FT of Irrigation/ Leaching Area for
	Discharge Per Day	an 24-Hour Period
Coarse sand or gravel	20	5.0
Fine Sand	25	4.0
Sandy Loam	40	2.5
Sandy Clay	60	1.7
Clay with considerable sand or gravel	90	1.1
Clay with small amounts of sand or gravel	120	0.8

3. Determining Weekly Water Needs

Weekly Water needs = (0.62 x Area x Eto x Pf) / 4 weeks = *0.62 = (# of gal in 1" of water covering 1 ft²)

- Area = πr^2 = 3.14 x (canopy radius of existing plant)² <u>OR</u> = (Length x Width) for number of garden beds - Evapotranspiration rates (ETo) - Choose ETo for hottest month - July = 6.51"/month for Santa Rosa

- Plant factor (PF) = 0.3 (Low water use), 0.5 (Moderate water use) *check landscape plan for water use of plants in the hydrozone

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

-



ADDITIONAL INFORMATION

GRAYWATER IS RECEIVED BEST BY TREES, BUSHES, SHRUBS, SMALL PERENNIALS AND LARGER ANNUALS, BUT IS PROHIBITED ON LAWN, RAISED BEDS, ROOT AND LEAFY VEGETABLES. MODERATE WATER USERS SUCH AS FRUIT TREES ARE ALSO AN IDEAL APPLICATION. GRAYWATER IS SOMEWHAT ALKALINE (HIGH pH) AND NOT RECOMMENDED FOR PLANTS THAT PREFER ACIDIC SOILS (LOW pH) LIKE BLUEBERRIES AND RHODEDENDRONS SOIL TYPE WILL DETERMINE BOTH HOW QUICKLY GRAYWATER IS ABSORBED IN YOUR LANDSCAPE AND THE SIZE OF THE MULCH BASINS NEEDED TO INFILTRATE THE GRAYWATER..

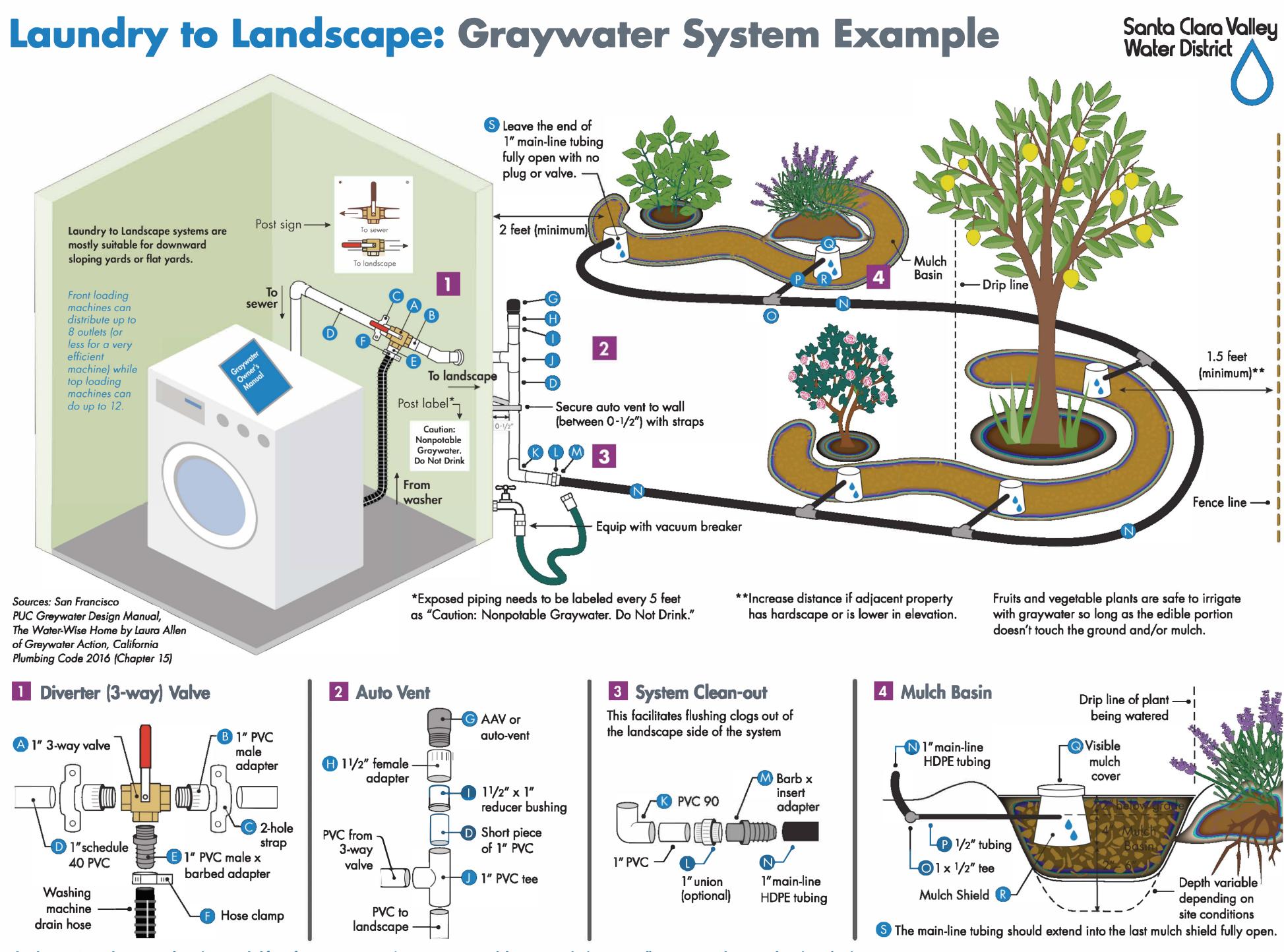
RECOMMENDED DETERGENTS:

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

- OASIS LAUNDRY
- **BIO PAC LAUNDRY LIQUID**
- **BIOKLEEN LAUNDRY LIQUID**
- ECOVER LAUNDRY WASH (SOME SALT)
- LIQUID ECOS LIQUID DETERGENT
- LIFE TREE LAUNDRY LIQUID
- MOUNTAIN GREEN LAUNDRY DETERGENT
- VASKA HERBATERGENT

- APPLICANT INSTRUCTIONS:

- AND SUPPLY PIPE LOCATION.



This diagram is not drawn to scale and is provided for reference purposes only. It is your responsibility to properly design, install, maintain, and use your laundry to landscape graywater system (graywater system). If you are unsure of the intricacies of your plumbing system or how to properly design or install a graywater system, please consult with a professional. The District does not accept any liability and responsibility for any direct, special, indirect or consequential loss or damage whatsoever arising out of or in connection with providing you with access to this diagram.

LAUNDRY TO LANDSCAPE DETAIL Лите

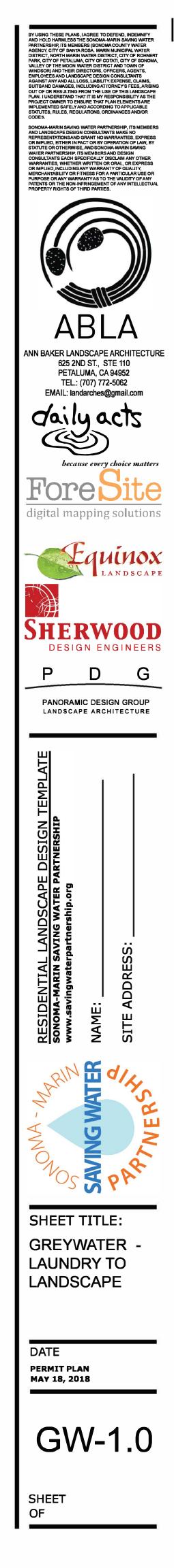
ESTIMATE YOUR GRAYWATER SUPPLY USING THE CALCULATION PROCESS IN CALCULATIONS SECTION BELOW. 2. COMPLETE CALCULATIONS TO DETERMINE THE MINIMUM REQUIRED MULCH BASIN SIZE PER YOUR SOIL TYPE. 3. MEASURE ACTUAL IRRIGATION FIELD AREA(S) ON SITE AND DEVELOP NUMBER AND SIZE OF MULCH BASINS TO USE THIS VOLUME THAT FIT IN THE LANDSCAPE AREAS.

4. REVIEW REQUIRED SETBACKS SHOWN IN CPC TABLE 1502.4 THIS SHEET.

5. DEVELOP A SITE PLAN ILLUSTRATING THE FOLLOWING: REQUIRED SETBACKS, PROPOSED MULCH BASINS, VALVE LOCATIONS, PIPING DIAGRAM, AND TREE AND PLANT LOCATIONS TO BENEFIT FROM GRAYWATER.

6. IF IN BUILDING DESIGN AND/OR CONSTRUCTION PROCESS REVIEW PLAN WITH ARCHITECT (FOR LOCATION OF LAUNDRY NEAR GRAYWATER SUPPLIED LANDSCAPE AREA), CIVIL ENGINEER (FOR ANY POTENTIAL CONFLICTS WITH STORMWATER DRAINAGE), AND GENERAL & LANDSCAPE CONTRACTORS TO REVIEW THREE WAY VALVE LOCATION

Reproduced with permission from the Santa Clara Valley Water District



APPLICANT INFORMATION:

BRANCHED DRAIN SYSTEM OVERVIEW:

A BRANCHED-DRAIN SYSTEM DISTRIBUTES GRAYWATER FROM SHOWERS AND/OR BATHROOM SINKS THROUGH A SERIES OF BRANCHING 1.5-INCH OR 2-INCH PIPES AND IS DISPERSED INTO THE LANDSCAPE VIA MULCH BASIN OUTLETS. PLUMBING FOR GRAYWATER SOURCES MUST BE SEPARATED FROM BLACK WATER SOURCES (TOILET, KITCHEN SINK). IF POSSIBLE DUE TO CLOSE PROXIMITY, A LAUNDRY MACHINE CAN ALSO BE ADDED INTO THE DISTRIBUTION PIPING. THIS SYSTEM IS DRIVEN BY GRAVITY FLOW AS NO PRESSURE IS PROVIDED BY A WASHING MACHINE PUMP OR ANY OTHER PUMP. AS THIS SYSTEM REQUIRES CUTTING INTO EXISTING SEWER PIPES FROM SHOWER DRAINS OR SINKS, IT DOES REQUIRE A SIMPLE OVER THE COUNTER PLUMBING PERMIT. IF INSTALLING AS PART OF NEW BUILDING CONSTRUCTION OR REMODEL, SHOW SEPERATED PLUMBING IN PLAN SETS AND STUB OUT PIPING FOR EXTERIOR GRAYWATER SYSTEM COMPONENTS DURING BUILDING CONSTRUCTION.

BRANCHED DRAIN GRAYWATER REQUIREMENTS TO COMPLY WITH CALIFORNIA PLUMBING CODE (CPC) STANDARDS:

- O NOTIFY ENFORCING AGENCY AND SECURE PERMIT FOR INTERIOR PLUMBING COMPONENTS
- O BE ABLE TO REDIRECT TO SEWER
- O NO POTABLE WATER CONNECTION
- O CONTAIN GRAYWATER ONSITE
- O DIRECT AND CONTAIN GRAYWATER WITHIN MULCH BASINS (IRRIGATION OR DISPOSAL FIELD) BELOW THE GROUND SURFACE
- O NO PONDING OR RUNOFF
- O OUTLETS COVERED BY AT LEAST 2-INCHES OF MULCH, ROCK, OR A SHIELD (E.G. VALVE BOX LID)
- O MINIMIZE CONTACT WITH HUMANS AND ANIMALS
- O DIVERT WATER TO THE SEWER IF IT CONTAINS DIAPERS, OIL, OTHER CHEMICALS
- O GRAYWATER DIVERTED TO LANDSCAPE SHALL NOT CONTAIN HAZARDOUS CHEMICALS
- O FOLLOWALLAPPLICABLE CODE OR LAWS
- O POST OPERATION AND MAINTENANCE MANUAL
- O THE SYSTEM SHALL HAVE A DISCHARGE CAPACITY OF 250 GALLONS PER DAY OR LESS

INSTALLATION & DESIGN CONSIDERATIONS:

WITH A HIGHER POTENTIAL VOLUME OF WATER COMING FROM A SHOWER AND SINK, A BRANCHED DRAIN SYSTEM IS BEST SUITED FOR IRRIGATING TREES, BUSHES, SHRUBS, AND OTHER LARGER PERENNIAL PLANTS. THIS IS A SIMPLE SYSTEM AND DOES NOT REQUIRE ELECTRICITY OR A PUMP. HOWEVER, THE LANDSCAPE AREA MUST BE LOWER IN ELEVATION THAN THE GRAYWATER SOURCE,

CALCULATIONS SECTION

1.	Estimate Daily Graywater Production	

Calculation Method (choose one and check box)			
California Plumbing	Code Estimate (Assign 2 occupants to master be	edroom and 1 occup	pant to each additional bedroom)
Laundry:	occupants x 15 gallons/day		gals/day
Shower/Sink:	occupants x 25 gallons/day	÷7(days/week)	gals/day
		TOTAL	gals/day
Estimate of graywat Laundry:	ter produced from winter (Dec-Feb) water use r		
,	Avg. water use ÷30 days(gals/day)	X .22	(gals/day)
Shower:	Avg. water use ÷30 days(gals/day)	X.17	(gals/day)
Sink:	Avg. water use ÷30 days(gals/day)	X .22	(gals/day)
		TOTAL	(gals/day)

2. Determine Minimum Mulch Basin Size

Minimum Mulch Basin Area:

 $(gal/day) \div gal/ft^2/day = ft^2$ From 1 above Maximum Absorption Capacity (from column 3 in table below)

*Dig mulch basin to a depth of 1 ft to ensure sufficient surge capacity for water leaving the laundry machine.

Design of Six Soil Types	Min SQ FT of Irrigation/ Leaching Area Per 100 Gallons of Estimated Graywater Discharge Per Day	Max Absorption Capacity in Gallons Per SQ FT of Irrigation/ Leaching Area for an 24-Hour Period
Coarse sand or gravel	20	5.0
Fine Sand	25	4.0
Sandy Loam	40	2.5
Sandy Clay	60	1.7
Clay with considerable sand or gravel	90	1.1
Clay with small amounts of sand or gravel	120	0.8

AND THE ENTIRE SYSTEM MUST HAVE A DOWNWARD SLOPE OF 2 % (1/4 INCH PER FOOT) TO ENSURE EVEN DISTRIBUTION.

INSTALLATION DIFFICULTY DEPENDS ON THE EXISTING HOUSEHOLD PLUMBING, ACCESS TO PIPES AND THE SLOPE OF LANDSCAPE. WHILE OUTDOOR COMPONENTS CAN BE INSTALLED BY A HOMEOWNER, A PROFESSIONAL PLUMBER IS NEEDED FOR INSTALLATION OF 3-WAY DIVERTER VALVE ON THE SEWER LINE. THE HOMEOWNER HAS THE OPTION TO INSTALL AN ACTUATOR, WHICH ALLOWS EASY DIVERSION OF GRAYWATER BETWEEN LANDSCAPE AND THE SEWER LINE.

SYSTEM COSTS & REBATES: THE COSTS CAN RANGE FROM A THOUSAND DOLLARS WHEN PRIMARILY INSTALLED BY A HOMEOWNER TO SEVERAL THOUSAND IF INSTALLED BY A PROFESSIONAL. WHILE MORE COSTLY TO CONSTRUCT THAN A LAUNDRY TO LANDSCAPE SYSTEM, A BRANCHED DRAIN SYSTEM REQUIRES LITTLE MAINTENANCE AND LASTS A LONG TIME, SINCE IT HAS NO MOVING PARTS TO BREAK.

RECOMMENDED SOAPS:

MORE SOAPS ARE COMING OUT ALL THE TIME, BUT IT IS ALWAYS IMPORTANT TO READ THE INGREDIENTS LIST. BELOW ARE SEVERAL THAT ARE KNOWN TO BE GRAYWATER COMPLIANT.

- OASIS ALL-PURPOSE CLEANER FOR HAND-WASHING, BODY & SHAMPOO
- DR. BRONNER'S MAGIC SOAPS (LIQUID)
- AUBREY ORGANICS SHAMPOOS

APPLICANT INSTRUCTIONS:

- 1. ESTIMATE YOUR GRAYWATER SUPPLY USING THE CALCULATION SECTION THIS SHEET.
- 2. ESTIMATE MULCH BASIN SIZES, AREA AND VOLUME USING TABLE 3.
- 3. DEVELOP A GRAYWATER SITE PLAN SHOWING THE SYSTEM LAYOUT FOR THE PERMIT APPLICATION. SHOW ALL THE PLAN ELEMENTS LISTED IN #4 -GRAYWATER PLAN BELOW . REVIEW THE SAMPLE PLAN SHOWN IN DETAIL #1 THIS SHEET. SHOW TREE AND PLANT LOCATIONS TO BENEFIT FROM GREYWATER.
- 4. SUBMIT FOR BUILDING PERMIT EITHER WITH FULL SITE DRAWINGS OR AS A SEPARATE SUBMITTAL.
- 5. REVIEW PIPE AND VALVE LOCATIONS WITH ARCHITECT, ENGINEER AND CONTRACTOR TO INSURE THERE ARE NO CONFLICTS WITH OTHER SITE ELEMENTS. CONFIRM COMPONENTS TO BE INSTALLED AT TIME OF FOUNDATION SYSTEM CONSTRUCTION, INCLUDING PIPE STUB OUT FOR EXTERIOR GRAYWATER SYSTEM DEVELOPMENT.

3. Determine Mulch Basin Required Volume (Complete section below)

Gravity to Mulch Basins (Branched Drain)

Total mulch basin surge capacity: _____gal/day \div 7.48 gal/ft³ \div 0.80 = ____ft³

4. Graywater Plan

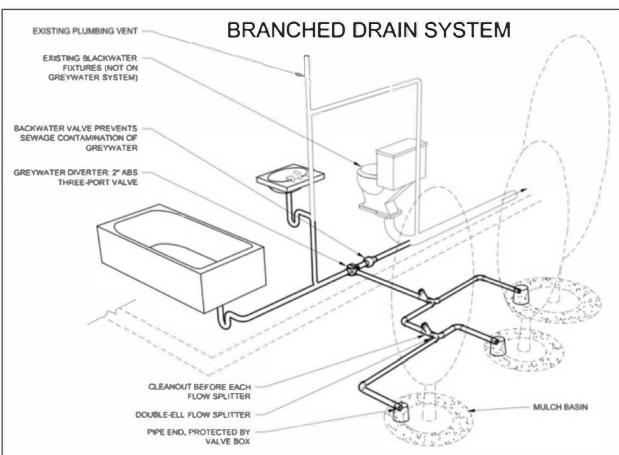
Using graph paper, or a copy of your site plan, draw a map and legend of graywater system components that shows the pathway of piping from the fixture(s) inside the building to the landscape/irrigation field. If graywater is directed to the front yard, show the street frontage and your driveway. In your drawing, include the location of all:

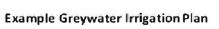
- Graywater valves
 Graywater pipes and fittings (*indicate material and size*)
 Clean-outs
- Setback of graywater outlets to property lines and buildings*
 Setback of graywater outlets to onsite wastewater treatment system tanks and
- Graywater outlets and mulch basins
 Graywater outlets and mulch basins
 Setback of greywater outlets to wells and
- drainages* (if applicable). *See table below for required setbacks. See the California Plumbing Code for additional notes aboutsetbacks.

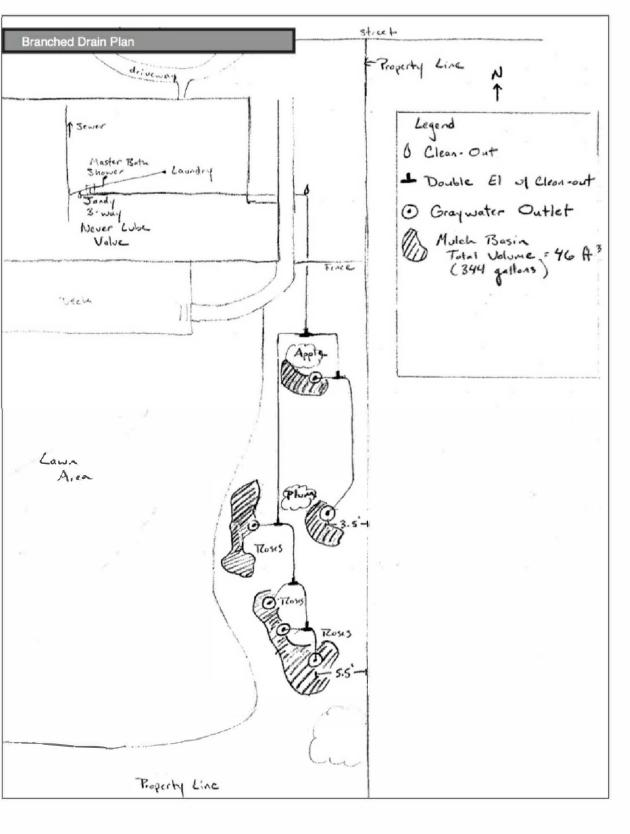
CPC Table 1502.4 --- LOCATION OF GREY WATER SYSTEM

MINIMUM HORIZONTAL DISTANCE IN CLEAR REQUIRED FROM	SUBSURFACE AND SUBSOIL IRRIGATION FIELD AND MULCH BASIN (feet)
Building structures	2
Property line adjoining private property	1.5
Water supply wells	100
Streams and lakes	100
Sewage pits or cesspools	5
Sewage disposal field	4
Septic tank	5
On-site domestic water service line	0
Pressurized public water main	10





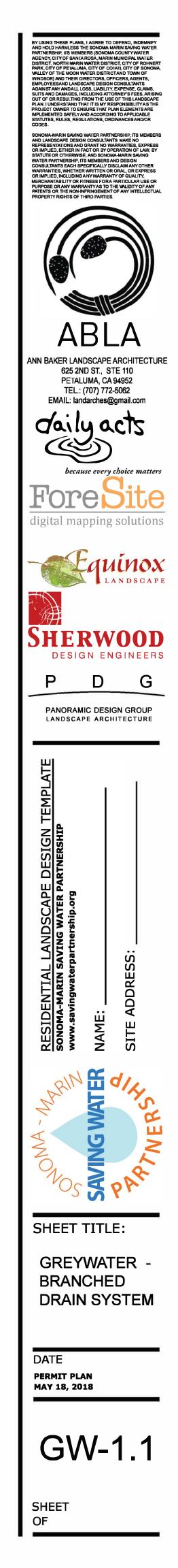




BRANCHED DRAIN SAMPLE SITE PLAN NTS



BRANCHED DRAIN SYSTEM DIAGRAM AND INSTALL PHOTO



RAINWATER HARVESTING DETAIL

4. TANKS CAN BE DAISY CHAINED AT POINT "D" USING FLEXIBLE PIPE ONLY TO REDUCE CHANCE OF LEAKAGE IN EARTHQUAKES. 5. THERE ARE NO REQUIRED SETBACKS FROM BUILDINGS OR SIDE/BACK PROPERTY LINES, THOUGH A CONVERSATION WITH YOUR NEIGHBOR COULD BE HELPFUL.

2. PUMP AND PRESSURE TANK LIKELY REQUIRE INEXPENSIVE, OVER-THE-COUNTER, ELECTRICAL PERMIT. 3. IF CITY WATER PLUMBED TO TANK FOR MAKE UP USING FLOAT VALVE OR MANUALLY OPERATED VALVE, THEN A PERMIT IS REQUIRED AND AN AIR GAP IS REQUIRED BETWEEN RAINWATER HARVESTING SYSTEM AND DOMESTIC WATER SYSTEM.

ALL OTHER RAINWATER CATCHMENT SYSTEMS MUST BE SUBMITTED FOR BUILDING PERMIT.

- DOES NOT REQUIRE ELECTRICAL POWER OR MAKEUP WATER SUPPLY CONNECTION (SEE NOTE 2 AND 3)

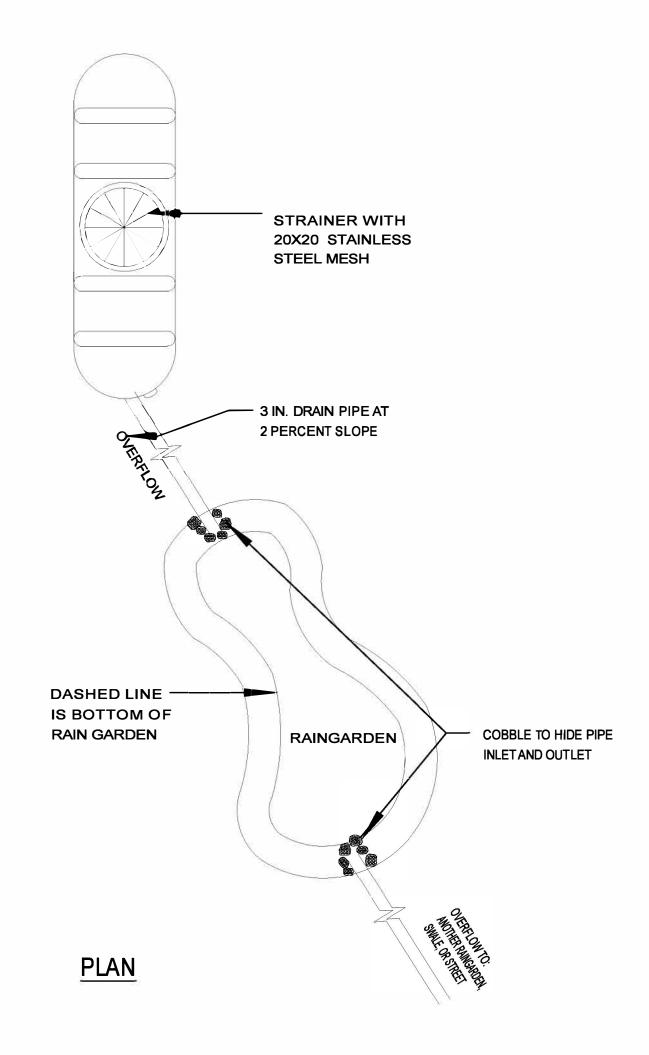
- RATIO OF HEIGHT TO DIAMETER OR WIDTH DOES NOT EXCEED 2 TO 1

- MAXIMUM STORAGE CAPACITY OF 5,000 GALLONS - TANK IS SUPPORTED DIRECTLY UPON GRADE

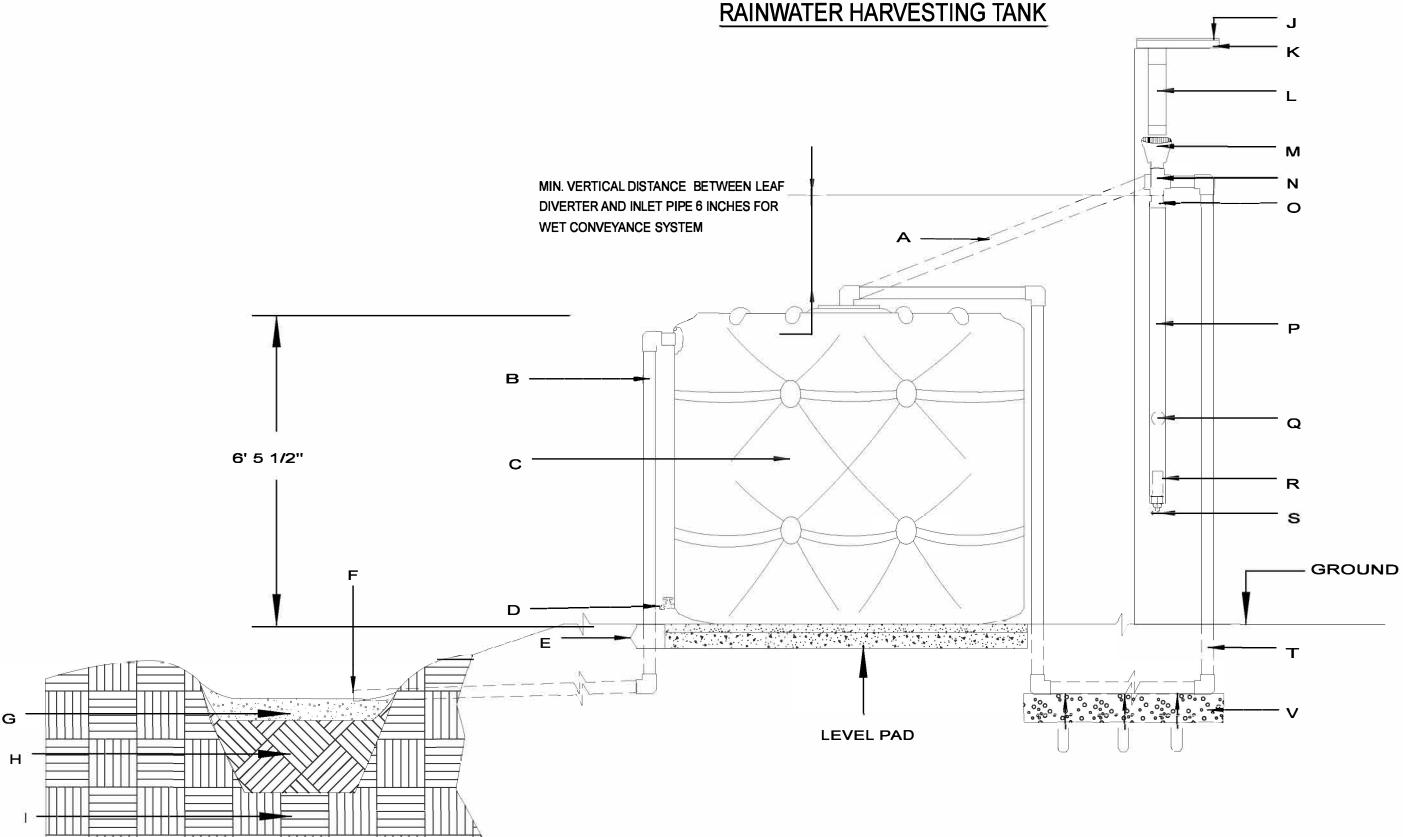
- WATER WILL BE USED FOR OUTDOOR NON-SPRAY IRRIGATION

NOTES: 1. A RAINWATER CATCHMENT SYSTEM MAY NOT REQUIRE A BUILDING PERMIT PROVIDED ALL OF THE FOLLOWING ARE MET (CALIFORNIA PLUMBING CODE 1601.3 (I):

1/2" = 1'-0"



ELEVATION VIEW 530 GAL RAINWATER HARVESTING TANK



SECTION VIEW RAIN GARDEN

A. PREFERRED DRY CONVEYANCE IF TANKS ARE NEXT TO DOWNSPOUT

- B. OVERFLOW: 3 IN. DRAINAGE PIPE: SLOPED 2 PERCENT FOR HORIZONTAL SECTIONS
- C. 530 GALLON BUSHMAN SLIMLINE RAIN HARVESTING TANK OR EQUIVALENT
- D. HOSE BIB OR OPTIONAL CONNECTION TO PUMP AND PRESSURE TANK (SEE NOTE 2)
- E. 4 INCHES COMPACTED BASEROCK WITH 2 INCHES OF PEA GRAVEL ON TOP
- F. OVERFLOW TO RAINGARDEN (SHOWN)/SWALE/SPLASHBLOCK
- G. 5 INCHES OF DECORATIVE GRAVEL WITH 2 INCHES OF PONDED WATER ABOVE H. 12 INCHES AMENDED SOIL: 1/2 COMPOST, 1/2 NATIVE SOIL
- I. UNDISTURBED NATIVE SOIL
- J. FIRE SAFER LEAF GUARD
- K. GUTTER
- L. NORMAL DOWNSPOUT

- Q. BUSHMAN FLOAT BALL

M. OPTIONAL BUSHMAN LEAF DIVERTER (WITH 20X20 SCREEN IF USING WET CONVEYANCE) (REDUNDANT WITH LEAF GUARD ON GUTTERS)

N. 3 IN. PVC DRAINAGE TEE

O. 4 IN. TO 3 IN. PVC DRAINAGE REDUCER

P. 4 IN. DRAINAGE PIPE FOR THE FIRST FLUSH (THIS REMOVES THE FIRST, DIRTY WATER FROM A RAINSTORM)

R. BUSHMAN FIRST FLUSH FILTERS (TO KEEP EMITTER FROM CLOGGING)

S. BUSHMAN DRIP EMITTER TO DRAIN DIRTY WATER BETWEEN STORMS

T. "WET" CONVEYENACE 3 IN. DRAINAGE PIPE (WATER STAYS IN PIPE BETWEEN STORMS)

U. THREE SEPARATE 3/32 INCH HOLES TO DRAIN WATER FOR MOSQUITO CONTROL

V. CLEAN GRAVEL TO IMPROVE DRAINAGE FROM DRILLED HOLES

