

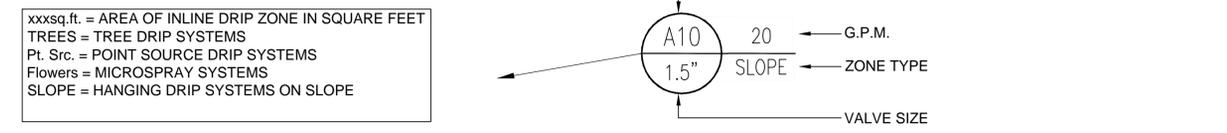
SHRUB SUBSURFACE DRIP IRRIGATION

SYMBOL	MFR.	MODEL NO. / DESCRIPTION	PSI	DETAIL
	NETAFIM	SHRUB PLANTING AREAS-GROUND LEVEL: LINES SHOWN ARE A DIAGRAMMATIC HATCH PATTERN ONLY. SUB-SURFACE DRIP TUBING WITH CHECK VALVE, MODEL TLHCVR5-18 W/ .53 GPH EMITTERS, 18" ON CENTER. INSTALL TUBING ROWS MAXIMUM OF 16" APART IN SHRUB AREAS. FOR LARGE SLOPES, INSTALL PARALLEL TO SLOPE AT ALL TIMES. CONTRACTOR SHALL DETERMINE ACTUAL ROW SPACING IN THE FIELD AFTER REVIEW OF PLANT SPACING FOR EACH PLANTER. EACH AND EVERY SHRUB SHALL RECEIVE WATER FROM A MINIMUM OF TWO INLINE EMITTERS. AREAS OF TIGHTLY SPACED GROUND COVER WILL REQUIRE CLOSER ROW SPACING. FOR ANY 'SINGLE' OR 'DOUBLE' ROW TYPE PLANTINGS, INSTALL DRIP TUBING ON BOTH SIDES OF THE SHRUB ROW TO IRRIGATE SHRUBS ON EACH SIDE. ALL TUBING SHALL BE INSTALLED 6" BELOW FINISH SOIL GRADE ANCHORED WITH RAIN BIRD 9" GALVANIZED WIRE STAKES, MODEL TDS-050, INSTALLED FOUR FEET O.C. (JUTE MESH OR OTHER STEEL 'U' STAKES SHALL NOT BE USED OR INSTALLED AT ANY TIME). CONTRACTOR SHALL FIELD VERIFY PRIOR TO STARTING WORK AND BEFORE BACKFILLING THAT FINAL LAYOUT AND SPACING WILL PROVIDE ADEQUATE WATER TO ALL PLANTS. CONTACT NETAFIM REPRESENTATIVE, ALLISTER COONEY, (951) 587-7007 FOR ADDITIONAL INFORMATION.	40	LI-5.05/A,B; LI-5.06/A,B,C,E; LI-5.07/A
NO SYMBOL	RAIN BIRD	CONNECTION FITTINGS BETWEEN PVC LATERAL LINES AND DRIPLINE TUBING FOR CENTER FEED SYSTEMS: RAIN BIRD XFD-TFA-075, MDCFEL, MDCFTEE W/ MDCF75FPT, OR XXF-TMA-0F0 WITH 1/2" TT COUPLER. CONNECTION FITTINGS BETWEEN PVC SUPPLY OR EXHAUST HEADER PIPE AND DRIPLINE TUBING: RAIN BIRD XFF-MA-075 / XFF-MA-050 BARB MALE ADAPTER.	40	LI-5.06/A,B,C,E; LI-5.07/B,C
NO SYMBOL	RAIN BIRD	ALL CONNECTIONS BETWEEN 1/2" DRIPLINE TUBING SHALL BE MADE USING RAIN BIRD XFF INSERT FITTINGS AND XFF INSERT CROSS FITTING.	40	LI-5.06/A,B,C,E; LI-5.07/B,C
NO SYMBOL	RAIN BIRD	ALTERNATE DRIPLINE MANIFOLD SETUP: CONTRACTOR MAY USE RAIN BIRD'S COILED POLY DRIPLINE 'QF' HEADER (18" OR 12" ROW SPACING AS REQUIRED) FOR ALL DRIP ZONE HEADERS AND FOOTERS AS NEEDED. USE 3/4" PRODUCT FOR AREA FLOWS UP TO 5 GPM. FOR 18" EMITTER SPACING USE MODEL XQF07518100, FOR 12" EMITTER SPACING USE MODEL XQF07512100. USE 1" PRODUCT FOR AREA FLOWS 6 GPM TO 15 GPM. FOR 18" EMITTER SPACING USE MODEL XQF1018100, FOR 12" EMITTER SPACING USE MODEL XQF1012100. NO TIGHT BENDING OF QF DRIPLINE HEADER IS ALLOWED. RECOMMENDED INSERT FITTINGS: SPEARS 90 ELL INSERT X INSERT (3/4" 1406-007) / (1" 1406-010); MALE ADAPTER MIPT X INSERT (3/4" 1436-007) / (1" 1436-010); COUPLING INSERT X INSERT (3/4" 1429-007) / (1" 1429-010); INSERT ADAPTER INSERT X SOC (3/4" 474-007) / (1" 474-010); INSERT ADAPTER INSERT X SPIGOT (3/4" 460-007) / (1" 460-010) FOR USE WITH PVC SOC FITTINGS; TEE INSERT X INSERT X SOC (3/4" 1404-102) / (1" 1404-010).	40	LI-5.05/A,B
*NOTE: THE IDEAL STAINLESS STEEL CLAMP (MURRAY OR OETIKER TYPE) IS REQUIRED ON ALL INSERT FITTING CONNECTIONS.				
<p>A. FOR ALL AREAS INSTALL PERIMETER TUBING MAXIMUM 9" FROM PERIMETER EDGE FOR GROUND COVER AREAS OR AT FIRST LINE OF SHRUBS. INSTALL PARALLEL TO SLOPE AT ALL TIMES. CONTRACTOR SHALL DETERMINE MINIMUM ROW SPACING IN THE FIELD AFTER REVIEW OF PLANT SPACING FOR EACH PLANTER. EACH AND EVERY SHRUB SHALL RECEIVE WATER FROM A MINIMUM OF TWO INLINE EMITTERS. AREAS OF TIGHTLY SPACED GROUND COVER WILL REQUIRE CLOSER ROW SPACING. FOR ANY 'SINGLE' OR 'DOUBLE' ROW TYPE PLANTINGS, INSTALL DRIP TUBING ON BOTH SIDES OF THE SHRUB ROW TO IRRIGATE SHRUBS ON EITHER SIDE. DUE TO SOIL STRATA DIFFERENCES AND POSSIBLE COMPACTION CONTRACTOR SHALL FIELD VERIFY PRIOR TO STARTING WORK AND BEFORE BACKFILLING THAT THE FINAL LAYOUT AND ROW SPACING WILL PROVIDE ADEQUATE WATER TO ALL PLANTS.</p> <p>B. CONTRACTOR SHALL ALWAYS FOLLOW AND ROUTE, PARALLEL TO GRADE, ANY INLINE DRIP TUBING LAYOUT. ALWAYS LAY DRIPLINES PERPENDICULAR TO SLOPE. DO NOT FOLLOW DIRECTIONAL LAYOUT AS SHOWN IN THE PLANS. HATCH PATTERNS SHOWN IN PLAN'S DRIP AREAS ARE DIAGRAMMATICAL ONLY.</p> <p>C. FOR ALL INLINE DRIP TUBING AREAS ON SLOPE THE CONTRACTOR SHALL BE HELD ACCOUNTABLE FOR CREATING A TRIANGULAR WETTING PATTERN ACROSS ANY SLOPE. OFFSET THE EMITTERS BY HALF THE EMITTER SPACING WHEN INSTALLING TUBING TO CREATE A TRIANGULAR WETTING PATTERN ACROSS THE SLOPE. DO NOT INSTALL TUBING WHERE THE EMITTERS ARE DIRECTLY IN LINE (PERPENDICULAR) WITH EACH OTHER.</p>				
	SPEARS	FLUSH VALVE ASSEMBLY: PROVIDE GRAY 1/2" PVC THREADED BALL VALVE, MODEL 2621-005G, WITH CHAMPION IRRIGATION PRODUCTS (ARROWHEAD BRASS) BRASS HOSE-TO-PIPE THREAD INSERT ADAPTER, MODEL #10F, FOR FLUSHING PVC PIPE WITH STANDARD GARDEN HOSE. INSTALL FLUSH VALVE INSIDE 7" ROUND VALVE BOX. ONE AT THE END OF EACH AND EVERY PIPE RUN IN EACH DIRECTION. MULTIPLE FLUSH VALVES MAY BE REQUIRED WITHIN A TREE/PALM DRIP ZONE. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL FLUSH VALVES REQUIRED. WHEN POSSIBLE INSTALL VALVE 18" FROM PAVING FOR EASE OF MAINTENANCE.	40	LI-5.05/A,B; LI-5.06/A,B,C,D,E
NO SYMBOL	HUNTER	ECO-ID: SPRINKLER BODY WITH VISIBLE YELLOW STEM INDICATES ZONE IS IN OPERATION. INSTALL ONE UNIT WITHIN EACH AND EVERY PLANTER WITHIN A ZONE. FOR TREE ZONES INSTALL AT END OF ZONE RUN IN EACH DIRECTION. ATTACH TO POLY OR PVC VIA 1/2" MPT CONNECTION. INSTALL UNIT AT HIGH POINT OF EACH PLANTER OR USE HUNTER'S MANUALLY INSTALLED CHECK VALVE P/N 462237SP.	40	LI-5.02/E

POINT SOURCE DRIP IRRIGATION

SYMBOL	MFR.	MODEL NO. / DESCRIPTION	PSI	DETAIL								
	RAIN BIRD	SHRUBS; INSTALL ONE (1) OR TWO (2) XB-(10)(20)-1032 SERIES EMISSION DEVICES DIRECTLY ADJACENT TO EDGE OF ROOTBALL. INSTALL ON RAIN BIRD PFR/FRA12/ OR FRA/24 PRE-ASSEMBLED POLYFLEX RISER ADAPTER. CUT RISER TO 2" ABOVE MULCH LAYER. ALWAYS INSTALL ON UPHILL SIDE OF SHRUB. GRAVITY FLOW SHALL TRAVEL THROUGH MIDDLE OF ROOTBALL. REFER TO ADDITIONAL 'SPOT/TREE DRIP SYSTEM NOTES' ON NOTES SHEET LIM.2	40	LI-5.08/C,E,F								
<table border="1"> <caption>SHRUB DRIP EMITTER TABLE</caption> <thead> <tr> <th>PLANT SIZE</th> <th># OF EMITTERS</th> </tr> </thead> <tbody> <tr> <td>1 GALLON SHRUB</td> <td>1 - 2 GPH</td> </tr> <tr> <td>5 GALLON SHRUB</td> <td>1 - 2 GPH</td> </tr> <tr> <td>15 GALLON SHRUB</td> <td>2 - 1 GPH</td> </tr> </tbody> </table>					PLANT SIZE	# OF EMITTERS	1 GALLON SHRUB	1 - 2 GPH	5 GALLON SHRUB	1 - 2 GPH	15 GALLON SHRUB	2 - 1 GPH
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NO SYMBOL	HUNTER	ECO-ID: SPRINKLER BODY WITH VISIBLE YELLOW STEM INDICATES ZONE IS IN OPERATION. INSTALL ONE UNIT WITHIN EACH AND EVERY PLANTER WITHIN A ZONE. FOR TREE ZONES INSTALL AT END OF ZONE RUN IN EACH DIRECTION. ATTACH TO POLY OR PVC VIA 1/2" MPT CONNECTION. INSTALL UNIT AT HIGH POINT OF EACH PLANTER OR USE HUNTER'S MANUALLY INSTALLED CHECK VALVE P/N 462237SP.	40	LI-5.02/E								

IRRIGATION VALVE IDENTIFICATION



IRRIGATION CONTROLLER AND RELATED EQUIPMENT

SYMBOL	MFR.	MODEL NO. / DESCRIPTION	PSI	DETAIL
	SITE ONE	PEDESTAL CONTROLLER ASSEMBLY: SA1-WT5-TW96/ETEC+OFS-5YR/GTF3-150-ER-NC/RSE/WT2W- LSP-23 / PED18SS/EMP18/EV-CAB- SEN-275 /WT2W- SVD-11-100 .	40	LI-5.03/B
<p>ASSEMBLY TO INCLUDE ONE 96 STATION CONTROLLER WITH ONE 1.5" HYDROMETER, FLOW MANAGEMENT KEY, V.I.T. MOUNTING PAD, 12" PEDESTAL EXTENSION, 100 DECODERS, 23 DECODER SURGE PROTECTION KITS, 275' OF FLOW SENSOR CABLE, AND FIVE YEAR CELLULAR PLAN. CONTRACTOR SHALL SET UP CELLULAR MODEM WITH 5-YR CELLULAR PLAN FOR WEATHERTRAC WEB-BASED 'DATA SERVICE PLAN' CENTRAL INTERNET MANAGEMENT. CONTROLLER PEDESTAL SHALL BE MOUNTED ON A V.I.T. 'QUICKPAD' BASE. CONTRACTOR SHALL BE RESPONSIBLE FOR THE CONTROLLER SET UP REQUIREMENTS TO OPERATE THE CENTRAL CONTROL DATA TRANSFER USING CELLULAR PHONE SERVICE. CONTRACTOR SHALL ASSIST OWNER WITH THE WEATHERTRAC 2 DOWNLOADABLE SOFTWARE APP FOR MOBILE PHONE. CONTRACTOR SHALL VERIFY EXACT CONTROLLER LOCATION WITH OWNER'S AUTHORIZED REPRESENTATIVE BEFORE INSTALLATION. VERIFY ROUTING OF ELECTRICAL CONDUCTORS WITHIN CONDUIT TO THE CONTROLLER LOCATION WITH THE ELECTRICAL CONTRACTOR. DUE TO THE PROPOSED LOCATION OF THE CONTROLLER, IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO PROVIDE ANY ADDITIONAL EQUIPMENT AS MAY BE NECESSARY FOR THE OPERATION OF WEB-BASED SOFTWARE PROGRAMMING WITHOUT COMPLICATION. CONTACT SITE-ONE REPRESENTATIVE ERIK ANDERSON, (949) 285-4048, FOR ASSEMBLY ORDERING AND PROGRAMMING. ALSO FOR PROGRAMMING AND OPERATION OF THE WEATHERTRAC 'OPTI-F' FLOW MANAGEMENT FEATURE, REQUIRED FOR FLOW ZONES SEPARATION.</p>				
NO SYMBOL	SITEONE	V.I.T. 'QUICK-PAD' CONTROLLER PEDESTAL MOUNTING PAD, MODEL EMP-18, AS PART OF CONTROLLER ASSEMBLY PACKAGE.	40	LI-5.03/B
	SITE ONE	WIRED RAIN SENSOR, AS PART CONTROLLER ASSEMBLY PACKAGE.	40	LI-5.03/B
NO SYMBOL	SITE ONE	ETEC-5YR WEATHERTRAC ET EVERYWHERE WEATHER UPDATE SERVICE (FIVE-YEAR SERVICE SUBSCRIPTION), AS PART OF EACH CONTROLLER ASSEMBLY PACKAGE. AFTER ACTIVATION CONTRACTOR SHALL TURN OVER TO OWNER'S AUTHORIZED REPRESENTATIVE ALL PAPERWORK, DOCUMENTS, ACCESS CODES, ETC.	40	N/A
NO SYMBOL	SITE ONE	CONTROLLER CERTIFICATION: SITE ONE TECHNICIAN SHALL REVIEW CONTROLLER AND HYDROMETER INSTALLATION. ALSO SHALL REVIEW AND CONFIRM AS PART OF EACH CONTROLLER ASSEMBLY PACKAGE. AFTER ACTIVATION CONTRACTOR SHALL TURN OVER TO OWNER'S AUTHORIZED REPRESENTATIVE ALL PAPERWORK, DOCUMENTS, ACCESS CODES, ETC.	40	N/A
NO SYMBOL	SITEONE	SINGLE RCV DECODER: MODEL WT2W-SVD-11. INSTALL AT RCV LOCATIONS. CONNECT TO CONTROLLER VIA 2-WIRE CABLE. LINE SURGE PROTECTION DECODER: MODEL WT2W-LSP, CONNECT TO 2-WIRE CABLE. SEE SYSTEM SURGE PROTECTION GROUNDING.	40	LI-5.08/A,D; LI-5.09/A,B,D,E,F
NO SYMBOL	PAIGE ELECTRIC	2-WIRE DECODER CABLE, MODEL 7072D; #14 GAUGE. INSTALL ALL CABLE WITHIN 1-1/4" ELECTRICAL CONDUIT. CONNECT TO CONTROLLER PER MANUFACTURER'S SPECIFICATIONS.	40	LI-5.08/A,D; LI-5.09/A,B,D,E,F
	AS APRVD	2-WIRE DECODER CABLE GROUNDING: CONTRACTOR SHALL GROUND PER MANUFACTURER'S SPECIFICATIONS, BUT NOT LESS THAN PER LOCAL AND NATIONAL ELECTRICAL CODE. USE SYSTEM SURGE PROTECTION AT A MAXIMUM OF 450-475 FEET APART ALONG ENTIRE LENGTH OF 2-WIRE CABLE. AT THE ENDS OF THE 2-WIRE CABLE RUN AND AT THE END OF ANY CABLE RUN OFF-SHOOT LEG LONGER THAN 50' FROM MAIN 2-WIRE CABLE RUN. SEE PLAN FOR APPROXIMATE LOCATIONS. CONTACT SITEONE REPRESENTATIVE ERIC ANDERSON, (949) 285-4048, FOR ADDITIONAL INFORMATION. GROUND WIRE TO GROUND ROD/PLATE CONNECTION SHALL BE BY CADWELD 'ONE-SHOT' PROCESS ONLY. USE OF GROUNDING CLAMPS IS NOT AN ACCEPTABLE INSTALLATION. MAXIMUM RESISTANCE SHALL BE NO MORE THAN 10 OHMS. CONTRACTOR SHALL PROVIDE PROOF OF MEASURED RESISTANCE TO OWNER'S AUTHORIZED REPRESENTATIVE BEFORE MAINTENANCE PERIOD BEGINS.	40	LI-5.08/A,D; LI-5.09/A,B,D,F
NO SYMBOL	AS APRVD	CONTROLLER GROUNDING: CONTRACTOR SHALL GROUND CONTROLLER PER MANUFACTURER'S SPECIFICATIONS, BUT NOT LESS THAN PER LOCAL AND NATIONAL ELECTRICAL CODE. GROUND WIRE/ROD CONNECTION SHALL BE BY CADWELD PROCESS ONLY. CLAMPS ARE NOT AN ACCEPTABLE SUBSTITUTE OR USE GROUND ROD, P/N 182000IC6. MAXIMUM RESISTANCE SHALL BE NO MORE THAN 10 OHMS. CONTRACTOR SHALL PROVIDE PROOF OF MEASURED RESISTANCE TO OWNER'S AUTHORIZED REPRESENTATIVE BEFORE MAINTENANCE PERIOD BEGINS AND INCLUDE DOCUMENT WITHIN SUBMITTED OPERATIONS AND MAINTENANCE MANUAL.	40	LI-5.03/D,E
NO SYMBOL	PAIGE ELECTRIC	CONTROLLER AND DECODER GROUNDING EQUIPMENT PER UNIT SHALL INCLUDE: ONE GROUND PLATE 4"X3", P/N 182201C; ONE GROUND ROD 5/8"X8", P/N 182000 (WITH CADWELD) OR 182000IC6 (FOR CONTROLLER); GROUND ENHANCEMENT EARTH CONTACT BACKFILL MATERIAL (HARDENING) AMOUNT AS NEEDED TO COMPLETELY ENCASE PLATE AND ROD, P/N 1820058; CADWELD 'ONE-SHOT' CONNECTION SYSTEM FOR ROD-182000 AND WIRE, P/N 1820037P; #6 AWG COPPER BARE WIRE, P/N180635. CONTRACTOR MAY USE THE SITEONE GROUND KIT, MODEL GRP-K WITH ADDITIONAL 8' GROUND ROD.	40	LI-5.03/D,E
NO SYMBOL	RAIN BIRD	PULL BOX, STANDARD RECTANGULAR SIZE, MODEL VB-STD, FOR ALL 2-WIRE CABLE SPLICES AND LOCATE AT TWO HUNDRED LINEAR FEET (200') ALONG CABLE ROUTE WHEN RCV BOX IS NOT AVAILABLE. ALSO AT ALL CABLE ROUTING CHANGE-OF-DIRECTION. LOOP 2-WIRE CABLE MIN. 36" TO PULL OUTSIDE OF BOX. LABEL LID '2W CABLE'.	40	LI-5.08/B
	BY OTHERS	117 VOLT ELECTRICAL POWER, PROVIDED BY ELECTRICIAN. CONTRACTOR SHALL COORDINATE AND VERIFY CONTROLLER PEDESTAL LOCATION IN FIELD WITH ELECTRICIAN. ELECTRICIAN SHALL ROUTE AND INSTALL ALL CONDUIT AND CONDUCTORS TO WITHIN THE CONTROLLER PEDESTAL LOCATION. IRRIGATION CONTRACTOR SHALL CONNECT IRRIGATION CONTROLLER TO ELECTRICAL STUB-OUT. CONTROLLER CIRCUIT SHALL BE SUPPLIED BY A DEDICATED BREAKER FROM THE POWER SOURCE.	40	N/A
NO SYMBOL	N/A	DUE TO POSSIBLE UNFORESEEN CHANGES IN THE FIELD IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO COORDINATE ALL CONDUITS, SLEEVES, AND WIRE ROUTING WITH GENERAL CONTRACTOR AND ANY AFFECTED ON-SITE TRADES AS REQUIRED THROUGHOUT PROJECT.	40	N/A

W.E.L.O NOTE:

I HAVE COMPLIED WITH THE CRITERIA OF THE CITY OF SANTA ROSA'S WATER EFFICIENT LANDSCAPE ORDINANCE AND APPLIED THEM ACCORDINGLY FOR THE EFFICIENT USE OF WATER IN THE IRRIGATION DESIGN PLAN.

MATTHEW JACKSON, CA LICENSED LANDSCAPE ARCHITECT #4403

STAFF APPRVL	NO.	REVISION	DATE	R.C.E.	EXP. DATE	CITY ENG. DATE	PUBLIC IMPROVEMENTS APPROVED FOR CONSTRUCTION
							CITY OF SANTA ROSA
							BY DAVID M. GUHIN R.C.E. 65663 CITY ENGINEER CITY OF SANTA ROSA, CA
							DATE _____
							CITY OF SANTA ROSA FILE NO. _____

ROUND BARN VILLAGE
SANTA ROSA, CALIFORNIA

CTV124-P: 1st Agency Submittal (11-06-2018) NOT FOR CONSTRUCTION

SCALE NONE
JOB No. CTV124-P
IRRIGATION LEGEND
LI-0.01
SHEET 169 OF 212

SYMBOL	MFR.	MODEL NO. / DESCRIPTION	DETAIL
IRRIGATION PIPE/SLEEVE			
— AS APRVD		PVC PIPE, SCH 40, 3/4" - 2", AS LATERAL LINES. 12" BELOW GRADE. SEE PLAN FOR SIZES	LI-5.03/C
NO SYMBOL	N/A	-DRIP MANIFOLD PIPE (HEADER/FOOTER): PVC PIPE, SCH 40. 12" BELOW GRADE. MINIMUM (HEADER/FOOTER) SIZES FOR DRIP ZONES USING TUBING WITH 18" O.C. EMITTER SPACING: USE 3/4" PIPE: UP TO 800' TOTAL SQ. FT. WITHIN ZONE, FOR INDIVIDUAL OR CONNECTED PLANTERS. (4 GPM MAX) USE 1" PIPE: 801'-1450' TOTAL SQ. FT. WITHIN ZONE, FOR INDIVIDUAL OR CONNECTED PLANTERS. (7 GPM MAX) USE 1-1/4" PIPE: 1451'-3100' TOTAL SQ. FT. WITHIN A ZONE, FOR INDIVIDUAL OR CONNECTED PLANTERS. (15 GPM MAX) USE 1-1/2" PIPE: 3101'-4100' TOTAL SQ. FT. WITHIN A ZONE, FOR INDIVIDUAL OR CONNECTED PLANTERS. (20 GPM MAX) USE 2" PIPE: 4101'-6200' TOTAL SQ. FT. WITHIN A ZONE, FOR INDIVIDUAL OR CONNECTED PLANTERS. (29 GPM MAX)	LI-5.03/C; LI-5.06/A,B,C,E
NO SYMBOL	AS APRVD	RAIN BIRD 'QF' DRIPLINE TUBING FOR DRIPLINE ZONES HEADER/FOOTER. MAY BE SUBSTITUTED FOR PVC PIPE, BURY 8" BELOW GRADE.	LI-5.05/A,B
— ● —	N/A	PVC LATERAL PIPE CONNECTION TO DRIPLINE ZONE HEADER/FOOTER MANIFOLD PIPE. CONTRACTOR TO PROVIDE NECESSARY FITTINGS TO CONNECT PVC PIPE TO POLY HEADER/FOOTER MANIFOLD PIPE AS REQUIRED.	N/A
— AS APRVD		PVC PIPE, SCH 40, 3/4" - 1-1/4", AS TREE ZONE LATERAL (THICK) LINES. 12" BELOW GRADE. SEE PLAN FOR SIZES	LI-5.03/C
— AS APRVD		PVC PIPE, SCH 40, 2" OR LESS, AS MAINLINES, 18"-24" BELOW GRADE. SEE PLAN FOR SIZES. PVC PIPE, CL315, 2-1/2"-3", AS MAINLINES, 24" BELOW GRADE. SEE PLAN FOR SIZES.	LI-5.03/C
— HD —	AS APRVD	UVR PVC PIPE AS ON-GRADE SLOPE 'HANGING DRIP' SYSTEMS	LI-5.11/B,C,D,E,F,G
— HD —	AS APRVD	USE UVR SCH 40, 1/2", FOR LATERALS: ALL HORIZONTAL LATERAL PIPE. SEE PLAN AND DETAILS FOR SPACING.	
— PD —	AS APRVD	USE UVR SCH 40, 1-1/2", FOR LATERALS: ALL VERTICAL SUPPLY PIPE AND LINES FROM RCV.	
— PD —	AS APRVD	PVC PIPE, SCH 40, 1/2" - 1 1/2", AS BURIED LATERAL LINES FOR POINT SOURCE DRIP SYSTEMS. DEPTH SHALL BE MINIMUM OF 8" OF SOIL COVER (BELOW GRADE). SEE PLAN FOR SIZES.	LI-5.03/C
— — — —	AS APRVD	PIPE AND WIRE SLEEVES, SCH 40 PVC PIPE, MINIMUM TWICE THE DIAMETER OF PIPE CARRIED AND MINIMUM 1-1/4" PIPE FOR WIRE CARRIED. PLACE BELOW ALL PAVING, SIDEWALKS, HARDSCAPE, ETC, AND AS DIRECTED BY OWNER'S AUTHORIZED REPRESENTATIVE. ALL SLEEVES NOT SHOWN ON PLAN FOR DRAWING CLARITY. 6" MAINLINE AND 3" WIRE SLEEVES AT ROAD CROSSINGS INSTALLED BY OTHERS. IRRIGATION CONTRACTOR SHALL VERIFY THE EXACT TERMINUS LOCATIONS, DEPTH, AND SIZES WITH GENERAL CONTRACTOR BEFORE COMMENCING WORK.	LI-5.03/C
NO SYMBOL	AS APRVD	GALVANIZED PIPE SCH 40 AS SLEEVE MATERIAL FOR CROSSING CONCRETE 'V' DITCHES. CONTRACTOR SHALL INSTALL SLEEVE AND LATERAL PIPE WITHIN IN SUCH A WAY AS TO ELIMINATE ALL MOVEMENT OF SLEEVE PIPE.	LI-5.01/B

SYMBOL	MFR.	MODEL NO. / DESCRIPTION	DETAIL
IRRIGATION UTILITIES			
Ⓜ	P.O.C.	CONNECTION TO 1" POTABLE WATER METER WITH 1.5" SERVICE LINE. CONTRACTOR SHALL SUPPLY ALL HARDWARE AND FITTINGS REQUIRED TO CONNECT IRRIGATION MAINLINE TO METER. CONTRACTOR SHALL VERIFY METER LOCATION, SIZE, SERVICE LINE SIZE, AND STATIC WATER PRESSURE BEFORE COMMENCING WORK.	N/A
Ⓜ	FEBCO	1-1/2" REDUCED PRESSURE BACKFLOW PREVENTION ASSEMBLY: MODEL 825YA, INSTALL WITH WYE STRAINER #650A. INSTALL CENTERED ON A 30"X36"X4" POURED-IN-PLACE CONCRETE PAD. UNIT TO BE INSTALLED WITHIN V.I.T. STAINLESS STEEL ENCLOSURE. CONTRACTOR SHALL DETERMINE EXACT LOCATION WITH THE OWNER'S AUTHORIZED REPRESENTATIVE BEFORE INSTALLATION. SEE PRESSURE CALCULATION.	LI-5.01/A
NO SYMBOL	V.I.T.	BACKFLOW ASSEMBLY ENCLOSURE: MODEL SBBC-22SS. INSTALL ON CONCRETE PAD WITH BF ASSEMBLY CENTERED. CONCRETE PAD TO EXTEND 6" BEYOND OUTSIDE DIMENSIONS OF ENCLOSURE. REFER TO MANUFACTURER'S INSTALLATION DETAIL AND SPECIFICATIONS FOR ADDITIONAL INSTALLATION INFORMATION.	LI-5.01/A
Ⓜ	SITE ONE	1-1/2" PRESSURE REDUCING HIGH PRESSURE HYDROMETER / MASTER CONTROL VALVE: NORMALLY CLOSED, WITH ELECTRONIC DIGITAL REGISTER OUTPUT, MODEL LHM15EM11AFAFPRHR-NC, AS PART OF SITE ONE CONTROLLER ASSEMBLY PACKAGE. INSTALL PER MANUFACTURERS SPECIFICATIONS. CONNECT HYDROMETER TO CONTROLLER VIA SEPARATE #18 GAUGE FLOW SENSOR CABLE, SITEONE, MODEL NESSCAB.	LI-5.02/A
Ⓜ	LASCO	MAINLINE ISOLATION VALVE: MODEL VXX101N-SC. PVC SLO-CLOSE FULL BLOCK TRUE UNION 'SOCKET' BALL VALVE WITH EPDM O-RINGS. VALVE TO MATCH MAINLINE SIZE.	LI-5.01/C
NO SYMBOL	LASCO	MANIFOLD ISOLATION VALVE: SLO-CLOSE FULL BLOCK TRUE UNION 'SOCKET' PVC BALL VALVE WITH EPDM O-RINGS, MODEL VXX101N-SC. CONTRACTOR SHALL INSTALL ALL RCV'S/QCV'S ON MANIFOLDS. VALVE TO MATCH MANIFOLD SIZE. VALVE MANIFOLDS WITH ISOLATION VALVE ARE NOT SHOWN ON PLANS FOR CLARITY. CONTRACTOR SHALL INSTALL MANIFOLDS PER DETAIL.	LI-5.01/C; LI-5.02/B
Ⓜ	HUNTER	3/4" QUICK COUPLER VALVE: MODEL HQ-3RC. CONTRACTOR SHALL SUPPLY 3 QC KEYS, MODEL HK-33 WITH ARROWHEAD BRASS (CHAMPION) UPWARD 3/4"X 3/4" BENT-NOSE HOSE BIB, MODEL 975, ATTACHED. CONTRACTOR SHALL TURN OVER KEYS TO OWNER'S REPRESENTATIVE AT COMPLETION OF MAINTENANCE PERIOD.	LI-5.01/F; LI-5.02/B
Ⓜ	HUNTER/ NETAFIM	1" DRIP ZONE ASSEMBLY FOR FLOWS 1-20 GPM: HUNTER RCV, MODEL ICV-101G ,WITH NETAFIM 1" DISC FILTER, MODEL DF100-140 (WITH 140 MESH DISC RINGS), AND 1" 40 PSI PRESSURE REGULATOR, MODEL WRPR1-40. INSTALL SPEARS 1" GRAY THREADED (FIP) BALL VALVE, MODEL 2621-010G ON UPSTREAM SIDE OF VALVE FOR ISOLATION.	LI-5.02/D
Ⓜ	HUNTER/ NETAFIM	HOA SLOPES HANGING DRIP SYSTEMS, FOR ZONE FLOWS 1-20 GPM: 1" HUNTER RCV, MODEL ICV-101G ,WITH NETAFIM 1" DISC FILTER, MODEL DF100-140 (WITH 140 MESH DISC RINGS), INSTALL ASSEMBLY WITH TWO PVC UNIONS, 1" SPEARS BALL VALVE, MODEL 2621-010G, ON UPSTREAM SIDE OF VALVE FOR ISOLATION.	LI-5.02/B; LI-5.12/A
Ⓜ	HUNTER/ NETAFIM	HOA SLOPES HANGING DRIP SYSTEMS, FOR ZONE FLOWS 21-30 GPM: 1-1/2" HUNTER RCV, MODEL ICV-151G ,WITH NETAFIM 1-1/2" DISC FILTER, MODEL DF150-140 (WITH 140 MESH DISC RINGS), INSTALL ASSEMBLY WITH TWO PVC UNIONS, 1-1/2" SPEARS BALL VALVE, MODEL 2621-015G, ON UPSTREAM SIDE OF VALVE FOR ISOLATION.	LI-5.02/B; LI-5.12/B
Ⓜ	HUNTER	REMOTE CONTROL VALVE ICV SERIES, SIZE AS SHOWN	LI-5.01/E
Ⓜ	NETAFIM	CONTINUOUS ACTING COMBINATION 1" AIR VENT, MODEL 65ARIB1-0150. INSTALL ON MAINLINE WHERE SHOWN AND UPSTREAM OF HYDROMETER PER NETAFIM SPECIFICATIONS. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL FITTINGS AND HARDWARE TO CONNECT VALVE TO IRRIGATION MAINLINE. INSTALL WITHIN STACKING STANDARD VALVE BOXES, MODEL VB-STD. INSTALL NIBCO BALL VALVE, MODEL T-585-70-66-ST, WITH STAINLESS STEEL STEM / NUT / BALL / HANDLE, FOR SHUTOFF FROM MAINLINE. CONTACT NETAFIM REPRESENTATIVE, BILL MILLWARD, (951) 287-4630, FOR ADDITIONAL INFORMATION.	LI-5.04/A

SYMBOL	MFR.	MODEL NO. / DESCRIPTION	DETAIL
IRRIGATION FERTIGATION ASSEMBLY			
Ⓜ	EZO FLO	AUTOMATIC FERTILIZER INJECTOR SYSTEM, MODEL EZ-010-FX (10 GALLON CAPACITY)...INSTALL PER MANUFACTURERS RECOMMENDATIONS WITH EZ FLOW MAINLINE CONNECTOR FITTING, MODEL CBV-X00 REQUIRED FOR CONNECTION TO MAINLINE WITHIN A SUPER JUMBO VALVE BOX, MODEL VB-SPR-H WITH LID. CONTACT EZ FLO MANUFACTURER'S REPRESENTATIVE, STEVE KIM, GENTILE & ASSOCIATES, (760) 214-5734 FOR SALES, INSTALLATION, AND CALIBRATION INFORMATION. CONTRACTOR SHALL CALIBRATE UNIT TO PROVIDE OPTIMAL FERTILIZATION BASED ON WATERING FREQUENCY. FOR FUTURE MAINTENANCE INCLUDING DESIRED FILL FREQUENCY, THE PREFERRED SETTING SHALL BE 8000:1 RATIO. CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROPER SOLUBLE FERTILIZER N-P-K RATIO TO BE USED FOR TURFGRASS AND SHRUBS BASED ON INFORMATION GIVEN FROM THE EZ FLO REPRESENTATIVE.	LI-5.07/D,E

SYMBOL	MFR.	MODEL NO. / DESCRIPTION	DETAIL
IRRIGATION MISCELLANEOUS			
NO SYMBOL	SPEARS	PVC FITTINGS/NIPPLES: 1.) REQUIRED FOR ALL SOLVENT WELD MAINLINE FITTINGS 2 INCH (2") TO 2-1/2" INCH (2 1/2"), USE SPEARS PVC CL 315 BLUE 'EVERTUFF' FITTINGS, MODEL 4XX-XXXT, OR SCH 80 FITTINGS. 2.) REQUIRED FOR ALL SOLVENT WELD MAINLINE FITTINGS 3 INCH (3") TO 4 FOUR INCH (4"), USE SPEARS PVC CL 315 BLUE 'EVERTUFF' FITTINGS ONLY, MODEL 4XX-XXXT. 3.) REQUIRED FOR ALL FITTINGS WITH A THREADED MALE AND/OR FEMALE COMPONENT 1 INCH (1") OR LARGER, USE SPEARS PVC CL 315 BLUE 'EVERTUFF' TYPE OR SCH 80 FITTINGS. FEMALE FITTINGS REQUIRE STAINLESS STEEL REINFORCED COLLAR. 4.) FOR ALL THREADED PLASTIC NIPPLES USE SCH 80 PVC.	N/A
NO SYMBOL	DURA	1", 1-1/2" AND 2" COUPLING MANIFOLD SYSTEM (O-RING MIPT x SWIVEL) IRRIGATION VALVE CONNECTION FITTING TO PVC MALE ADAPTER WITHIN RCV MANIFOLD. APPROVED FITTING SUBSTITUTE / REPLACEMENT FOR PVC UNIONS. P/N 332-010 AND 332-015 AND 332-020. INSTALL ON EITHER SIDE OF RCV. USE REDUCING PVC MALE ADAPTERS TO UPSIZE TO PVC PIPE AS REQUIRED. FITTING IS O-RING SEALED, DO NOT USE PASTE, DOPE, OR TEFLON TAPE. SIZE PER RCV SIZE.	LI-5.01/E; LI-5.02/D
NO SYMBOL	RAIN BIRD	SPECIFICATION GRADE IRRIGATION VALVE BOXES FOR IRRIGATION EQUIPMENT. USE AS REQUIRED: MODELS VB-JMB, VB-STD, VB-10RND, VB-7RND, AND SEB-7XB (FOR DRIP EQUIPMENT). WITH GREEN LIDS IN TURF AREAS, WITH BLACK LIDS IN SHRUB AREAS.	LI-5.02/C
NO SYMBOL	3M	WIRE SPLICE CONNECTOR, MODEL DBRY-6 FOR RCV AND 2-WIRE CABLE CONNECTIONS AND SPLICES.	LI-5.04/C
NO SYMBOL	PAIGE ELECTRIC	2-WIRE DECODER CABLE, MODEL 7072D; #14 GAUGE. INSTALL ALL CABLE WITHIN 1-1/4" ELECTRICAL CONDUIT. CONNECT TO CONTROLLER PER MANUFACTURER'S SPECIFICATIONS.	N/A
NO SYMBOL	CHRISTY'S	ALL REMOTE CONTROL VALVES SHALL BE OUTFITTED WITH A YELLOW ID TAG INDICATING THE VALVE NUMBER.	LI-5.01/E; LI-5.02/D; LI-5.12/A,B
NO SYMBOL	N/A	CONTRACTOR SHALL COORDINATE ALL CONDUITS, SLEEVES, AND WIRE ROUTING WITH GENERAL CONTRACTOR AND ANY AFFECTED ON-SITE TRADES AS REQUIRED THROUGHOUT PROJECT.	N/A
NO SYMBOL	CHRISTY'S	FOR POTABLE WATER SYSTEMS USE 3" WIDE METALLIC DETECTABLE BLUE MARKER TAPE, MODEL TA-DT-3-BL. FOR RECYCLED WATER SYSTEMS USE 3" WIDE METALLIC DETECTABLE PURPLE MARKER TAPE, MODEL TA-DT-3-PRW. TAPE SHALL BE INSTALLED 12" ABOVE ALL IRRIGATION MAINLINES AND SLEEVES.	LI-5.03/C
NO SYMBOL	MARIFI	LANDSCAPE FABRIC, MODEL 150N OR 160N, OR APPROVED EQUAL. INSTALL WITHIN ALL VALVE BOXES. PLACE BENEATH ROCK/GRAVEL DRAINAGE MATERIAL AND COVER PIPE HOLES.	LI-5.01/C,E,F; LI-5.02/A,D; LI-5.04/A,B; LI-5.07/D,E; LI-5.08/B

SYMBOL	MFR.	MODEL NO. / DESCRIPTION	PSI	DETAIL																																								
TREE/PALM IRRIGATION-DRIP																																												
Ⓜ	RAIN BIRD	XERI-BIRD 8 DRIP MULTI-OUT EMITTER MANIFOLD: MODEL XBD-80. EACH SYMBOL REPRESENTS ONE UNIT PER TREE/PALM, PLACE MANIFOLD UNIT MINIMUM 48" FROM EDGE OF ROOTBALL (I.E. FOR 24" BOX TREE, INSTALL UNIT MINIMUM 60" FROM TRUNK; FOR 36" BOX TREE, INSTALL UNIT MINIMUM 66" FROM TRUNK). ADJUST LOCATION PER ROOTBALL SIZE, TYPICAL. SEE 'EMITTER TABLES' BELOW FOR SIZE AND QUANTITY OF EMITTERS PER TREE/PALM IN SUN OR SHADE AND WHEN TREES/PALMS ARE CONNECTED TO SAME IRRIGATION ZONE. QUANTITY OF EMITTERS AND FLOW RATES AS SHOWN ARE EDUCATED ESTIMATES TO BE USED AS A GUIDE ONLY. CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR MONITORING TREES/PALMS TO APPLY PROPER QUANTITIES OF WATER AS REQUIRED FOR PLANT MATERIAL BASED ON THE TYPE AND SIZE OF TREE/PALM, AND ALL ENVIRONMENTAL FACTORS DURING PROJECT INSTALLATION AND SUBSEQUENT MAINTENANCE PERIOD. PLACE ALL EMISSION POINTS AT 3/4 DISTANCE FROM TRUNK TO EDGE OF ROOTBALL ACROSS FROM EACH OTHER ON OPPOSITE SIDES OF TREE/PALM ROOTBALL. REFER TO ADDITIONAL 'DRIP SYSTEM NOTES' ON SHEET LI.4.	40	LI-5.04/D,E,F																																								
		<table border="1"> <thead> <tr> <th colspan="2">EMITTER TABLE (TREE IN SUN)</th> <th colspan="3">EMITTER TABLE (TREE IN SHADE)</th> </tr> <tr> <th>PLANT SIZE</th> <th># OF EMITTERS</th> <th>PLANT SIZE</th> <th># OF EMITTERS</th> <th>% OF (SUN) GPM</th> </tr> </thead> <tbody> <tr> <td>15 GALLON TREE</td> <td>3 - 2 GPH</td> <td>15 GALLON TREE</td> <td>3 - 1 GPH</td> <td>75%</td> </tr> <tr> <td>24" BOX TREE</td> <td>4 - 2 GPH</td> <td>24" BOX TREE</td> <td>5 - 1 GPH</td> <td>63%</td> </tr> <tr> <td>36" BOX TREE</td> <td>4 - 5 GPH</td> <td>36" BOX TREE</td> <td>6 - 2 GPH</td> <td>60%</td> </tr> <tr> <td>48" BOX TREE</td> <td>6 - 5 GPH</td> <td>48" BOX TREE</td> <td>4 - 5 GPH</td> <td>67%</td> </tr> <tr> <td>60" BOX TREE</td> <td>6 - 7 GPH</td> <td>60" BOX TREE</td> <td>6 - 5 GPH</td> <td>71%</td> </tr> <tr> <td>72" BOX TREE</td> <td>6 - 10 GPH</td> <td>72" BOX TREE</td> <td>6 - 7 GPH</td> <td>70%</td> </tr> </tbody> </table>	EMITTER TABLE (TREE IN SUN)		EMITTER TABLE (TREE IN SHADE)			PLANT SIZE	# OF EMITTERS	PLANT SIZE	# OF EMITTERS	% OF (SUN) GPM	15 GALLON TREE	3 - 2 GPH	15 GALLON TREE	3 - 1 GPH	75%	24" BOX TREE	4 - 2 GPH	24" BOX TREE	5 - 1 GPH	63%	36" BOX TREE	4 - 5 GPH	36" BOX TREE	6 - 2 GPH	60%	48" BOX TREE	6 - 5 GPH	48" BOX TREE	4 - 5 GPH	67%	60" BOX TREE	6 - 7 GPH	60" BOX TREE	6 - 5 GPH	71%	72" BOX TREE	6 - 10 GPH	72" BOX TREE	6 - 7 GPH	70%		
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Ⓜ	SPEARS	FLUSH VALVE ASSEMBLY: PROVIDE GRAY 1/2" PVC THREADED BALL VALVE, MODEL 2621-005G, WITH CHAMPION IRRIGATION PRODUCTS (ARROWHEAD BRASS) BRASS HOSE-TO-PIPE THREAD INSERT ADAPTER, MODEL #10F, FOR FLUSHING PVC PIPE WITH STANDARD GARDEN HOSE, INSTALL FLUSH VALVE INSIDE 7" ROUND VALVE BOX, ONE AT THE END OF EACH AND EVERY PIPE RUN IN EACH DIRECTION. MULTIPLE FLUSH VALVES MAY BE REQUIRED WITHIN A TREE DRIP ZONE. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL FLUSH VALVES REQUIRED. WHEN POSSIBLE INSTALL VALVE 18" FROM PAVING FOR EASE OF MAINTENANCE.		LI-5.04/E; LI-5.06/D																																								
*NOTES: A. ALL MAINLINES AND LATERAL LINES SHALL BE THOROUGHLY FLUSHED CLEAN BEFORE DRIP MANIFOLD ASSEMBLIES AND/OR DRIP TUBING CONNECTIONS ARE MADE. ALL DRIP TUBING LINES SHALL BE FLUSHED CLEAN BEFORE BACKFILLING. B. WHEN DIFFERENT SPECIES OF TREES OR PALMS ARE TIED TO THE SAME ZONE VALVE CONTRACTOR SHALL BE REQUIRED TO MAKE ADJUSTMENTS TO SIZE OF EMITTERS (FOR QUANTITY OF WATER PURPOSES) FOR EACH TREE OR PALM IN THE ZONE AS NEEDED TO PROVIDE PROPER AND ADEQUATE AMOUNT OF WATER AS REQUIRED BY EACH SPECIES. CONTRACTOR SHALL CONTACT LANDSCAPE ARCHITECT FOR INFORMATION REGARDING PROPER AND ADEQUATE AMOUNT OF WATER AS REQUIRED BY EACH SPECIES.																																												

STAFF APPRVL	NO.	REVISIONS	EXP. DATE	CITY ENG. DATE	PUBLIC IMPROVEMENTS APPROVED FOR CONSTRUCTION
					CITY OF SANTA ROSA
					BY DAVID M. GUHIN, R.C.E. 65663 CITY ENGINEER CITY OF SANTA ROSA, CA
					DATE _____
					CITY OF SANTA ROSA FILE NO. _____



PLANS PREPARED BY: 

ROUND BARN VILLAGE
SANTA ROSA, CALIFORNIA

CTV124-P: 1st Agency Submittal (11-06-2018) NOT FOR CONSTRUCTION

SCALE NONE
JOB No. CTV124-P
IRRIGATION LEGEND
LI-0.02
SHEET 170 OF 212

SYMBOL	MFR.	MODEL NO. / DESCRIPTION	DETAIL					
OVERHEAD IRRIGATION								
Q	H	F		GPM	RADIUS	P/R-HR.	PSI	
①	②	③	HUNTER	90°	180°	360°		
④	⑤	⑥	HUNTER	0.23	0.42	0.78	8-10 FT	
⑦	⑧	⑨	HUNTER	0.19	0.40	0.86	10-14 FT	
⑩	⑪	⑫	HUNTER	0.40	0.74	1.82	15-19 FT	
⑬	⑭	⑮	HUNTER	0.86	1.82	3.64	20-30 FT	
⑯	⑰	⑱	HUNTER	1.28	2.86		31-35 FT	
⑲	⑳	㉑	HUNTER	0.19			10-14 FT	
㉒	㉓	㉔	HUNTER	0.22	0.44		5X12(24) FT	

SYMBOL	MFR.	MODEL NO. / DESCRIPTION	DETAIL	
SUBSURFACE TURF IRRIGATION				
				PSI
	HUNTER	TURF AREAS: LINES SHOWN ARE A DIAGRAMMATIC HATCH PATTERN ONLY. SUB-SURFACE DRIPLINE TUBING, MODEL 'ECO-MAT'. INSTALL TUBING ROWS MAXIMUM OF 14" APART. OVERLAP EACH ADJACENT MAT BY 2". INSTALL THE PERIMETER TUBING A MAXIMUM 6" FROM PERIMETER EDGE FOR ALL TURF AREAS. EXCAVATE PLANTED AREA 7" BELOW FINISH GRADE BEFORE INSTALLING 'ECO-MAT' MATERIAL. COVER 2" OF AREA WITH SOIL MIX. INSTALL 'ECO-MAT' ON TOP OF THE 2" FILL. AFTER INSTALLATION, COVER 'ECO-MAT' WITH 5" OF SOIL MIX. REFER TO PLANTING SPECIFICATIONS FOR SOIL MIX MATERIAL. BACKFILL MUST RECEIVE AT LEAST 95% COMPACTION FOR OPTIMAL RESULTS. USE HUNTER 'PLD-ESD' INLINE TUBING FOR FILL-IN OF CORNERS, ALONG EDGES AS REQUIRED, AND SMALL SPACES WHERE 'ECO-MAT' INSTALLATION IS NOT PRACTICAL. ALL PLANTED AREAS SHALL EFFECTIVELY RECEIVE 100% COVERAGE WITH ADEQUATE WATER TO INSURE HEALTHY TURF GROWTH. *ANCHOR 'ECO-MAT' WITH THE RAIN BIRD 9" GALVANIZED WIRE STAKES, MODEL TDS-050, INSTALLED TEN FEET O.C. TO STABILIZE MAT BEFORE SOIL BACKFILL.	40	LI-5.10/A,C,D
NO SYMBOL	HUNTER	CONNECTION FITTINGS FOR CENTER FEED SYSTEMS BETWEEN PVC SUPPLY LATERAL LINES AND DRIPLINE TUBING: PVC SCH 40 TEE/EL, SF, HUNTER PLD-075-TBTEE, AND 3/4" SCH 80 NIPPLE. CONNECTION FITTINGS FOR END FEED SYSTEMS BETWEEN PVC SUPPLY LATERAL LINES AND DRIPLINE TUBING AND ALL EXHAUST HEADER PIPE: PVC SCH 40 TEE/EL, SF, HUNTER PLD-ELB ELBOW, AND PLD-050 BARB MALE ADAPTER.		LI-5.10/A,C,D
NO SYMBOL	HUNTER	ALL CONNECTIONS BETWEEN 1/2" DRIPLINE TUBING SHALL BE MADE USING HUNTER PLD INSERT FITTINGS.		N/A
	SPEARS	FLUSH VALVE ASSEMBLY: PROVIDE GRAY 1/2" PVC THREADED BALL VALVE, MODEL 2621-005G, WITH CHAMPION IRRIGATION PRODUCTS (ARROWHEAD BRASS) BRASS HOSE-TO-PIPE THREAD INSERT ADAPTER, MODEL #10F, FOR FLUSHING PVC EXHAUST MANIFOLD PIPE WITH STANDARD GARDEN HOSE, INSTALL FLUSH VALVE INSIDE 10" ROUND VALVE BOX, ONE AT THE END OF EACH AND EVERY ECO-MAT DRIPLINE TUBING RUN IN EACH DIRECTION. MULTIPLE FLUSH VALVES MAY BE REQUIRED WITHIN ECO-MAT ZONE. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL FLUSH VALVES REQUIRED, AS PLANS MAY NOT SHOW ALL FLUSH VALVES REQUIRED FOR A PARTICULAR AREA. INSTALL FINAL LOCATION 18" FROM PAVING FOR EASE OF MAINTENANCE.		LI-5.06/D; LI-5.10/C
	HUNTER	AIR/VACUUM RELIEF VALVE ASSEMBLY: MODEL PLD-AVR, ALWAYS INSTALLED AT HIGHEST POINT(S) IN ZONE. INSTALLED WITH A HUNTER PLD-075-TBTEE, WITH 3/4"x1/2" PVC THREADED BUSHING, 1/2" PVC NIPPLE, AND 1/2" PVC TT COUPLER. INSTALL LENGTH OF NIPPLE AS REQUIRED SO TOP OF VALVE IS ABOVE SURROUNDING GRADE. INSTALL AVR WITHIN 7" ROUND VALVE BOX AT EVERY HIGH POINT OF EACH AND EVERY PLANTER. INSTALL MINIMUM OF ONE AVR PER 250 LINEAR FEET OF 'ECO-MAT' OR 500-600 SQUARE FEET OF AREA, WITHIN ZONE. WHEN THE PVC HEADER / FOOTER MANIFOLD IS AT THE HIGHEST POINT WITHIN EACH PLANTER INSTALL THE AVR ON THE PVC PIPE USING A PVC FITTING. MULTIPLE AVR'S SHALL BE REQUIRED WITHIN UNDULATING AREAS, AT EACH HIGH POINT. FOR ZONES WITH MULTIPLE INTERCONNECTING PLANTERS VIA PVC PIPE, AVR'S SHALL BE REQUIRED WITHIN EACH TURF AREA. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL AVR'S REQUIRED, AS PLANS MAY NOT SHOW ALL AVR'S REQUIRED FOR A PARTICULAR ZONE. REVIEW LANDSCAPE AND GRADING PLANS PRIOR TO BIDDING AND STARTING WORK TO VERIFY TOTAL QUANTITY REQUIRED, INSTALL UNITS AND VALVE BOX AT ALL HIGH POINTS OF PLANTER AREA.		LI-5.10/B,C
NO SYMBOL	HUNTER	ECO-ID: SPRINKLER BODY WITH VISIBLE YELLOW STEM INDICATES ZONE IS IN OPERATION. INSTALL ONE UNIT WITHIN EACH AND EVERY PLANTER WITHIN A ZONE. FOR TREE ZONES INSTALL AT END OF ZONE RUN IN EACH DIRECTION. ATTACH TO POLY OR PVC VIA 1/2" MPT CONNECTION. INSTALL UNIT AT HIGH POINT OF EACH PLANTER OR USE HUNTER'S MANUALLY INSTALLED CHECK VALVE P/N 462237SP.		LI-5.02/E; LI-5.10/C

California Water Efficient Landscape Ordinance Worksheet							
City: SANTA ROSA		Round Barn Village					
Reference Evapotranspiration (ET _o)	42.0		Project Type	Residential		0.55	
Hydrozone # / Planting Description ^a	Plant Factor (PF)	Irrigation Method ^b	Irrigation Efficiency (IE) ^c	ETAF (PF/IE)	Landscape Area (Sq. Ft.)	ETAF x Area	Estimated Total Water Use (ETWU) ^d
Regular Landscape Areas							
MOD water use-Planting-Slopes	0.40	Drip	0.81	0.49	103000	50864	1324504
MOD water use-Planting	0.45	Drip	0.81	0.56	168402	93557	2436216
HIGH water use-Pools	1.00		1.00	1.00	3076	3076	80099
		Drip	0.81	0.00	0	0	0
					Totals	274478	147497
Special Landscape Areas							
Recreational Turf				1	13620	13620	354665
Garden				1	871	871	22681
					Totals	14491	14491
					ETWU Total		4218164
					Maximum Annual Water Allowance (MAWA) ^e		4308420
ETAF Calculations							
Regular Landscape Areas							
Total ETAF x Area	147497						
Total Area	274478						
Average ETAF	0.54						
All Landscape Areas							
Total ETAF x Area	161988						
Total Area	288969						
Average ETAF	0.56						

Average ETAF for Regular Landscape Areas must be 0.55 or below for residential areas, and 0.45 or below for non-residential areas.

Project: Round Barn Village
City: SANTA ROSA

^a Hydrozone # / Planting Description e.g.
1.) Front lawn
2.) Low water use planting
3.) Medium water use planting

^b Irrigation Method
1.) Overhead Spray
2.) Drip

^c Irrigation Efficiency
1.) 0.75 for Overhead Spray
2.) 0.81 for Drip

^d ETWU (Estimated Total Water Required) =
Eto x 0.62 x ETAF_(Avg.) x LA
Where 0.62 is a conversion factor to change acre-inches per acre per year to gallons per square foot per year

^e MAWA (Maximum Annual Water Allowed) =
(Eto) (0.62) [(ETAF x LA) + ((1-ETAF) x SLA)]
Where 0.62 is a conversion factor to change acre-inches per acre per year to gallons per square foot per year, LA is the total landscape area in square feet, and SLA is the total special landscape area in square feet, and ETAF is 0.55 for residential areas and 0.45 for non-residential areas.

California Water Efficient Landscape Ordinance Calculations							
MAWA (Maximum Annual Water Allowed) = (E _{to}) (0.62) [(ETAF x LA) + ((1-ETAF) x SLA)] =							
42.0	x	.62	x	[(0.55	x	288,969
)+	((1 -	0.55
)	x	14,491)]
= 4,308,420 gal.							
ETWU (Estimated Total Water Use Required) = E _{to} x 0.62 x ETAF _(Avg.) x LA =							
42.0	x	.62	x	0.54	x	274,478	=
= 4,218,164 gal.							
TOTAL WATER USE REDUCTION MAWA - ETWU = 90,256 gallons							

DRIPLINE SYSTEM NOTES, FOR HOA 'HANGING DRIP' SLOPED AREAS:

- ALL LATERAL LINES FOR DRIP SYSTEM SHALL BE PVC SCH 40 PIPE AS SHOWN IN THE LEGEND.
- THE HORIZONTAL SUB-LATERAL PIPING SHOWN FOR SLOPED AREAS SHALL BE 1/2" SCH 40 PIPE.
- THE VERTICAL LATERAL PIPE SHOWN ON SLOPED AREAS SHALL BE 1-1/2" OR AS SIZED PER PLAN.
- REFER TO EMITTER TABLE BELOW FOR TOTAL QUANTITY OF EMITTERS REQUIRED PER PLANT.
- THE BASKET FILTER ASSEMBLY SHALL BE INSTALLED ONLY WITHIN ITS OWN VALVE BOX.

'HANGING DRIP' EMITTER TABLE	
PLANT SIZE	# OF EMITTERS
1 GALLON SHRUB	1 - 1 GPH
5 GALLON SHRUB	1 - 1 GPH
15 GALLON SHRUB	1 - 2 GPH
15 GALLON TREE	3 - 2 GPH
24" BOX TREE	4 - 2 GPH
36" BOX TREE	6 - 2 GPH
48" BOX TREE	6 - 4 GPH
60" BOX TREE	8 - 4 GPH

HANGING DRIP IRRIGATION- SLOPES, ON-GRADE PIPE				PSI
NO SYMBOL	HUNTER	DRIPLINE FOR SHRUBS: USE MODEL# HEB-20-CV (2 GPH). SEE 'HANGING DRIP' EMITTER TABLE ON THIS SHEET FOR EMITTER QUANTITIES AND SIZE PER SHRUB SIZE. FOR TOTAL EMITTERS REQUIRED FOR PROJECT CONTRACTOR SHALL REFER TO THE PLANTING PLAN FOR SHRUB COUNT. CONTRACTOR IS RESPONSIBLE FOR EMITTER COUNT. ALL SHRUBS SHOWN ON LANDSCAPE DRAWINGS SHALL RECEIVE THE REQUIRED EMITTERS PER THE EMITTER TABLE ON THIS SHEET.	40	LI-5.11/A,B,E,F
	HUNTER	DRIPLINE FOR TREES: USE MODEL# HEB-20-CV (2 GPH), HEB-40-CV (4 GPH), OR HEB-60-CV (6 GPH). SEE 'HANGING DRIP' EMITTER TABLE ON THIS SHEET FOR EMITTER TYPE AND COUNT PER TREE SIZE. FOR TOTAL EMITTERS REQUIRED FOR PROJECT CONTRACTOR SHALL REFER TO THE PLANTING PLAN FOR TREE SIZE AND COUNT. CONTRACTOR IS RESPONSIBLE FOR EMITTER COUNT. ALL TREES SHOWN ON LANDSCAPE DRAWINGS SHALL RECEIVE THE REQUIRED EMITTERS PER THE EMITTER TABLE ON THIS SHEET.	40	LI-5.11/B,D,G
NO SYMBOL	HUNTER	PVC FLEX RISER ASSEMBLY FOR SHRUBS: USE PART# IH-RISER-(12/24) AND/OR SELF-ASSEMBLY RISER. SEE EMITTER LAYOUT DETAILS FOR LENGTH REQUIRED PER SHRUB. CONTRACTOR MAY SELF-ASSEMBLY PVC 3/8" FLEX TUBING, PART# IH-250 CUT TO FIT WITH A 3/8"x1/2" HUNTER MALE ADAPTER, PART# IH-FIT-3850. INSTALL ONE EMITTER PER SHRUB 3"-12" FROM FROM ROOTBALL ON HIGH SIDE OF PLANT. REFER TO EMITTER LAYOUT DETAILS. IRRIGATION WATER SHALL GRAVITY FLOW THROUGH CENTER OF SHRUB ROOTBALL ON SLOPE.	40	LI-5.11/A,B,E,F
	HUNTER	PVC FLEX RISER ASSEMBLY FOR TREES: USE PART# IH-RISER-(12/24) AND/OR SELF-ASSEMBLY RISERS. SEE TREE EMITTER LAYOUT DETAILS FOR LENGTHS REQUIRED PER TREE. CONTRACTOR MAY SELF-ASSEMBLY PVC 3/8" FLEX TUBING, PART# IH-250 CUT TO FIT WITH A 3/8"x1/2" HUNTER MALE ADAPTER, PART# IH-FIT-3850. INSTALL FLEX RISERS AND TREE EMITTER QUANTITIES AND LOCATIONS PER DETAIL.	40	LI-5.11/B,D,G
	DURA	FLUSH CAP ASSEMBLY: 3/4" MHT MALE ADAPTER, P/N 536-007 OR 3/4" MHT X 1/2" SLIP MALE ADAPTER, P/N 536-005 WITH 3/4" FHT PVC CAP, P/N #548-007. INSTALL ON END OF EVERY HORIZONTAL SUB-LATERAL LINE.		LI-5.11/B,F,H
	SPEARS/ SENNINGER	SYMBOL INCLUDES AN ASSEMBLY MADE OF SPEARS 3/4" SCH 80 THREADED BALL VALVE, MODEL 2621-005G AND A SENNINGER INLINE PRESSURE REGULATOR, MODEL PRL-40PSI, AS PART OF THIS SLOPE DRIP SYSTEMS ASSEMBLY. INSTALL ONE ASSEMBLY FOR TWO HORIZONTAL LATERAL LINES, ON EITHER SIDE OF THE 'VERTICAL' LATERAL PIPE. CONTRACTOR TO PROVIDE ALL FITTINGS AND HARDWARE REQUIRED FOR ASSEMBLY.		LI-5.11/B,C,F
NO SYMBOL	LASCO	PVC SWING OR SPRING CHECK VALVE FOR SLOPE SYSTEMS, INSTALL 12"-18" ABOVE EVERY OTHER SUB-LATERAL TEE. VERTICAL LATERAL LINE SIZE, MODEL V(XX)611N OR V(XX)221B. INSTALL SWING CHECK VALVE FOR WATER FLOW MOVING UPHILL FROM RCV. INSTALL SPRING CHECK VALVES FOR WATER FLOW MOVING DOWNHILL FROM RCV.		LI-5.11/B,C
NO SYMBOL	V.I.T.	PIPE STABILIZER, MODEL PS12. SPACE AND INSTALL AT 12 FT. O.C. ALONG ALL ON-GRADE LATERAL PIPING.		LI-5.11/A,B,C, D,E,F,G,H

STAFF APPRVL	NO.	REVISION	DATE	EXP. DATE	CITY ENG. DATE	PUBLIC IMPROVEMENTS APPROVED FOR CONSTRUCTION
						CITY OF SANTA ROSA
						BY DAVID M. GUHIN R.C.E. 65663 CITY ENGINEER CITY OF SANTA ROSA, CA
						DATE _____
						CITY OF SANTA ROSA FILE NO. _____

PLANS PREPARED BY:

LANDSCAPE ARCHITECTURE
Landscape Architecture
Landscape Design
Landscape Construction
Landscape Maintenance
414 N. El Camino
San Jose, CA 95128
Phone: 408.943.2024
www.twoengineering.com

ROUND BARN VILLAGE
SANTA ROSA, CALIFORNIA

SCALE NONE

JOB No. CTV124-P

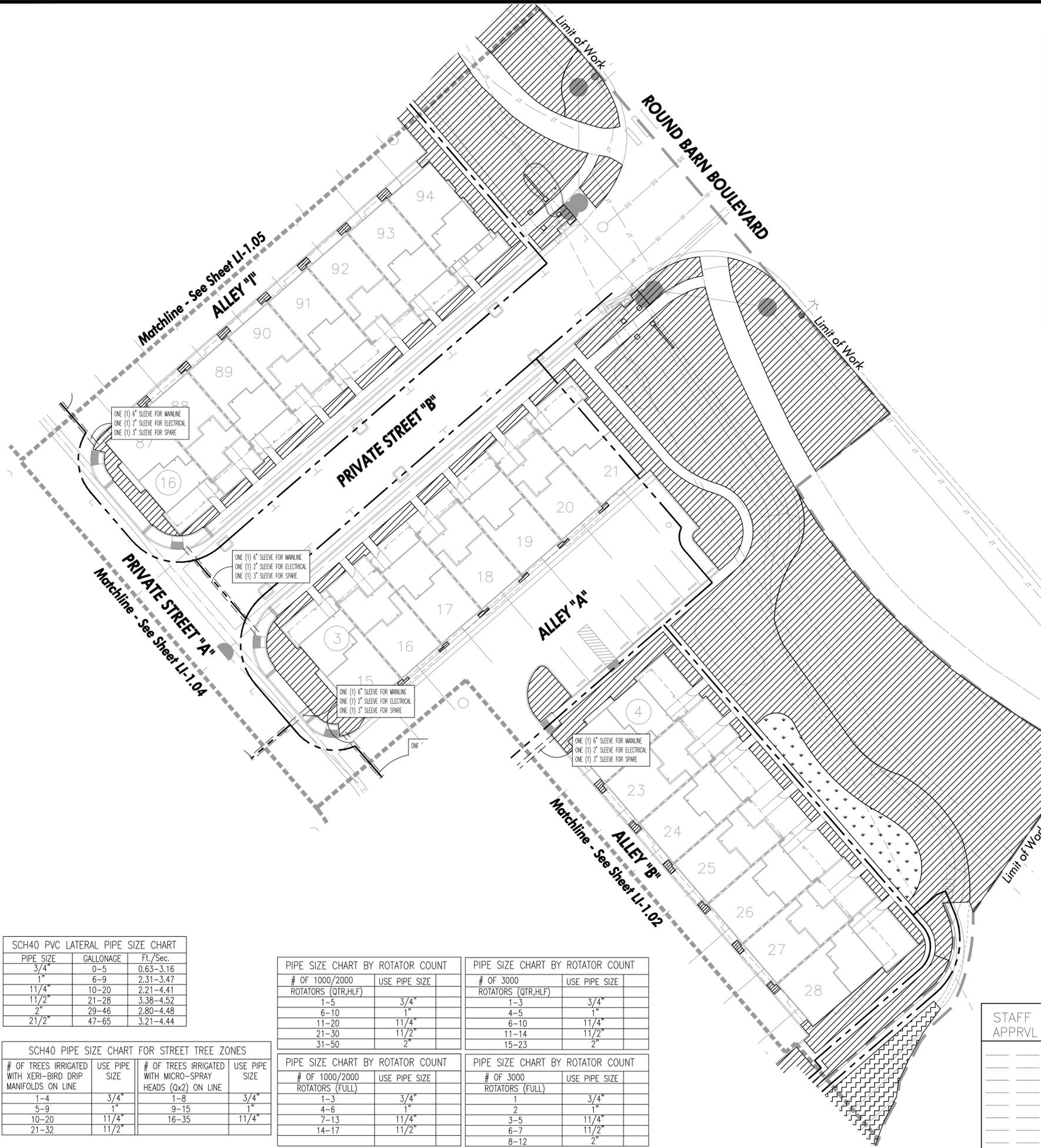
IRRIGATION LEGEND & CALCULATIONS

LI-0.03

SHEET 171 OF 212

DATE: 11/09/2018

CTV124-P: 1st Agency Submittal (11-06-2018) NOT FOR CONSTRUCTION



HYDROZONE MAP LEGEND

HATCH SYMBOL	HYDROZONE #	AREA	WATER USAGE	Kc
	A - SHRUB, INLINE DRIP	168,402 SQ. FT.	MOD	.45
	B - TURF, OVERHEAD	13,620 SQ. FT.	SLA	N/A
	C - SHRUB, PT. SOURCE DRIP	103,000 SQ. FT.	MOD	.40
	D - POOLS	3,076 SQ. FT.	HIGH	1.00
	E - GARDEN	871 SQ. FT.	SLA	N/A
		<u>288,966 SQ. FT.</u>		

SCH40 PVC LATERAL PIPE SIZE CHART

PIPE SIZE	GALLONAGE	FL./Sec.
3/4"	0-5	0.63-3.16
1"	6-9	2.31-3.47
1 1/4"	10-20	2.21-4.41
1 1/2"	21-28	3.38-4.52
2"	29-46	2.80-4.48
2 1/2"	47-65	3.21-4.44

PIPE SIZE CHART BY ROTATOR COUNT

# OF 1000/2000 ROTATORS (QTR,HLF)	USE PIPE SIZE
1-5	3/4"
6-10	1"
11-20	1 1/4"
21-30	1 1/2"
31-50	2"

PIPE SIZE CHART BY ROTATOR COUNT

# OF 3000 ROTATORS (QTR,HLF)	USE PIPE SIZE
1-3	3/4"
4-5	1"
6-10	1 1/4"
11-14	1 1/2"
15-23	2"

SCH40 PIPE SIZE CHART FOR STREET TREE ZONES

# OF TREES IRRIGATED WITH XERI-BIRD DRIP MANIFOLDS ON LINE	USE PIPE SIZE	# OF TREES IRRIGATED WITH MICRO-SPRAY HEADS (Qx2) ON LINE	USE PIPE SIZE
1-4	3/4"	1-8	3/4"
5-9	1"	9-15	1"
10-20	1 1/4"	16-35	1 1/4"
21-32	1 1/2"		

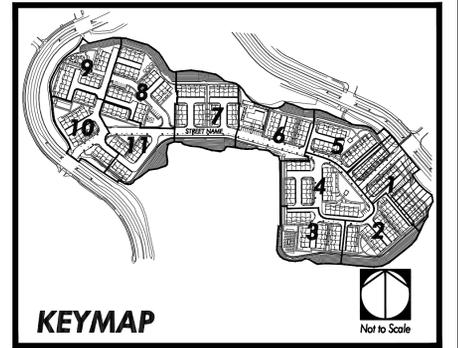
PIPE SIZE CHART BY ROTATOR COUNT

# OF 1000/2000 ROTATORS (FULL)	USE PIPE SIZE
1-3	3/4"
4-6	1"
7-13	1 1/4"
14-17	1 1/2"

PIPE SIZE CHART BY ROTATOR COUNT

# OF 3000 ROTATORS (FULL)	USE PIPE SIZE
1	3/4"
2	1"
3-5	1 1/4"
6-7	1 1/2"
8-12	2"

NOTES:
1. Refer to Sheet LI-0.01 for Irrigation Schedules and Notes.



STAFF APPRVL	NO.	REVISION	DATE	R.C.E.	EXP. DATE	CITY ENG.	DATE

PUBLIC IMPROVEMENTS APPROVED FOR CONSTRUCTION
CITY OF SANTA ROSA

BY: DAVID M. GUHIN R.C.E. 65663
CITY ENGINEER
CITY OF SANTA ROSA, CA

DATE: _____

CITY OF SANTA ROSA FILE NO. _____

PLANS PREPARED BY:
TWO

ROUND BARN VILLAGE
SANTA ROSA, CALIFORNIA

CTV124-P: 1st Agency Submittal (11-06-2018) NOT FOR CONSTRUCTION

SCALE 1" = 20'
JOB No. CTV124-P
IRRIGATION PLAN
LI-1.01
SHEET 172 OF 212



PAUL
HARDEN
NAME
LICENSE NO.
DATE

C2 Collaborative
Landscape Architecture
Landscape Design
Landscape Construction
414 N. Lincoln Ave., Suite 100
Santa Rosa, CA 95404
Phone: 707.539.8222
www.C2Collaborative.com

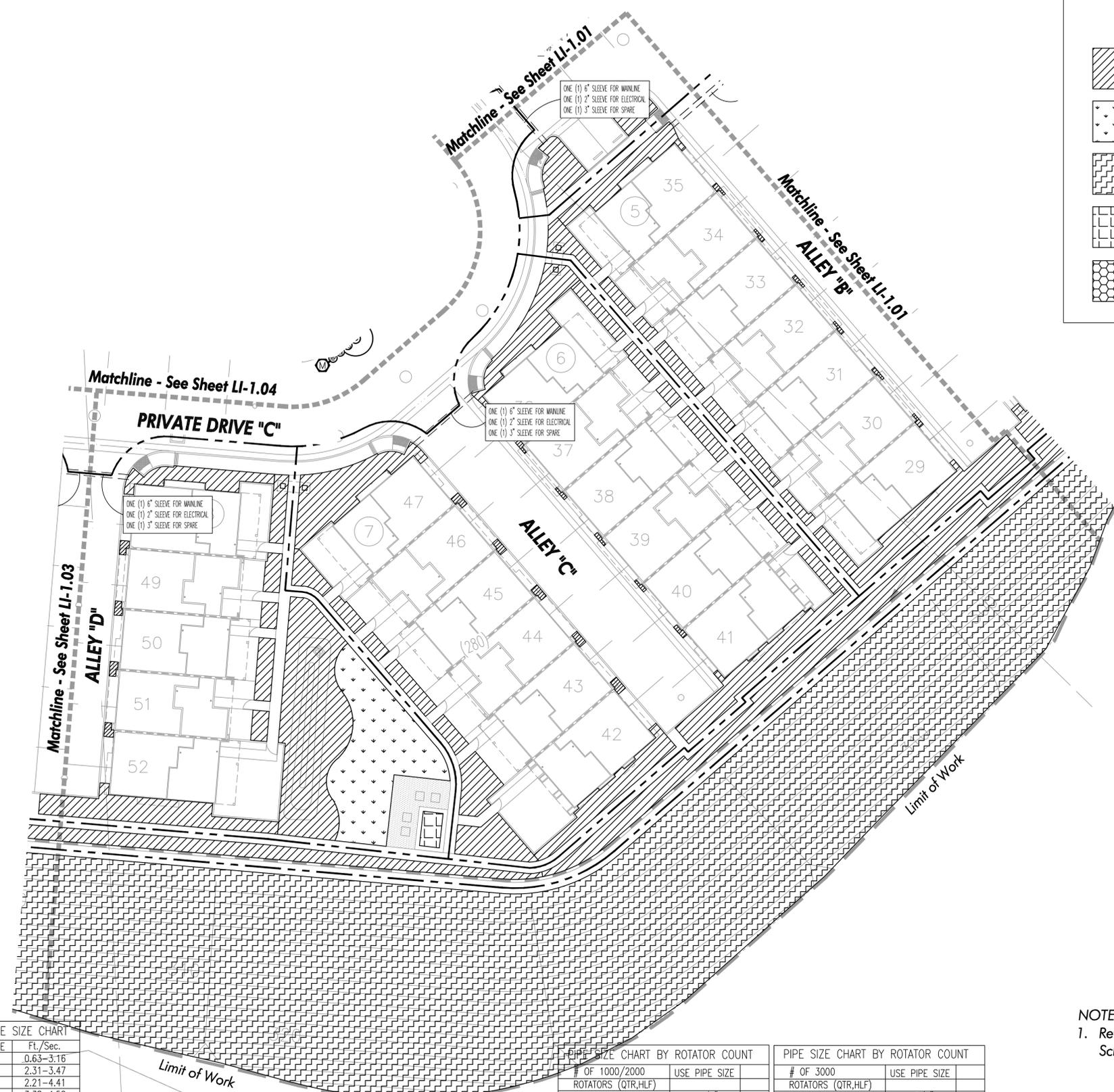


ROUND BARN VILLAGE
SANTA ROSA, CALIFORNIA

SCALE 1" = 20'
JOB No. CTV124-P
IRRIGATION PLAN
LI-1.02
SHEET 173 OF 212

HYDROZONE MAP LEGEND

HATCH SYMBOL	HYDROZONE #	AREA	WATER USAGE	Kc
	A - SHRUB, INLINE DRIP	168,402 SQ. FT.	MOD	.45
	B - TURF, OVERHEAD	13,620 SQ. FT.	SLA	N/A
	C - SHRUB, PT. SOURCE DRIP	103,000 SQ. FT.	MOD	.40
	D - POOLS	3,076 SQ. FT.	HIGH	1.00
	E - GARDEN	871 SQ. FT.	SLA	N/A
		288,966 SQ. FT.		



SCH40 PVC LATERAL PIPE SIZE CHART

PIPE SIZE	GALLONAGE	Ft./Sec.
3/4"	0-5	0.63-3.16
1"	6-9	2.31-3.47
1 1/4"	10-20	2.21-4.41
1 1/2"	21-28	3.38-4.52
2"	29-46	2.80-4.48
2 1/2"	47-65	3.21-4.44

SCH40 PIPE SIZE CHART FOR STREET TREE ZONES

# OF TREES IRRIGATED WITH XERI-BIRD DRIP MANIFOLDS ON LINE	USE PIPE SIZE	# OF TREES IRRIGATED WITH MICRO-SPRAY HEADS (Qx2) ON LINE	USE PIPE SIZE
1-4	3/4"	1-8	3/4"
5-9	1"	9-15	1"
10-20	1 1/4"	16-35	1 1/4"
21-32	1 1/2"		

PIPE SIZE CHART BY ROTATOR COUNT

# OF 1000/2000 ROTATORS (QTR,HLF)	USE PIPE SIZE
1-5	3/4"
6-10	1"
11-20	1 1/4"
21-30	1 1/2"
31-50	2"

PIPE SIZE CHART BY ROTATOR COUNT

# OF 3000 ROTATORS (QTR,HLF)	USE PIPE SIZE
1-3	3/4"
4-5	1"
6-10	1 1/4"
11-14	1 1/2"
15-23	2"

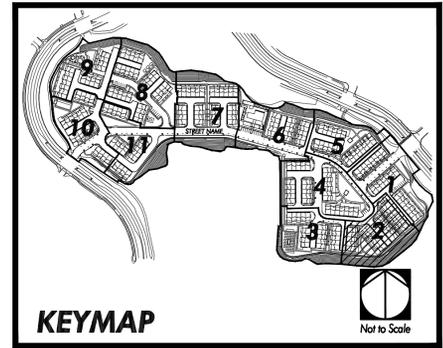
PIPE SIZE CHART BY ROTATOR COUNT

# OF 1000/2000 ROTATORS (FULL)	USE PIPE SIZE
1-3	3/4"
4-6	1"
7-13	1 1/4"
14-17	1 1/2"

PIPE SIZE CHART BY ROTATOR COUNT

# OF 3000 ROTATORS (FULL)	USE PIPE SIZE
1	3/4"
2	1"
3-5	1 1/4"
6-7	1 1/2"
8-12	2"

NOTES:
1. Refer to Sheet LI-0.01 for Irrigation Schedules and Notes.



STAFF APPRVL	NO.	REVISIONS	DATE	EXP. DATE	CITY ENG. DATE

PUBLIC IMPROVEMENTS APPROVED FOR CONSTRUCTION	
CITY OF SANTA ROSA	
BY	DAVID M. GUHIN R.C.E. 65663 CITY ENGINEER CITY OF SANTA ROSA, CA
DATE	
CITY OF SANTA ROSA FILE NO. _____	

CTV124-P: 1st Agency Submittal (11-06-2018) NOT FOR CONSTRUCTION



DATE _____
 NAME: **DAVID M. GUHIN**
 LICENSE NO. _____

C2 Collaborative
 Landscape Architecture
 Urban Design
 Urban Planning
 414 N. Lincoln Ave., Suite 200
 Santa Rosa, CA 95404
 Phone: (707) 534-2222
 www.C2collaborative.com



PLANS PREPARED BY:
C2

ROUND BARN VILLAGE
 SANTA ROSA, CALIFORNIA

SCALE 1" = 20'

JOB No. CTV124-P

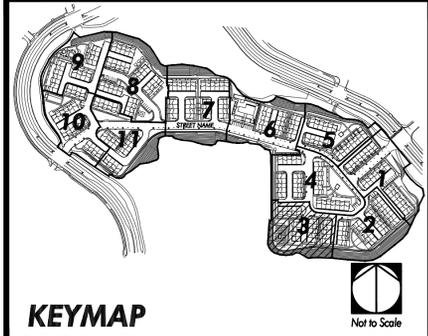
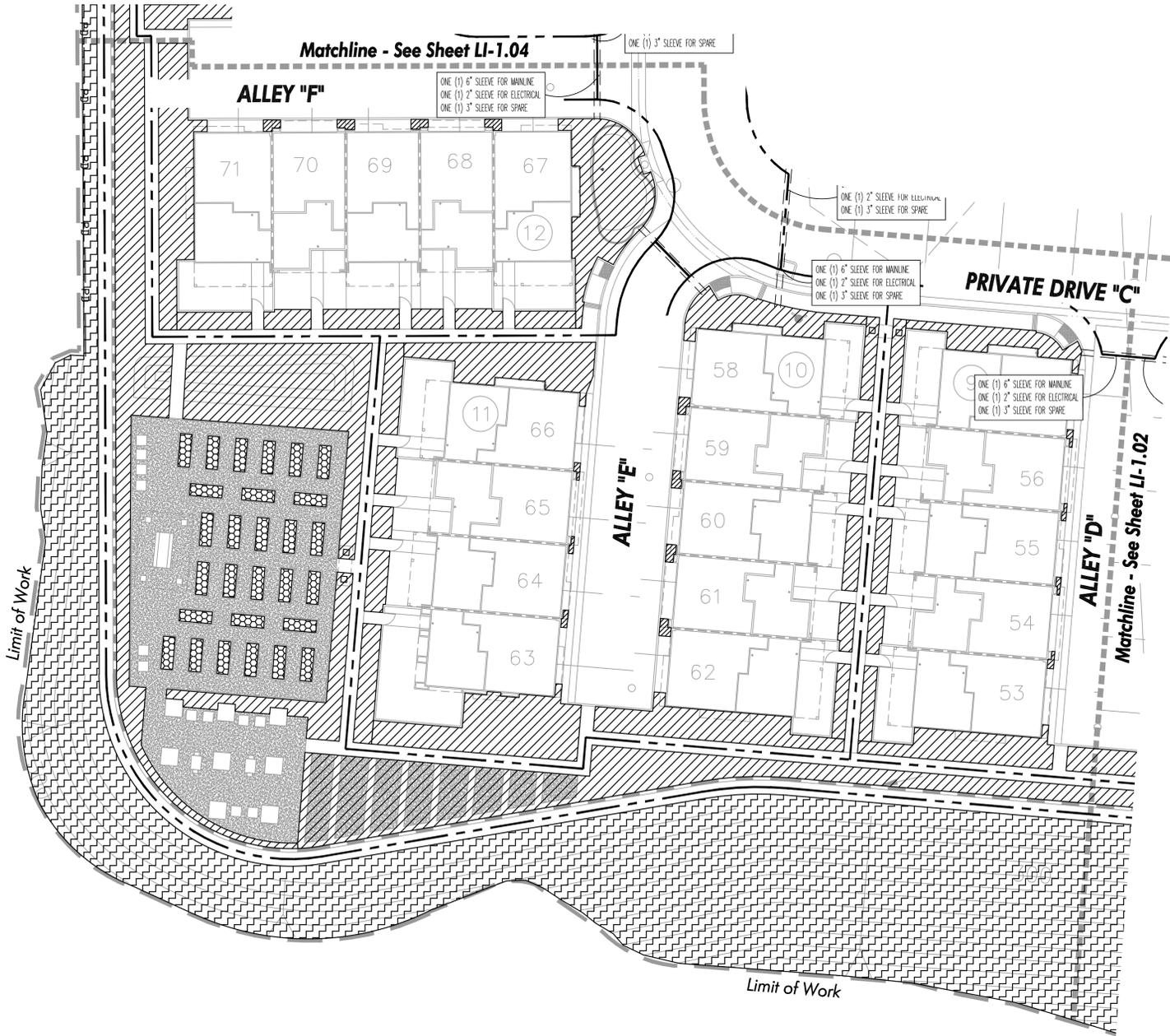
IRRIGATION PLAN

LI-1.03

SHEET 174 OF 212

HYDROZONE MAP LEGEND

HATCH SYMBOL	HYDROZONE #	AREA	WATER USAGE	Kc
	A - SHRUB, INLINE DRIP	168,402 SQ. FT.	MOD	.45
	B - TURF, OVERHEAD	13,620 SQ. FT.	SLA	N/A
	C - SHRUB, PT. SOURCE DRIP	103,000 SQ. FT.	MOD	.40
	D - POOLS	3,076 SQ. FT.	HIGH	1.00
	E - GARDEN	871 SQ. FT.	SLA	N/A
		288,966 SQ. FT.		



NOTES:
 1. Refer to Sheet LI-0.01 for Irrigation Schedules and Notes.



SCH40 PVC LATERAL PIPE SIZE CHART

PIPE SIZE	GALLONAGE	Ft./Sec.
3/4"	0-5	0.63-3.16
1"	6-9	2.31-3.47
1 1/4"	10-20	2.21-4.41
1 1/2"	21-28	3.38-4.52
2"	29-46	2.80-4.48
2 1/2"	47-65	3.21-4.44

SCH40 PIPE SIZE CHART FOR STREET TREE ZONES

# OF TREES IRRIGATED WITH XERI-BIRD DRIP MANIFOLDS ON LINE	USE PIPE SIZE	# OF TREES IRRIGATED WITH MICRO-SPRAY HEADS (Qx2) ON LINE	USE PIPE SIZE
1-4	3/4"	1-8	3/4"
5-9	1"	9-15	1"
10-20	1 1/4"	16-35	1 1/4"
21-32	1 1/2"		

STAFF APPRVL	NO.	REVISIONS	DATE	R.C.E.	EXP. DATE	CITY ENG.	DATE

PUBLIC IMPROVEMENTS APPROVED FOR CONSTRUCTION
 CITY OF SANTA ROSA

BY DAVID M. GUHIN R.C.E. 65663
 CITY ENGINEER
 CITY OF SANTA ROSA, CA

DATE _____

CITY OF SANTA ROSA FILE NO. _____

DATE: 11/09/2018



PAUL HAYDEN
LICENSE NO. 10152
STATE OF CALIFORNIA

C2 Collaborative
Landscape Architecture
Landscape Design
Urban Planning
Public Works
414 N. Lincoln Ave., Suite 200
Santa Rosa, CA 95404
Phone: 530.524.2222
www.C2collaborative.com



PLANS PREPARED BY:
C2 Collaborative

ROUND BARN VILLAGE
SANTA ROSA, CALIFORNIA

SCALE 1" = 20'

JOB No. CTV124-P

IRRIGATION PLAN

LI-1.04

SHEET 175 OF 212

HYDROZONE MAP LEGEND

HATCH SYMBOL	HYDROZONE #	AREA	WATER USAGE	Kc
	A - SHRUB, INLINE DRIP	168,402 SQ. FT.	MOD	.45
	B - TURF, OVERHEAD	13,620 SQ. FT.	SLA	N/A
	C - SHRUB, PT. SOURCE DRIP	103,000 SQ. FT.	MOD	.40
	D - POOLS	3,076 SQ. FT.	HIGH	1.00
	E - GARDEN	871 SQ. FT.	SLA	N/A
		288,969 SQ. FT.		

NOTE A:
POINT OF CONNECTION SHALL BE A 2" DOMESTIC WATER METER. VERIFY THE ACTUAL LOCATION, SIZE AND WATER PRESSURE IN THE FIELD PRIOR TO STARTING WORK. IF ANY OF THE P.O.C. INFORMATION SHOWN ON THESE DRAWINGS IS FOUND TO BE DIFFERENT THAN THE ACTUAL P.O.C. INFORMATION GATHERED IN THE FIELD, IMMEDIATELY NOTIFY LANDSCAPE ARCHITECT OR OWNER'S AUTHORIZED REPRESENTATIVE. SHOULD THE CONTRACTOR FAIL TO VERIFY THE P.O.C. INFORMATION ANY CHANGES REQUIRED BY LOW PRESSURE OR VOLUME SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR.

STATIC WATER PRESSURE XXX PSI
DESIGN WATER PRESSURE XX PSI
MAXIMUM SYSTEM DEMAND XX GPM
RESIDUAL WATER PRESSURE XX PSI

NOTE B:
CONTRACTOR SHALL REFER TO IRRIGATION LEGEND FOR CONTROLLER TYPE AND SIZE. FINAL LOCATION OF CONTROLLER AND ELECTRICAL P.O.C. SHALL BE CONFIRMED WITH OWNER'S AUTHORIZED REPRESENTATIVE PRIOR TO COMMENCING WORK.

NOTE 1:
EMITTERS, BUBBLERS AND LATERAL LINES ARE SHOWN WITHIN PAVING AND BUILDING FOR CLARITY ONLY. ACTUAL LOCATION TO BE WITHIN PLANTER. EMITTERS AND DRIP MANIFOLDS SHALL BE ALIGNED WITH SHRUBS AND TREES AND AS DIRECTED BY OWNER'S AUTHORIZED REPRESENTATIVE. CONFIRM ALL LAYOUT IN FIELD WITH OWNER'S AUTHORIZED REPRESENTATIVE PRIOR TO COMMENCING WORK.

NOTE 2:
MAINLINE SHOWN WITHIN PAVING FOR CLARITY ONLY. ACTUAL MAINLINE LOCATION TO BE A MINIMUM OF 18" OFF ADJACENT HARDSCAPE AND OTHER OBSTACLES TYP.

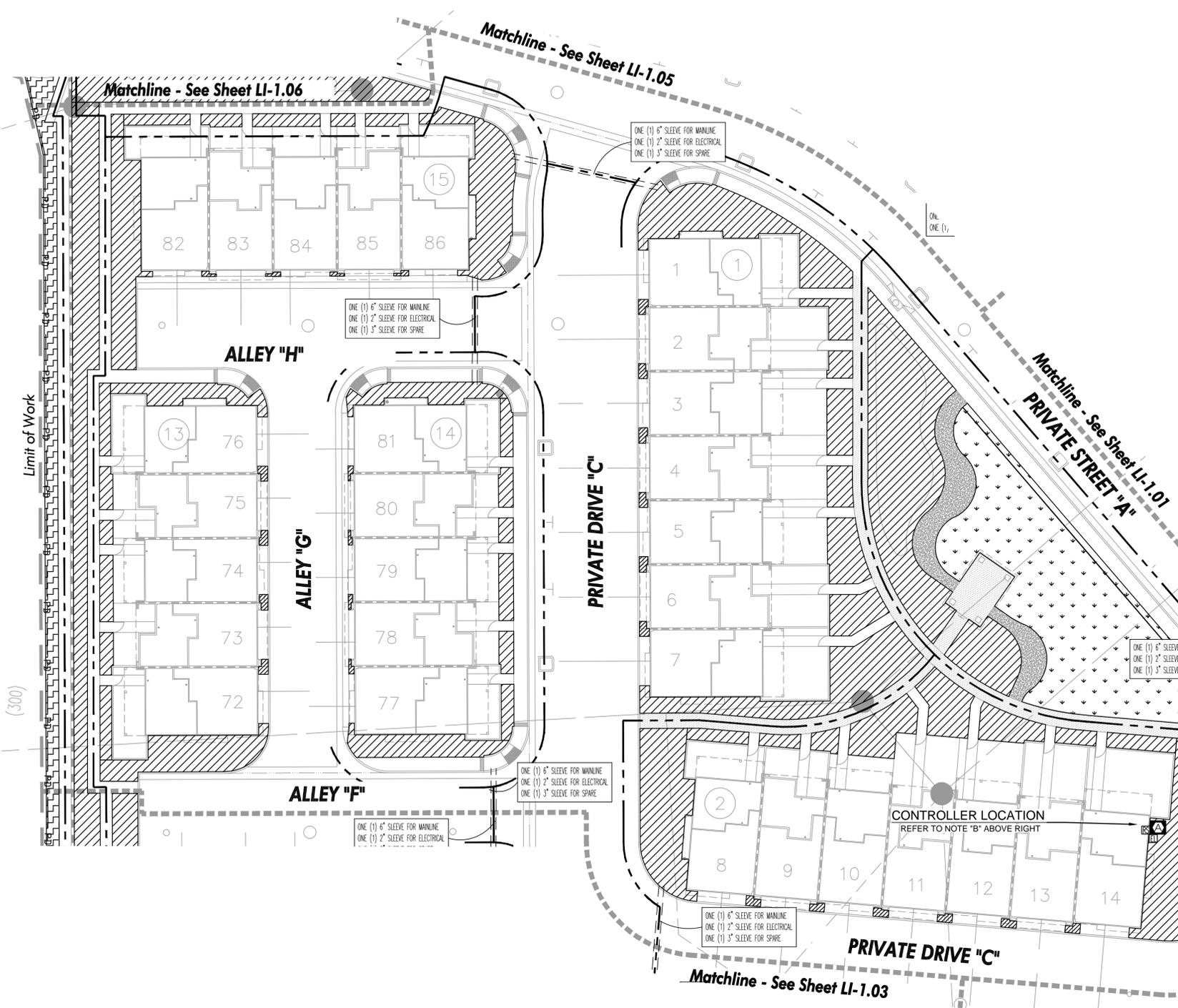
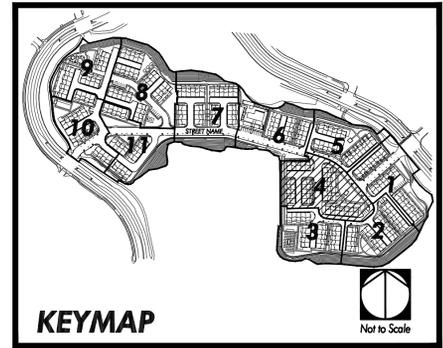
NOTE 3:
ALL PIPING AND WIRE SHALL BE SLEEVED UNDER PAVING. ALL SLEEVES TO BE MINIMUM 2X DIAMETER OF PIPE OR WIRE DIAMETER INSIDE. WIRES SHALL BE INSTALL IN SLEEVE SEPARATE FROM PIPE SLEEVE. ALL MAINLINE SHALL BE ACCOMPANIED WITH A MINIMUM 2-INCH DIAMETER WIRE SLEEVE. SLEEVING TO EXTEND MINIMUM 12 INCHES BEYOND PAVING.

CONTROLLER ASSEMBLY LOCATION NOTE:
CONTROLLER LOCATION SHOWN ON THIS DRAWING IS APPROXIMATE. THE IRRIGATION CONTRACTOR SHALL STAKE OUT THE CONTROLLER LOCATION FOR REVIEW AND APPROVAL BY THE OWNER'S AUTHORIZED REPRESENTATIVE PRIOR TO INSTALLATION OF THIS EQUIPMENT. THE IRRIGATION CONTRACTOR IS RESPONSIBLE FOR ELECTRICAL CONNECTION FROM 120 VOLT POWER SOURCE TO THE CONTROLLER AND ALL WIRE CONNECTIONS FROM ALL VALVES AND APPURTENANCE VALVES TO TERMINAL STRIP. ALL ELECTRICAL WORK SHALL CONFORM TO LOCAL STATE AND NATIONAL ELECTRICAL CODES AND REGULATIONS. FINAL LOCATION AND EXACT POSITIONING OF THE CONTROLLER SHALL BE DETERMINED BY THE OWNER'S AUTHORIZED REPRESENTATIVE. MINOR MODIFICATIONS OF CONTROLLER REQUESTED BY THE OWNER SHALL BE PROVIDED BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER. FAILURE TO OBTAIN OWNER'S APPROVAL PRIOR TO THE INSTALLATION SHALL CAUSE THE CONTRACTOR TO MAKE OWNER DIRECTED REVISIONS AT NO ADDITIONAL COST TO THE OWNER.

VALVE LOCATION NOTE:
ELECTRIC CONTROL VALVES AND ISOLATION VALVE LOCATIONS ON THIS DRAWING ARE APPROXIMATE. THE IRRIGATION CONTRACTOR SHALL STAKE OUT EACH ELECTRICAL CONTROL VALVE AND ISOLATION VALVE LOCATION FOR REVIEW AND APPROVAL BY OWNER'S AUTHORIZED REPRESENTATIVE PRIOR TO INSTALLATION OF ALL VALVES. FINAL LOCATION AND EXACT POSITIONING FOR ELECTRIC CONTROL VALVES AND ISOLATION VALVES SHALL BE DETERMINED BY THE OWNER'S AUTHORIZED REPRESENTATIVE. MINOR MODIFICATIONS OF ELECTRIC CONTROL VALVES AND ISOLATION VALVE LOCATIONS AS REQUESTED BY THE OWNER'S AUTHORIZED REPRESENTATIVE SHALL BE PROVIDED BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER. FAILURE TO OBTAIN THE OWNER'S AUTHORIZED REPRESENTATIVE'S APPROVAL PRIOR TO THE INSTALLATION SHALL CAUSE THE CONTRACTOR TO MAKE OWNER DIRECTED REVISIONS AT NO ADDITIONAL COST TO THE OWNER. IN GENERAL, UNLESS OTHERWISE DIRECTED BY OWNER'S AUTHORIZED REPRESENTATIVE, ALL VALVES SHALL BE INSTALLED AS SHOWN IN SHRUB PLANTING AREAS.

P.O.C. LOCATION
REFER TO NOTE "A" ABOVE RIGHT
Irrigation Water Meters Shown Within Paving For Clarity Only. Refer to Civil Engineer's Plans for Exact Location.

NOTES:
1. Refer to Sheet LI-0.01 for Irrigation Schedules and Notes.



SCH40 PVC LATERAL PIPE SIZE CHART

PIPE SIZE	GALLONAGE	Ft./Sec.
3/4"	0-5	0.63-3.16
1"	6-9	2.31-3.47
1 1/4"	10-20	2.21-4.41
1 1/2"	21-28	3.38-4.52
2"	29-46	2.80-4.48
2 1/2"	47-65	3.21-4.44

SCH40 PIPE SIZE CHART FOR STREET TREE ZONES

# OF TREES IRRIGATED WITH XERI-BIRD DRIP MANIFOLDS ON LINE	USE PIPE SIZE	# OF TREES IRRIGATED WITH MICRO-SPRAY HEADS (Qx2) ON LINE	USE PIPE SIZE
1-4	3/4"	1-8	3/4"
5-9	1"	9-15	1"
10-20	1 1/4"	16-35	1 1/4"
21-32	1 1/2"		

PIPE SIZE CHART BY ROTATOR COUNT

# OF 1000/2000 ROTATORS (QTR,HLF)	USE PIPE SIZE
1-5	3/4"
6-10	1"
11-20	1 1/4"
21-30	1 1/2"
31-50	2"

PIPE SIZE CHART BY ROTATOR COUNT

# OF 3000 ROTATORS (QTR,HLF)	USE PIPE SIZE
1-3	3/4"
4-5	1"
6-10	1 1/4"
11-14	1 1/2"
15-23	2"

PIPE SIZE CHART BY ROTATOR COUNT

# OF 1000/2000 ROTATORS (FULL)	USE PIPE SIZE
1-3	3/4"
4-6	1"
7-13	1 1/4"
14-17	1 1/2"

PIPE SIZE CHART BY ROTATOR COUNT

# OF 3000 ROTATORS (FULL)	USE PIPE SIZE
1	3/4"
2	1"
3-5	1 1/4"
6-7	1 1/2"
8-12	2"

STAFF APPRVL	NO.	REVISIONS			EXP. DATE	CITY ENG. DATE
		REVISION	DATE	R.C.E.		

PUBLIC IMPROVEMENTS APPROVED FOR CONSTRUCTION
CITY OF SANTA ROSA

BY: DAVID M. GUHIN, R.C.E. 65663
CITY ENGINEER
CITY OF SANTA ROSA, CA

DATE: _____

CITY OF SANTA ROSA FILE NO. _____

DATE: 11/09/2018



PAUL HADEN
NAME
LICENSE NO.

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Phone: 707.546.2222
www.C2Collaborative.com



PLANS PREPARED BY:

ROUND BARN VILLAGE
SANTA ROSA, CALIFORNIA

SCALE 1" = 20'

JOB No. CTV124-P

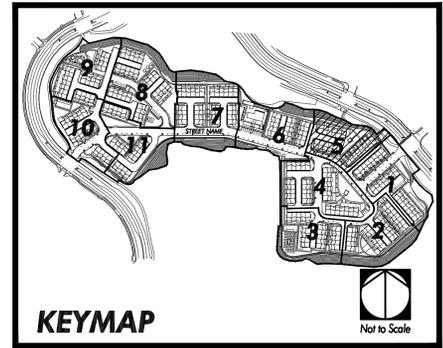
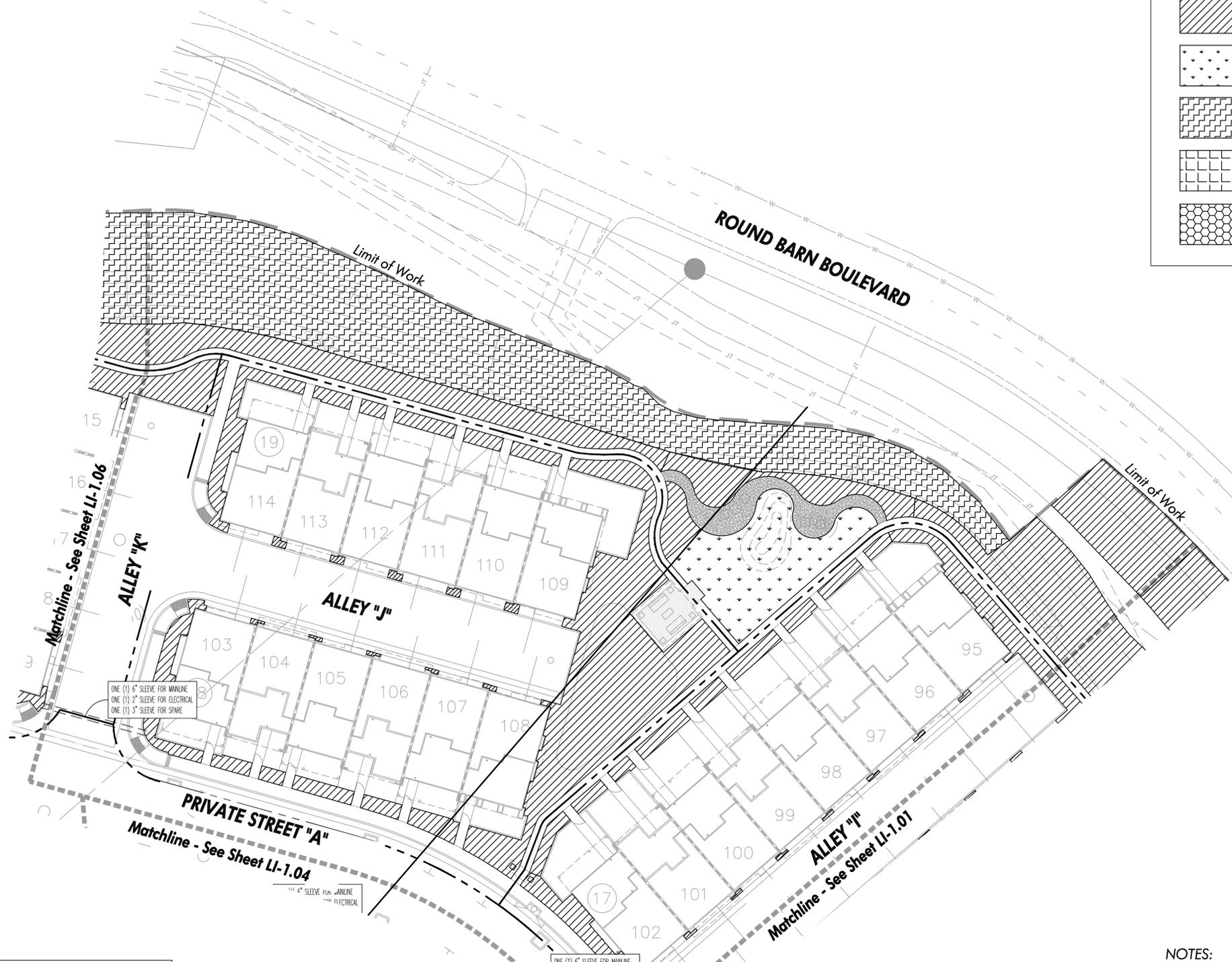
IRRIGATION PLAN

LI-1.05

SHEET 176 OF 212

HYDROZONE MAP LEGEND

HATCH SYMBOL	HYDROZONE #	AREA	WATER USAGE	Kc
	A - SHRUB, INLINE DRIP	168,402 SQ. FT.	MOD	.45
	B - TURF, OVERHEAD	13,620 SQ. FT.	SLA	N/A
	C - SHRUB, PT. SOURCE DRIP	103,000 SQ. FT.	MOD	.40
	D - POOLS	3,076 SQ. FT.	HIGH	1.00
	E - GARDEN	871 SQ. FT.	SLA	N/A
		<u>288,966 SQ. FT.</u>		



NOTES:
1. Refer to Sheet LI-0.01 for Irrigation Schedules and Notes.

SCH40 PVC LATERAL PIPE SIZE CHART

PIPE SIZE	GALLONAGE	Ft./Sec.
3/4"	0-5	0.63-3.16
1"	6-9	2.31-3.47
1 1/4"	10-20	2.21-4.41
1 1/2"	21-28	3.38-4.52
2"	29-46	2.80-4.48
2 1/2"	47-65	3.21-4.44

SCH40 PIPE SIZE CHART FOR STREET TREE ZONES

# OF TREES IRRIGATED WITH XERI-BIRD DRIP MANIFOLDS ON LINE	USE PIPE SIZE	# OF TREES IRRIGATED WITH MICRO-SPRAY HEADS (Qx2) ON LINE	USE PIPE SIZE
1-4	3/4"	1-8	3/4"
5-9	1"	9-15	1"
10-20	1 1/4"	16-35	1 1/4"
21-32	1 1/2"		

PIPE SIZE CHART BY ROTATOR COUNT

# OF 1000/2000 ROTATORS (QTR,HLF)	USE PIPE SIZE
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PIPE SIZE CHART BY ROTATOR COUNT

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PIPE SIZE CHART BY ROTATOR COUNT

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PIPE SIZE CHART BY ROTATOR COUNT

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8-12	2"

STAFF APPRVL	NO.	REVISIONS			EXP. DATE	CITY ENG. DATE
		REVISION	DATE	R.C.E.		

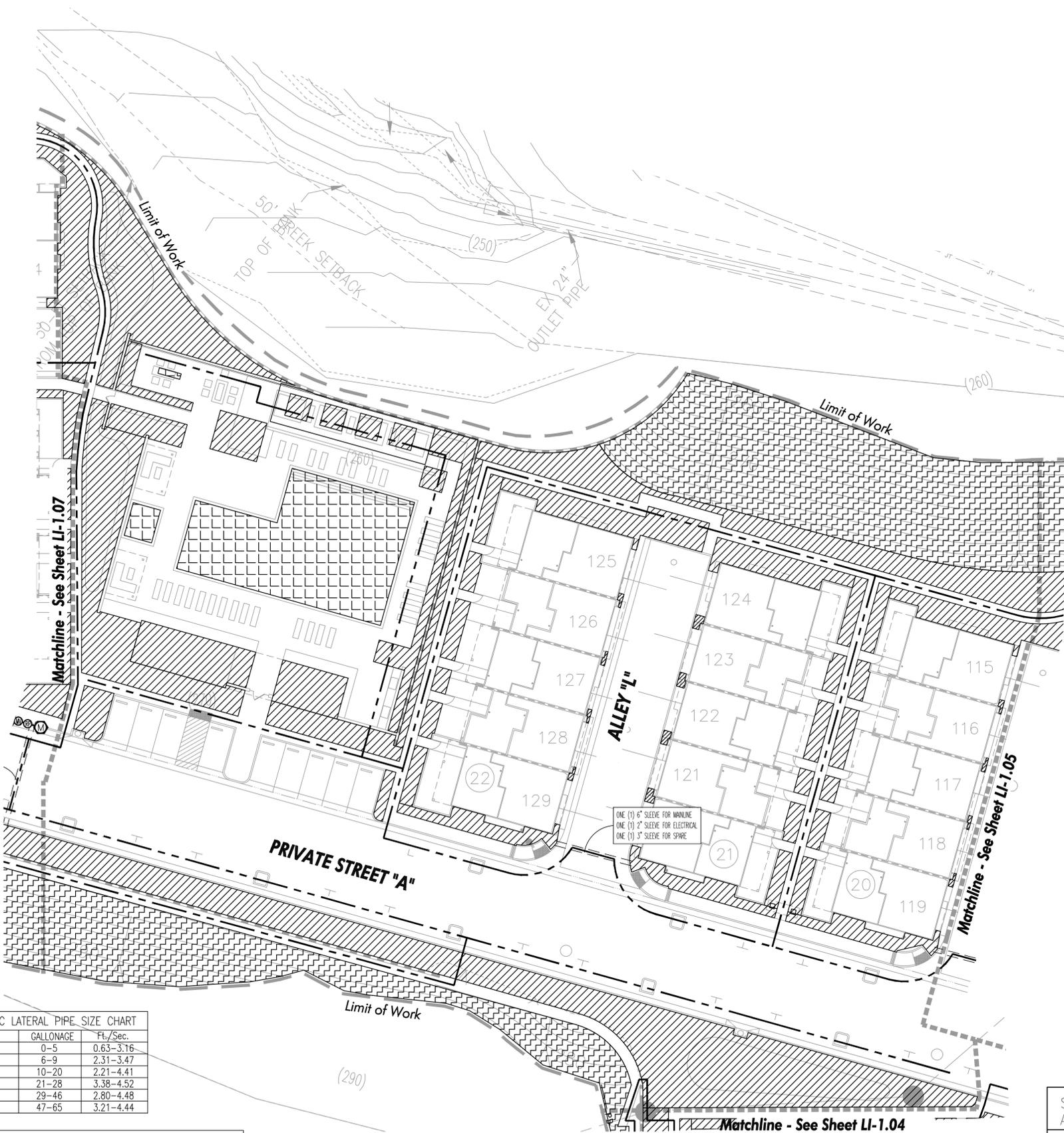
PUBLIC IMPROVEMENTS APPROVED FOR CONSTRUCTION

CITY OF SANTA ROSA

BY DAVID M. GUHIN R.C.E. 65663
CITY ENGINEER
CITY OF SANTA ROSA, CA

DATE _____

CITY OF SANTA ROSA FILE NO. _____



HYDROZONE MAP LEGEND

HATCH SYMBOL	HYDROZONE #	AREA	WATER USAGE	Kc
	A - SHRUB, INLINE DRIP	168,402 SQ. FT.	MOD	.45
	B - TURF, OVERHEAD	13,620 SQ. FT.	SLA	N/A
	C - SHRUB, PT. SOURCE DRIP	103,000 SQ. FT.	MOD	.40
	D - POOLS	3,076 SQ. FT.	HIGH	1.00
	E - GARDEN	871 SQ. FT.	SLA	N/A
		288,966 SQ. FT.		

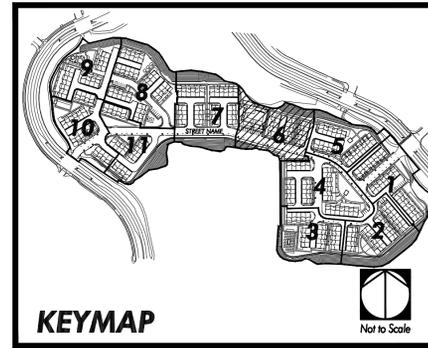
SCH40 PVC LATERAL PIPE SIZE CHART

PIPE SIZE	GALLONAGE	Ft./Sec.
3/4"	0-5	0.63-3.16
1"	6-9	2.31-3.47
1 1/4"	10-20	2.21-4.41
1 1/2"	21-28	3.38-4.52
2"	29-46	2.80-4.48
2 1/2"	47-65	3.21-4.44

SCH40 PIPE SIZE CHART FOR STREET TREE ZONES

# OF TREES IRRIGATED WITH XERI-BIRD DRIP MANIFOLDS ON LINE	USE PIPE SIZE	# OF TREES IRRIGATED WITH MICRO-SPRAY HEADS (Qx2) ON LINE	USE PIPE SIZE
1-4	3/4"	1-8	3/4"
5-9	1"	9-15	1"
10-20	1 1/4"	16-35	1 1/4"
21-32	1 1/2"		

NOTES:
1. Refer to Sheet LI-0.01 for Irrigation Schedules and Notes.



STAFF APPRVL	NO.	REVISION	DATE	R.C.E.	EXP. DATE	CITY ENG.	DATE

REVISIONS

PUBLIC IMPROVEMENTS APPROVED FOR CONSTRUCTION
CITY OF SANTA ROSA

BY DAVID M. GUHIN R.C.E. 65663
CITY ENGINEER
CITY OF SANTA ROSA, CA

DATE _____

CITY OF SANTA ROSA FILE NO. _____

DATE: 11/09/2018

NAME: PAUL HADEN LICENSE NO. _____

C2 Collaborative

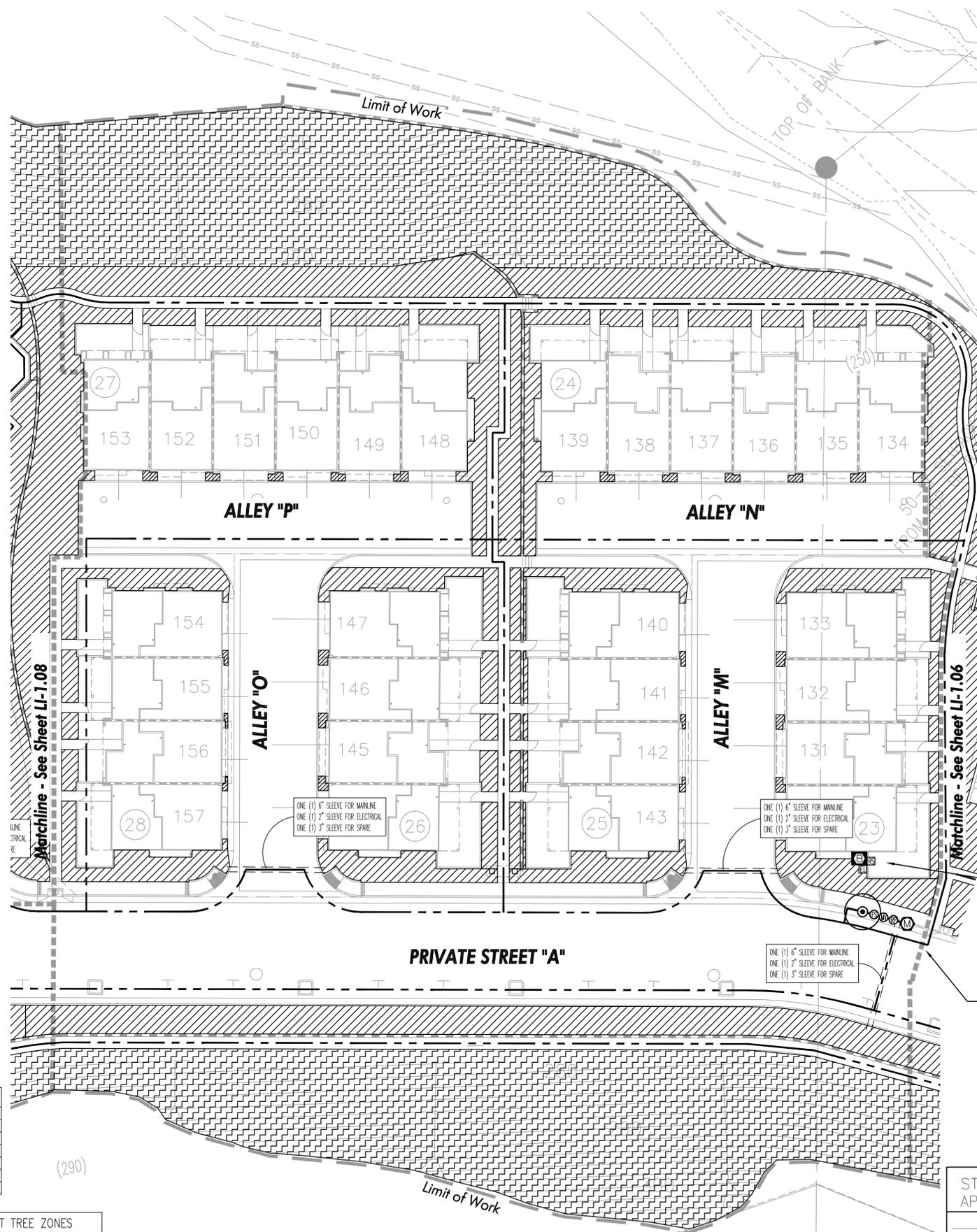
LANDSCAPE ARCHITECTURE
Landscape Architecture
Landscape Design
Landscape Construction
Landscape Maintenance
414 N. Lincoln Ave., Suite 100
Santa Rosa, CA 95404
Phone: 707.534.4444
www.C2collaborative.com

PLANS PREPARED BY:

ROUND BARN VILLAGE
SANTA ROSA, CALIFORNIA

CTV124-P: 1st Agency Submittal (11-06-2018) NOT FOR CONSTRUCTION

SCALE 1" = 20'
JOB No. CTV124-P
IRRIGATION PLAN
LI-1.06
SHEET 177 OF 212



HYDROZONE MAP LEGEND

HATCH SYMBOL	HYDROZONE #	AREA	WATER USAGE	Kc
	A - SHRUB, INLINE DRIP	168,402 SQ. FT.	MOD	.45
	B - TURF, OVERHEAD	13,620 SQ. FT.	SLA	N/A
	C - SHRUB, PT. SOURCE DRIP	103,000 SQ. FT.	MOD	.40
	D - POOLS	3,076 SQ. FT.	HIGH	1.00
	E - GARDEN	871 SQ. FT.	SLA	N/A
		288,969 SQ. FT.		

NOTE A:
POINT OF CONNECTION SHALL BE A 2" DOMESTIC WATER METER. VERIFY THE ACTUAL LOCATION, SIZE AND WATER PRESSURE IN THE FIELD PRIOR TO STARTING WORK. IF ANY OF THE P.O.C. INFORMATION SHOWN ON THESE DRAWINGS IS FOUND TO BE DIFFERENT THAN THE ACTUAL P.O.C. INFORMATION GATHERED IN THE FIELD, IMMEDIATELY NOTIFY LANDSCAPE ARCHITECT OR OWNERS AUTHORIZED REPRESENTATIVE. SHOULD THE CONTRACTOR FAIL TO VERIFY THE P.O.C. INFORMATION ANY CHANGES REQUIRED BY LOW PRESSURE OR VOLUME SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR.

STATIC WATER PRESSURE XXX PSI
DESIGN WATER PRESSURE XX PSI
MAXIMUM SYSTEM DEMAND XX GPM
RESIDUAL WATER PRESSURE XX PSI

NOTE B:
CONTRACTOR SHALL REFER TO IRRIGATION LEGEND FOR CONTROLLER TYPE AND SIZE. FINAL LOCATION OF CONTROLLER AND ELECTRICAL P.O.C. SHALL BE CONFIRMED WITH OWNER'S AUTHORIZED REPRESENTATIVE PRIOR TO COMMENCING WORK.

NOTE 1:
EMITTERS, BUBBLERS AND LATERAL LINES ARE SHOWN WITHIN PAVING AND BUILDING FOR CLARITY ONLY. ACTUAL LOCATION TO BE WITHIN PLANTER. EMITTERS AND DRIP MANIFOLDS SHALL BE ALIGNED WITH SHRUBS AND TREES AND AS DIRECTED BY OWNER'S AUTHORIZED REPRESENTATIVE. CONFIRM ALL LAYOUT IN FIELD WITH OWNER'S AUTHORIZED REPRESENTATIVE PRIOR TO COMMENCING WORK.

NOTE 2:
MAINLINE SHOWN WITHIN PAVING FOR CLARITY ONLY. ACTUAL MAINLINE LOCATION TO BE A MINIMUM OF 18" OFF ADJACENT HARDSCAPE AND OTHER OBSTACLES TYP.

NOTE 3:
ALL PIPING AND WIRE SHALL BE SLEEVED UNDER PAVING. ALL SLEEVES TO BE MINIMUM 2X DIAMETER OF PIPE OR WIRE DIAMETER INSIDE. WIRES SHALL BE INSTALLED IN SLEEVE SEPARATE FROM PIPE SLEEVE. ALL MAINLINE SHALL BE ACCOMPANIED WITH A MINIMUM 2-INCH DIAMETER WIRE SLEEVE. SLEEVING TO EXTEND MINIMUM 12 INCHES BEYOND PAVING.

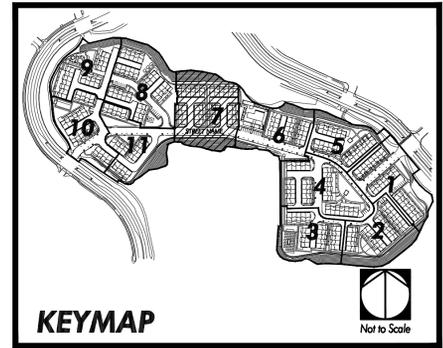
CONTROLLER ASSEMBLY LOCATION NOTE:
CONTROLLER LOCATION SHOWN ON THIS DRAWING IS APPROXIMATE. THE IRRIGATION CONTRACTOR SHALL STAKE OUT THE CONTROLLER LOCATION FOR REVIEW AND APPROVAL BY THE OWNER'S AUTHORIZED REPRESENTATIVE PRIOR TO INSTALLATION OF THIS EQUIPMENT. THE IRRIGATION CONTRACTOR IS RESPONSIBLE FOR ELECTRICAL CONNECTION FROM 120 VOLT POWER SOURCE TO THE CONTROLLER AND ALL WIRE CONNECTIONS FROM ALL VALVES AND APPURTENANCE VALVES TO TERMINAL STRIP. ALL ELECTRICAL WORK SHALL CONFORM TO LOCAL STATE AND NATIONAL ELECTRICAL CODES AND REGULATIONS. FINAL LOCATION AND EXACT POSITIONING OF THE CONTROLLER SHALL BE DETERMINED BY THE OWNER'S AUTHORIZED REPRESENTATIVE. MINOR MODIFICATIONS OF CONTROLLER REQUESTED BY THE OWNER SHALL BE PROVIDED BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER. FAILURE TO OBTAIN OWNER'S APPROVAL PRIOR TO THE INSTALLATION SHALL CAUSE THE CONTRACTOR TO MAKE OWNER DIRECTED REVISIONS AT NO ADDITIONAL COST TO THE OWNER.

VALVE LOCATION NOTE:
ELECTRIC CONTROL VALVES AND ISOLATION VALVE LOCATIONS ON THIS DRAWING ARE APPROXIMATE. THE IRRIGATION CONTRACTOR SHALL STAKE OUT EACH ELECTRICAL CONTROL VALVE AND ISOLATION VALVE LOCATION FOR REVIEW AND APPROVAL BY OWNER'S AUTHORIZED REPRESENTATIVE PRIOR TO INSTALLATION OF ALL VALVES. FINAL LOCATION AND EXACT POSITIONING FOR ELECTRIC CONTROL VALVES AND ISOLATION VALVES SHALL BE DETERMINED BY THE OWNER'S AUTHORIZED REPRESENTATIVE. MINOR MODIFICATIONS OF ELECTRIC CONTROL VALVES AND ISOLATION VALVE LOCATIONS AS REQUESTED BY THE OWNER'S AUTHORIZED REPRESENTATIVE SHALL BE PROVIDED BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER. FAILURE TO OBTAIN THE OWNER'S AUTHORIZED REPRESENTATIVE'S APPROVAL PRIOR TO THE INSTALLATION SHALL CAUSE THE CONTRACTOR TO MAKE OWNER DIRECTED REVISIONS AT NO ADDITIONAL COST TO THE OWNER. IN GENERAL, UNLESS OTHERWISE DIRECTED BY OWNER'S AUTHORIZED REPRESENTATIVE, ALL VALVES SHALL BE INSTALLED AS SHOWN IN SHRUB PLANTING AREAS.

CONTROLLER LOCATION
REFER TO NOTE "B" ABOVE RIGHT

P.O.C. LOCATION
REFER TO NOTE "A" ABOVE RIGHT
Irrigation Water Meters Shown Within Paving For Clarity Only, Refer to Civil Engineer's Plans for Exact Location.

NOTES:
1. Refer to Sheet LI-0.01 for Irrigation Schedules and Notes.



SCH40 PVC LATERAL PIPE SIZE CHART

PIPE SIZE	GALLONAGE	Ft./Sec.
3/4"	0-5	0.63-3.16
1"	6-9	2.31-3.47
1 1/4"	10-20	2.21-4.41
1 1/2"	21-28	3.38-4.52
2"	29-46	2.80-4.48
2 1/2"	47-65	3.21-4.44

SCH40 PIPE SIZE CHART FOR STREET TREE ZONES

# OF TREES IRRIGATED WITH XERI-BIRD DRIP MANIFOLDS ON LINE	USE PIPE SIZE	# OF TREES IRRIGATED WITH MICRO-SPRAY HEADS (Qx2) ON LINE	USE PIPE SIZE
1-4	3/4"	1-8	3/4"
5-9	1"	9-15	1"
10-20	1 1/4"	16-35	1 1/4"
21-32	1 1/2"		

STAFF APPRVL	NO.	REVISIONS	DATE	R.C.E.	EXP. DATE	CITY ENG.	DATE

PUBLIC IMPROVEMENTS APPROVED FOR CONSTRUCTION
CITY OF SANTA ROSA

BY: DAVID M. GUHIN R.C.E. 65663
CITY ENGINEER
CITY OF SANTA ROSA, CA

DATE: _____

CITY OF SANTA ROSA FILE NO. _____

PAUL HAYDEN
LICENSE NO. _____
DATE _____

C2 Collaborative

PLANS PREPARED BY:

TWO

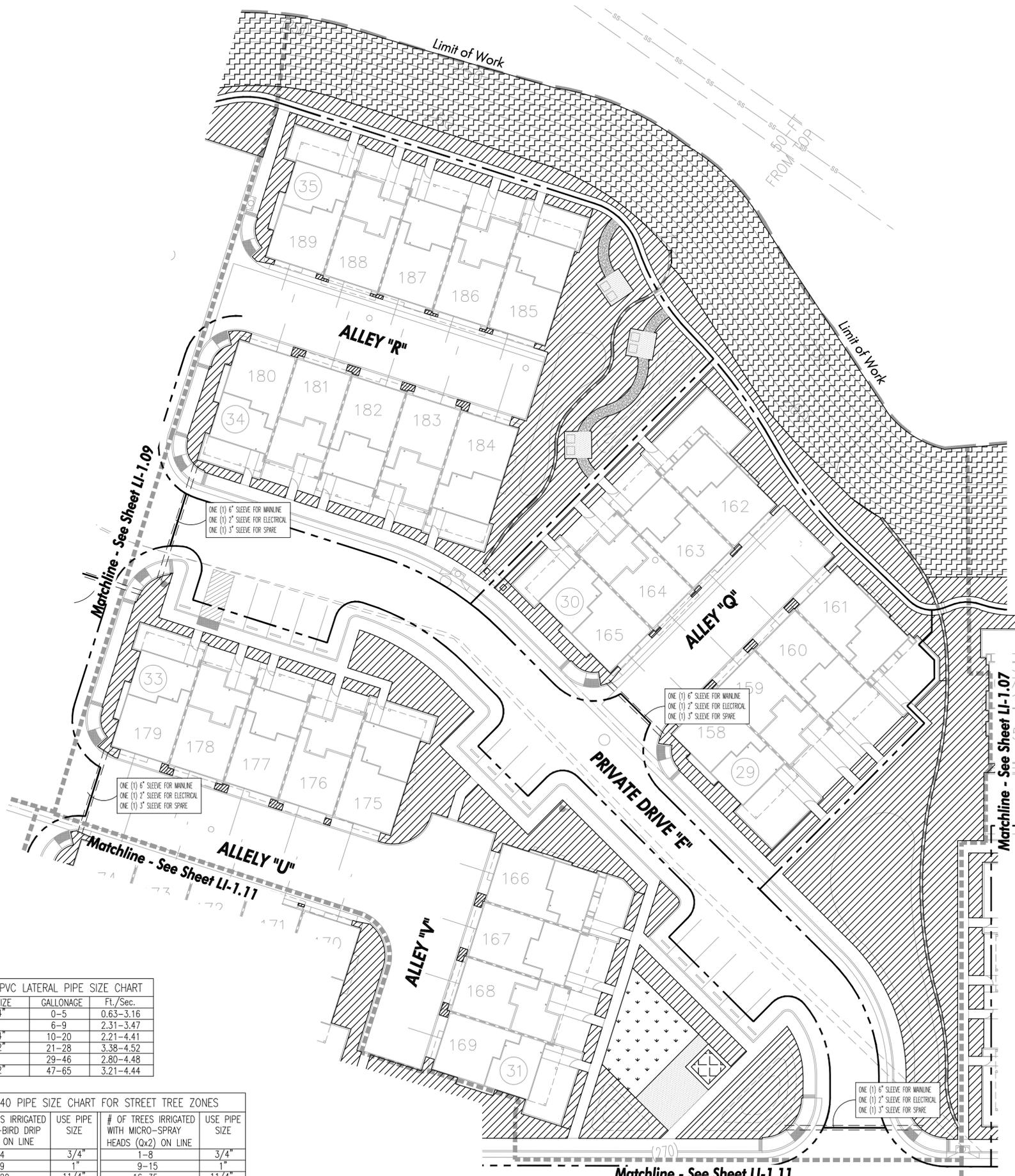
ROUND BARN VILLAGE
SANTA ROSA, CALIFORNIA

CTV124-P: 1st Agency Submittal (11-06-2018) NOT FOR CONSTRUCTION

SCALE 1" = 20'
JOB No. CTV124-P
IRRIGATION PLAN
LI-1.07
SHEET 178 OF 212

HYDROZONE MAP LEGEND

HATCH SYMBOL	HYDROZONE #	AREA	WATER USAGE	Kc
	A - SHRUB, INLINE DRIP	168,402 SQ. FT.	MOD	.45
	B - TURF, OVERHEAD	13,620 SQ. FT.	SLA	N/A
	C - SHRUB, PT. SOURCE DRIP	103,000 SQ. FT.	MOD	.40
	D - POOLS	3,076 SQ. FT.	HIGH	1.00
	E - GARDEN	871 SQ. FT.	SLA	N/A
		288,966 SQ. FT.		



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SCH40 PIPE SIZE CHART FOR STREET TREE ZONES

# OF TREES IRRIGATED WITH XERI-BIRD DRIP MANIFOLDS ON LINE	USE PIPE SIZE	# OF TREES IRRIGATED WITH MICRO-SPRAY HEADS (Qx2) ON LINE	USE PIPE SIZE
1-4	3/4"	1-8	3/4"
5-9	1"	9-15	1"
10-20	1 1/4"	16-35	1 1/4"
21-32	1 1/2"		

PIPE SIZE CHART BY ROTATOR COUNT

# OF 1000/2000 ROTATORS (QTR,HLF)	USE PIPE SIZE
1-5	3/4"
6-10	1"
11-20	1 1/4"
21-30	1 1/2"
31-50	2"

PIPE SIZE CHART BY ROTATOR COUNT

# OF 3000 ROTATORS (QTR,HLF)	USE PIPE SIZE
1-3	3/4"
4-5	1"
6-10	1 1/4"
11-14	1 1/2"
15-23	2"

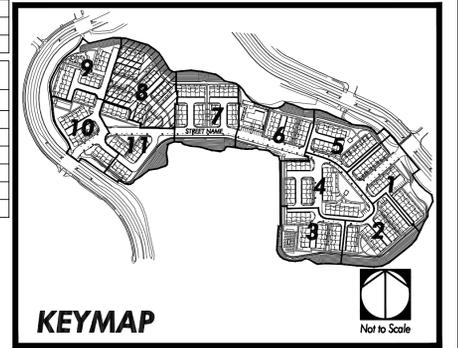
PIPE SIZE CHART BY ROTATOR COUNT

# OF 1000/2000 ROTATORS (FULL)	USE PIPE SIZE
1-3	3/4"
4-6	1"
7-13	1 1/4"
14-17	1 1/2"

PIPE SIZE CHART BY ROTATOR COUNT

# OF 3000 ROTATORS (FULL)	USE PIPE SIZE
1	3/4"
2	1"
3-5	1 1/4"
6-7	1 1/2"
8-12	2"

NOTES:
 1. Refer to Sheet LI-0.01 for Irrigation Schedules and Notes.



STAFF APPRVL	NO.	REVISIONS	DATE	R.C.E.	EXP. DATE	CITY ENG.	DATE

PUBLIC IMPROVEMENTS APPROVED FOR CONSTRUCTION
 CITY OF SANTA ROSA

BY: DAVID M. GUHIN, R.C.E. 65663
 CITY ENGINEER
 CITY OF SANTA ROSA, CA

DATE: _____

CITY OF SANTA ROSA FILE NO. _____



PAUL HADEN
NAME
LICENSE NO.

C2 Collaborative
Landscape Architecture
Landscape Design
Hydro Engineering
414 N. Lincoln Ave., Suite 200
Santa Rosa, CA 95404
Phone: 707.546.1234
www.C2Collaborative.com



ROUND BARN VILLAGE
SANTA ROSA, CALIFORNIA
CTV124-P: 1st Agency Submittal (11-06-2018) NOT FOR CONSTRUCTION

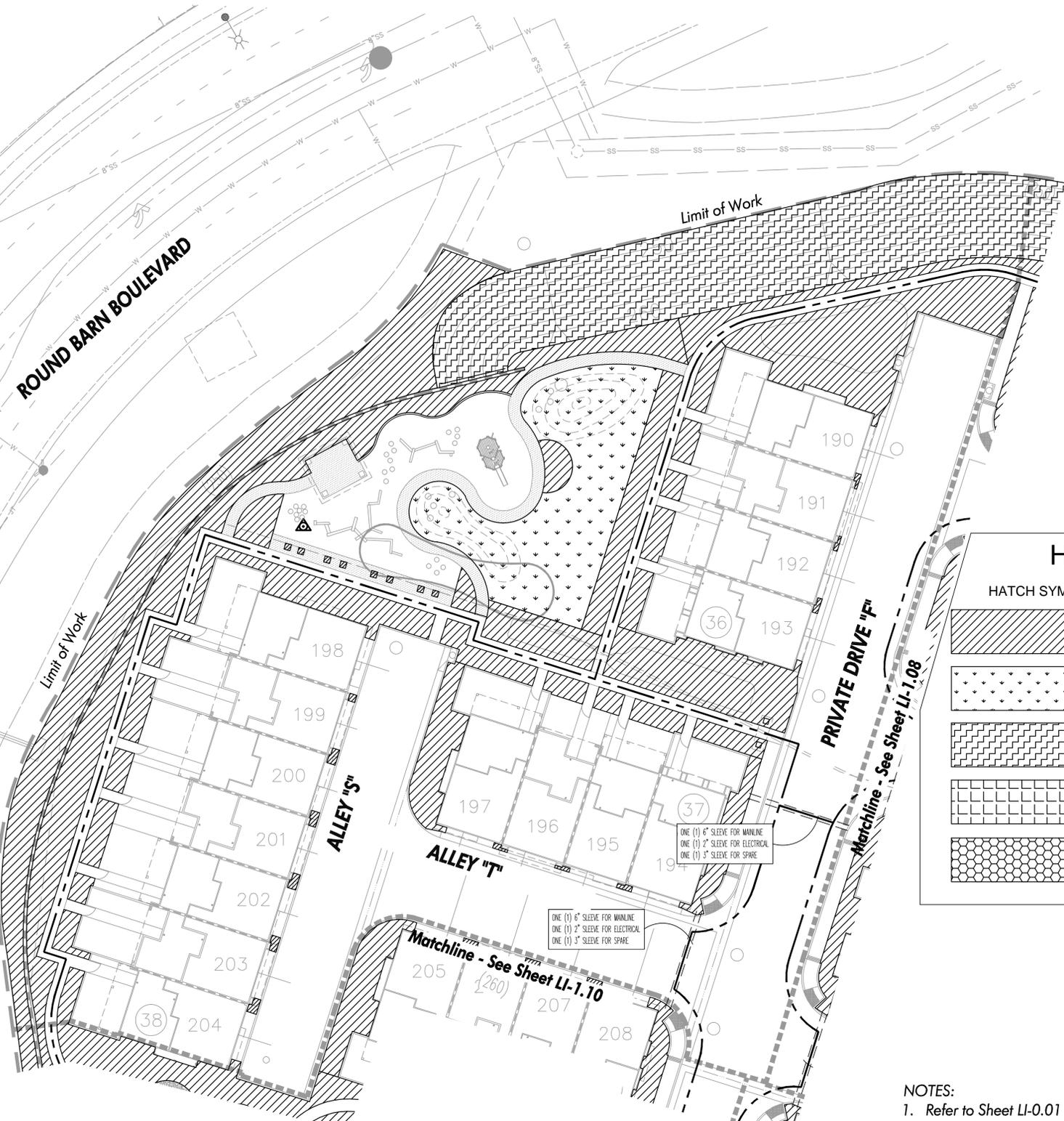
SCALE 1" = 20'

JOB No. CTV124-P

IRRIGATION PLAN

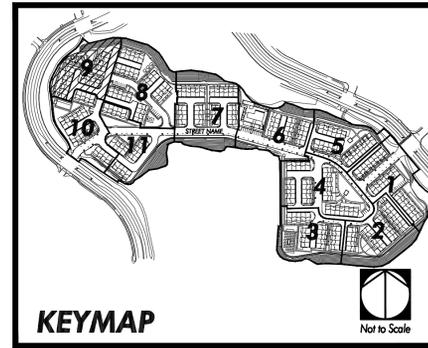
LI-1.09

SHEET 180 OF 212



HYDROZONE MAP LEGEND

HATCH SYMBOL	HYDROZONE #	AREA	WATER USAGE	Kc
	A - SHRUB, INLINE DRIP	168,402 SQ. FT.	MOD	.45
	B - TURF, OVERHEAD	13,620 SQ. FT.	SLA	N/A
	C - SHRUB, PT. SOURCE DRIP	103,000 SQ. FT.	MOD	.40
	D - POOLS	3,076 SQ. FT.	HIGH	1.00
	E - GARDEN	871 SQ. FT.	SLA	N/A
		<u>288,969 SQ. FT.</u>		



NOTES:
1. Refer to Sheet LI-0.01 for Irrigation Schedules and Notes.

PIPE SIZE	GALLONAGE	Ft./Sec.
3/4"	0-5	0.63-3.16
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2"	29-46	2.80-4.48
2 1/2"	47-65	3.21-4.44

# OF TREES IRRIGATED WITH XERI-BIRD DRIP MANIFOLDS ON LINE	USE PIPE SIZE	# OF TREES IRRIGATED WITH MICRO-SPRAY HEADS (Qx2) ON LINE	USE PIPE SIZE
1-4	3/4"	1-8	3/4"
5-9	1"	9-15	1"
10-20	1 1/4"	16-35	1 1/4"
21-32	1 1/2"		

# OF 1000/2000 ROTATORS (QTR,HLF)	USE PIPE SIZE
1-5	3/4"
6-10	1"
11-20	1 1/4"
21-30	1 1/2"
31-50	2"

# OF 3000 ROTATORS (QTR,HLF)	USE PIPE SIZE
1-3	3/4"
4-5	1"
6-10	1 1/4"
11-14	1 1/2"
15-23	2"

# OF 1000/2000 ROTATORS (FULL)	USE PIPE SIZE
1-3	3/4"
4-6	1"
7-13	1 1/4"
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# OF 3000 ROTATORS (FULL)	USE PIPE SIZE
1	3/4"
2	1"
3-5	1 1/4"
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8-12	2"

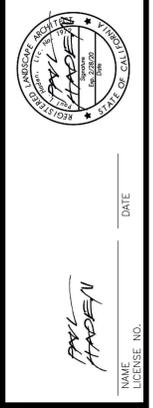
STAFF APPRVL	NO.	REVISIONS			EXP. DATE	CITY ENG. DATE
		REVISION	DATE	R.C.E.		

PUBLIC IMPROVEMENTS APPROVED FOR CONSTRUCTION
CITY OF SANTA ROSA

BY DAVID M. GUHIN R.C.E. 65663
CITY ENGINEER
CITY OF SANTA ROSA, CA

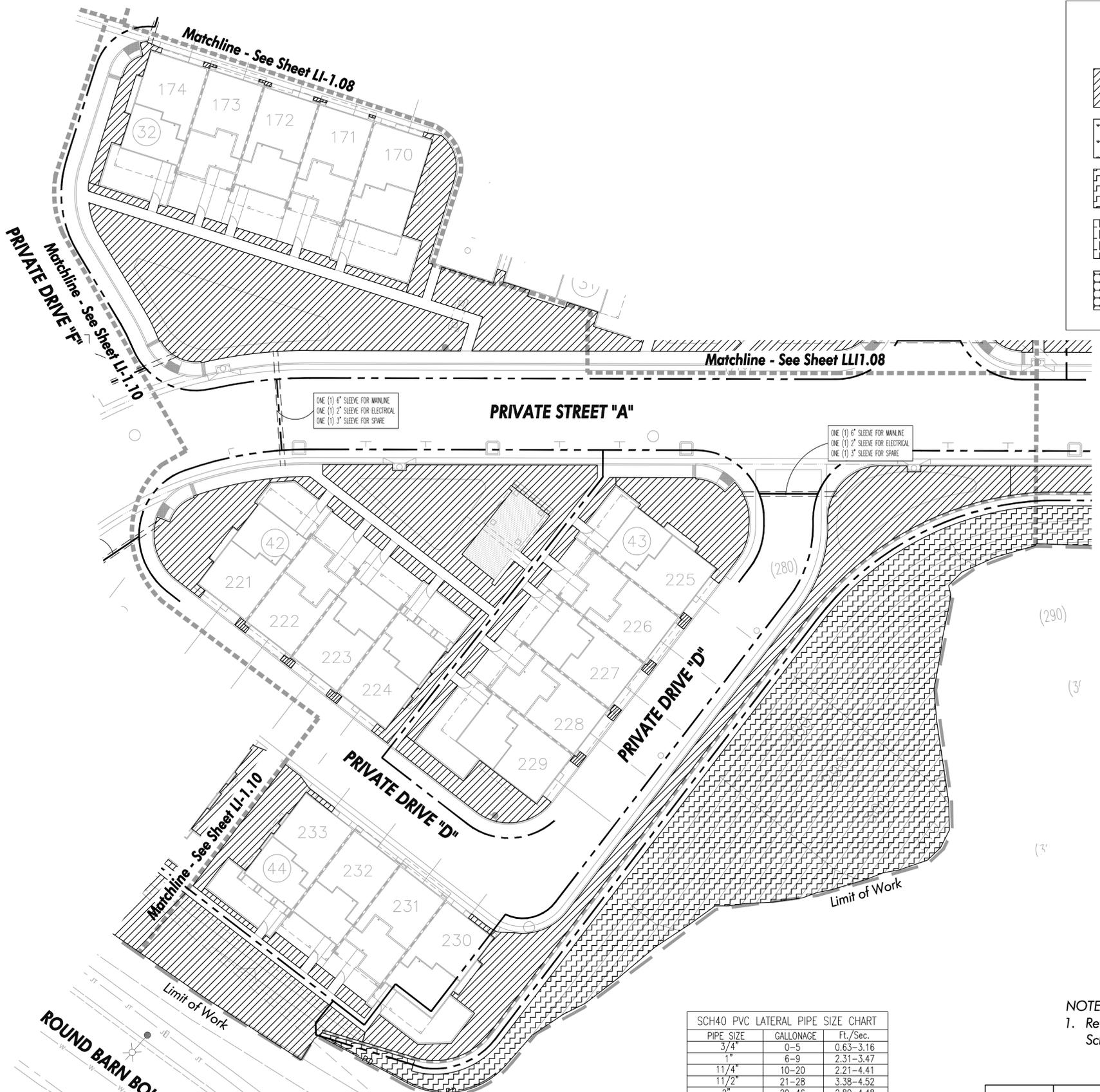
DATE _____

CITY OF SANTA ROSA FILE NO. _____



HYDROZONE MAP LEGEND

HATCH SYMBOL	HYDROZONE #	AREA	WATER USAGE	Kc
	A - SHRUB, INLINE DRIP	168,402 SQ. FT.	MOD	.45
	B - TURF, OVERHEAD	13,620 SQ. FT.	SLA	N/A
	C - SHRUB, PT. SOURCE DRIP	103,000 SQ. FT.	MOD	.40
	D - POOLS	3,076 SQ. FT.	HIGH	1.00
	E - GARDEN	871 SQ. FT.	SLA	N/A
		288,969 SQ. FT.		



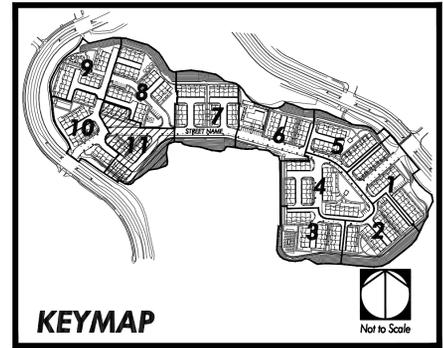
SCH40 PVC LATERAL PIPE SIZE CHART

PIPE SIZE	GALLONAGE	Ft./Sec.
3/4"	0-5	0.63-3.16
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1 1/2"	21-28	3.38-4.52
2"	29-46	2.60-4.48
2 1/2"	47-65	3.21-4.44

SCH40 PIPE SIZE CHART FOR STREET TREE ZONES

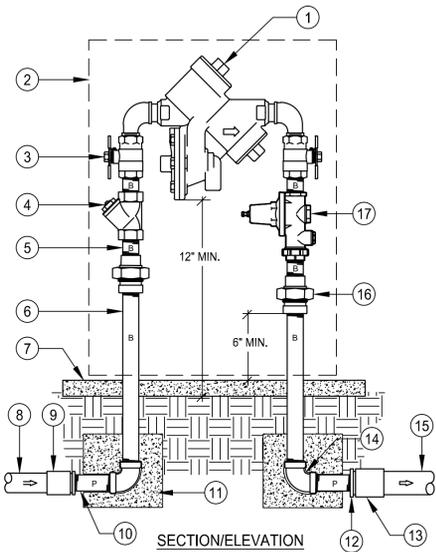
# OF TREES IRRIGATED WITH XERI-BIRD DRIP MANIFOLDS ON LINE	USE PIPE SIZE	# OF TREES IRRIGATED WITH MICRO-SPRAY HEADS (0x2) ON LINE	USE PIPE SIZE
1-4	3/4"	1-8	3/4"
5-9	1"	9-15	1"
10-20	1 1/4"	16-35	1 1/4"
21-32	1 1/2"		

NOTES:
1. Refer to Sheet LI-0.01 for Irrigation Schedules and Notes.



STAFF APPRVL	NO.	REVISIONS	DATE	R.C.E.	EXP. DATE	CITY ENG.	DATE

PUBLIC IMPROVEMENTS APPROVED FOR CONSTRUCTION	
CITY OF SANTA ROSA	
BY	R.C.E. 65663
DAVID M. GUHIN CITY ENGINEER CITY OF SANTA ROSA, CA	
DATE	
CITY OF SANTA ROSA FILE NO. _____	

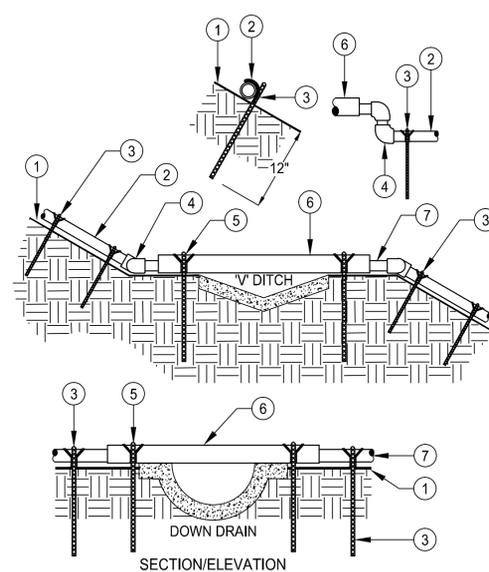


- LEGEND**
- BACKFLOW DEVICE, REFER TO LEGEND FOR SPECIFICATION
 - BACKFLOW ENCLOSURE, REFER TO LEGEND FOR SPECIFICATION
 - BRASS BALL VALVE
 - WYE STRAINER, REFER TO LEGEND FOR SPECIFICATION
 - BRASS NIPPLE, MAX. LEN. 3" (4 REQ.)
 - BRASS RISER, LEN. AS REQUIRED, (2 REQ.)
 - CONCRETE SLAB
 - IRRIGATION SERVICE LINE FROM METER
 - PVC SCH 80 SS COUPLER, SVC LINE SIZE
 - PVC SCH 80 NIPPLE, LENGTH BEYOND THRUST BLOCK, (2 REQ.)
 - CONCRETE THRUST BLOCK, 1 CU. FT.
 - PVC SCH 80 REDUCING ADAPTER, SF, COUPLER SIZE (2 REQ.)
 - PVC SCH 80 SS COUPLER, MAINLINE SIZE
 - BRASS ELBOW
 - IRRIGATION MAINLINE
 - BRASS UNION (2 REQ.)
 - PRESSURE REGULATOR, IF SPECIFIED. REFER TO LEGEND FOR SPECIFICATION - IF NOT SPECIFIED, INSTALL ONE BRASS NIPPLE IN PLACE OF TWO 3" NIPPLES AND REGULATOR

NOTE:
 A. CONCRETE SLAB SHALL BE MINIMUM 4" THICK AND EXTEND A MINIMUM 6" PAST THE BACKFLOW ASSEMBLY PIPING AND/OR ENCLOSURE ON ALL SIDES.

A BACKFLOW ASSEMBLY

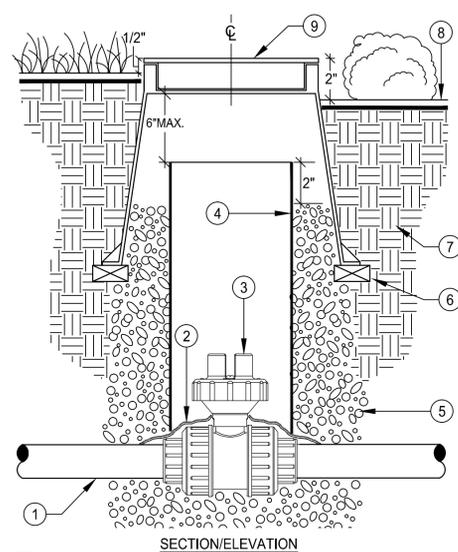
SCALE: N.T.S.



- LEGEND**
- FINISHED GRADE, SLOPE VARIES
 - PVC SCH 40 LATERAL PIPE INSTALL PIPE FLUSH TO GRADE
 - PIPE STABILIZER, MODEL V.I.T. PS12, INSTALL ADJACENT TO ELLS AND ALONG LATERAL, 12 FT O. C.
 - PVC SCH 40 EL, 90 DEG. ELBOWS, TWO REQUIRED TO MAKE ANGLE TRANSITION TYPICAL BOTH SIDES, SEE ABOVE
 - PIPE STABILIZER, MODEL V.I.T. PS18, INSTALL AT BOTH ENDS OF GALV. STEEL PIPE SLEEVE AS SHOWN
 - SCH 40 GALV. STEEL SLEEVE, USE SMALLEST SIZE WHICH ACCOMMODATES THE SCH 40 PVC PIPE, EXTEND STEEL SLEEVE A MIN. OF 12" PAST CONCRETE EDGE
 - PVC LATERAL LINE, ROUTE THROUGH GALV. STEEL SLEEVE

B V-DITCH DRAIN CROSSING

SCALE: N.T.S.

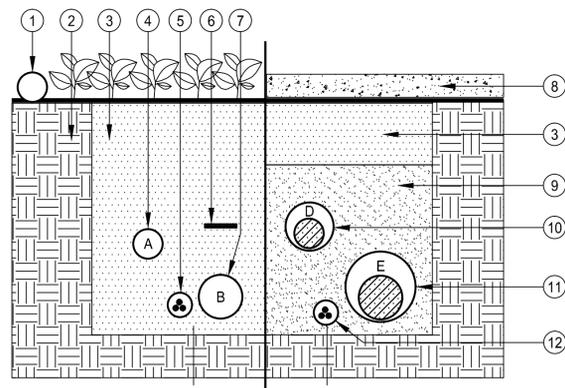


- LEGEND**
- PVC MAINLINE OR MANIFOLD SUBMAIN / BACKBONE PIPE. SEE LEGEND FOR DEPTH AS PER SPECIFICATION
 - LANDSCAPE FABRIC, MINIMUM 4.5 OZ. MATERIAL. SEE SPECIFICATIONS FOR APPROVED TYPE
 - PVC SCH 80 SLO-CLOSE BALL VALVE, INSTALL VALVE CENTERED IN BOX. REFER TO LEGEND FOR SPECIFICATION
 - 8" PVC CL 160 PIPE OR NON-PERF DRAIN PIPE, LENGTH AS REQUIRED. FIT PIPE OUTSIDE UNION. USE FABRIC TO FILL IRREGULARITIES
 - 3/4" CRUSHED GRAVEL, FILL TO 2" BELOW TOP OF SLEEVE AND 5" BELOW BALL VALVE FOR SUPPORT
 - SUPPORT BRICKS, (3 REQ.)
 - SITE SOIL
 - FINISH GRADE
 - 10" ROUND SPECIFICATION GRADE VALVE BOX WITH BOLT DOWN 'T' COVER. HEAT BRAND "BV" ONTO LID.

NOTES:
 A. SET TOP OF VALVE BOX 1/2" ABOVE FINISHED GRADE IN TURF AREAS.
 B. IN SHRUB AREAS INSTALL VALVE BOX 2" ABOVE SOIL LEVEL OR 1/2" ABOVE MULCH LAYER, WHICHEVER IS HIGHER.
 C. CONTRACTOR TO PROVIDE ONE STANDARD 30 INCH SPRINKLER KEY WRENCH FOR THE OPERATION OF BALL VALVES.

C PVC MAINLINE ISOLATION BALL VALVE

SCALE: N.T.S.



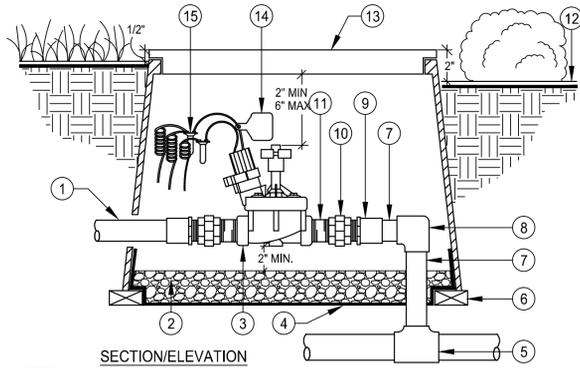
- LEGEND**
- ON-GRADE LATERAL PIPE
 - UNDISTURBED SOIL
 - COMPACTED BACKFILL
 - LATERAL LINE
 - 2-WIRE CABLE WITHIN ELECTRICAL CONDUIT
 - MAINLINE TRACER TAPE OR AWG #6 BARE COPPER TRACER WIRE, REFER TO LEGEND FOR SPECIFICATION
 - MAINLINE, REFER TO LEGEND FOR SPECIFICATION
 - ROADWAY / PAVING
 - SAND BACKFILL
 - LATERAL LINE SLEEVE
 - MAINLINE SLEEVE
 - CONTROL WIRE SLEEVE

DEPTH CHART	A	B	C	D	E	F
6" & LARGER	-	36"	36"	36"	36"	36"
3" & 4"	18"	24"	24"	30"	36"	36"
2 1/2" & SMALLER	12"	18"	18"	24"	30"	30"
WIRING	-	-	BESIDE MAIN	-	-	BESIDE MAIN

NOTES:
 A. SLEEVE UNDER PEDESTRIAN WALKWAYS SHALL EQUAL DEPTHS INDICATED IN COLUMNS A, B, & C.
 B. LINES MUST HAVE MIN. CLEARANCE OF 4" FROM EACH OTHER & 12" FROM OTHER TRADES.
 C. RUN WIRING BESIDE MAINLINE AT LOCATION SHOWN, TAPE & BUNDLE @ 10' O.C.
 D. TIE A 24" LOOP IN ALL WIRING AT CHANGES IN DIRECTION, WHEN NOT INSTALLED WITHIN CONDUIT.
 E. ALL SLEEVES MUST BE 2X THE DIAMETER OF THE PIPE WITHIN.
 F. ALL SLEEVE ENDS MUST BE SEALED WITH FOAM SEALANT INSIDE PIPE TO MINIMIZE DEBRIS INTRUSION.
 G. ALL SLEEVES MUST EXTEND 12" MIN. DISTANCE PAST EDGE OF ROADWAY, CURB, OR SIDEWALK.
 H. CONTRACTOR MUST ADJUST MAINLINE AROUND ALL STREET LIGHT LOCATIONS, LIGHT BOLLARDS, TREE ROOT BALLS, (MIN. 5' CLEARANCE), AND OTHER OBSTACLES.

D PIPE / WIRE / SLEEVE INSTALLATION

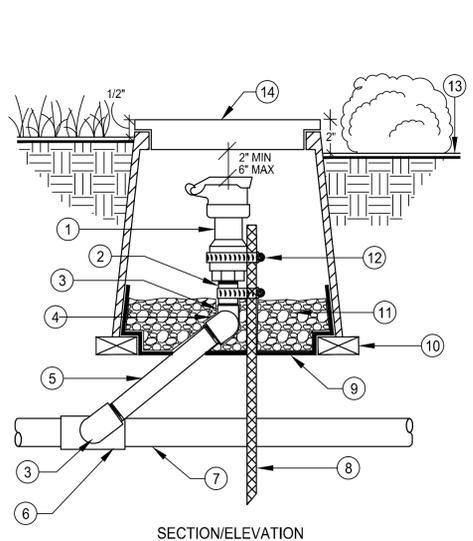
SCALE: N.T.S.



- NOTES:**
 A. SET TOP OF VALVE BOX 1/2" ABOVE FINISHED GRADE IN TURF AREAS.
 B. IN SHRUB AREAS INSTALL VALVE BOX 2" ABOVE SOIL LEVEL OR 1" ABOVE MULCH LAYER, WHICHEVER IS HIGHER.
- LEGEND**
- PVC LATERAL LINE PIPE TO ZONE
 - 3/4" CRUSHED GRAVEL, MIN. 5"-6" DEPTH
 - REMOTE CONTROL VALVE, REFER TO LEGEND FOR SPECIFICATION
 - LANDSCAPE FABRIC
 - PVC SCH 80 MAINLINE TEE/ELL FITTING
 - SOLID BRICK, NOMINAL SIZE (MIN. 4 REQ.)
 - PVC PIPE, MINIMUM PRESSURE RATING-315 PSI, SIZE PER IMMEDIATE DOWNSTREAM RCV LATERAL SIZE
 - PVC SCH 80 SS EL, SIZE PER #10
 - SCH 40 PVC MALE ADAPTER MIPT x SLIP, OR REDUCING MA. THREAD SIZE PER RCV THREAD SIZE
 - PVC SCH 80 TT UNION, (2 REQ.), SIZE PER RCV. (MAY SUBSTITUTE WITH DURA COUPLING MANIFOLD SYSTEM, P/N 332-010, 332-015, 332-020. SCH 80 NIPPLES DOWNSTREAM AND UPSTREAM OF RCV ARE NOT REQUIRED)
 - PVC SCH 80 PVC NIPPLE, RCV SIZE, MIN. LENGTH 4" (2 REQ.)
 - FINISH GRADE
 - RECTANGULAR SPECIFICATION GRADE VALVE BOX WITH BOLT DOWN 'T' COVER. HEAT BRAND "RCV" AND ZONE # ON LID
 - RCV PURPLE ID TAG
 - CONTROL WIRES WITH WATER TIGHT SPLICES PROVIDE 24" COIL OF WIRE AT VALVE

E RCV ASSEMBLY FOR OVERHEAD SYSTEMS

SCALE: N.T.S.



- NOTES:**
 A. SET TOP OF VALVE BOX 1/2" ABOVE FINISHED GRADE IN TURF AREAS.
 B. IN SHRUB AREAS INSTALL VALVE BOX 2" ABOVE SOIL LEVEL OR 1" ABOVE MULCH LAYER, WHICHEVER IS HIGHER.
- LEGEND**
- QUICK COUPLING VALVE. SEE LEGEND FOR SPECIFICATION
 - BRASS NIPPLE- QCV SIZED 4" MIN. LENGTH
 - BRASS ST. ELL (2 REQ.)
 - BRASS ELL
 - BRASS NIPPLE- QCV SIZED 12" MIN. LENGTH FOR 18" TRENCH 18" MIN. LENGTH FOR 24" TRENCH
 - PVC SCH 80 FITTING, TEE / ELL
 - PVC MAINLINE SEE LEGEND FOR SPECIFICATION
 - #4 REBAR 36" MIN. LENGTH
 - LANDSCAPE FABRIC
 - SUPPORT BRICKS (3 REQ.)
 - 3/4" CRUSHED GRAVEL, MIN. 1 CUBIC FOOT
 - STAINLESS STEEL CLAMP (2 REQ.)
 - FINISH GRADE
 - 10" ROUND SPECIFICATION GRADE VALVE BOX WITH "T" COVER. HEATED BRANDED MARKED "QCV"

F QUICK COUPLER ASSEMBLY

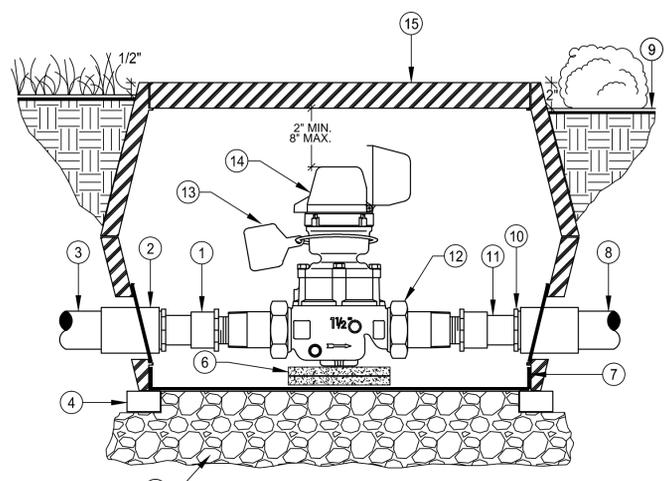
SCALE: N.T.S.

STAFF APPRVL	NO.	REVISION	DATE	R.C.E.	EXP. DATE	CITY ENG.	DATE	PUBLIC IMPROVEMENTS APPROVED FOR CONSTRUCTION
								CITY OF SANTA ROSA
								BY DAVID M. GUHIN CITY ENGINEER CITY OF SANTA ROSA, CA
								DATE
								CITY OF SANTA ROSA FILE NO.

ROUND BARN VILLAGE
SANTA ROSA, CALIFORNIA

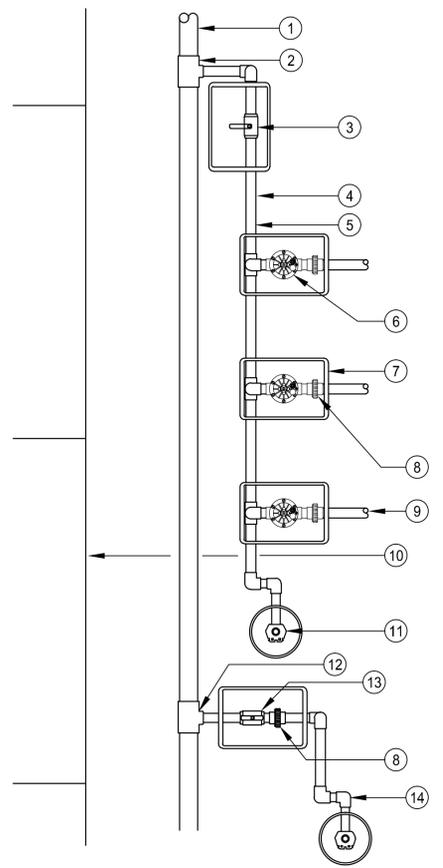
CTV124-P: 1st Agency Submittal (11-06-2018) NOT FOR CONSTRUCTION

SCALE: AS SHOWN
JOB No. CTV124-P
IRRIGATION DETAILS
LI-5.01
SHEET 183 OF 212

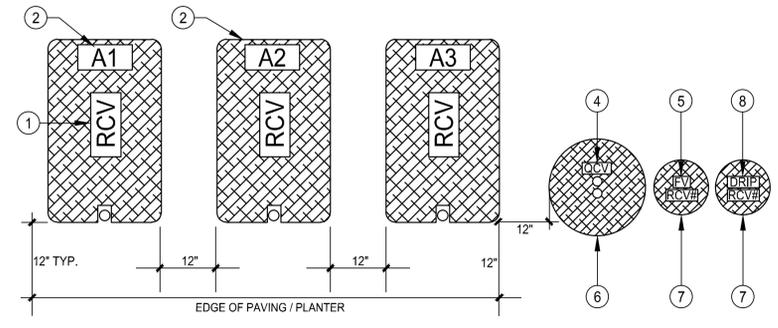


NOTES:
 A. SET TOP OF VALVE BOX 1/2" ABOVE FINISHED GRADE IN TURF AREAS.
 B. IN SHRUB AREAS INSTALL VALVE BOX 2" ABOVE SOIL LEVEL OR 1/2" ABOVE MULCH LAYER, WHICHEVER IS HIGHER.

- LEGEND**
- | | | | |
|---|---|---|---|
| 1. PVC SCH 80 MALE ADAPTER, SIZE PER HYDROMETER UNIT. (2 REQ.) | 4. 4x8 BRICK SUPPORTS (MIN. 6 REQ.) | 9. FINISH GRADE | CONTROLLER PER MANUFACTURER'S SPECIFICATION |
| 2. PVC SCH 80 SLIP COUPLER, MAINLINE SIZE | 5. 3/4" CRUSHED GRAVEL, 8" MIN. DEPTH | 10. PVC SCH 40 SS REDUCER BUSHING (MAINLINE SIZE x HYDROMETER SIZE) | TWO DOUBLE INTERLOCKING SPECIFICATION GRADE 'JUMBO' RECTANGULAR VALVE BOXES (19"x26" NOM. SIZE) WITH BOLT DOWN 'T' COVER MARKED 'MV/FS' |
| 3. PVC MAINLINE PIPE FROM METER/BACKFLOW ASSEMBLY. PIPE SHALL UPSIZE TO MAINLINE SIZE | 6. 8"x8" CONCRETE PAVERS FOR SUPPORT | 11. PVC PIPE, MAINLINE TYPE | |
| | 7. LANDSCAPE FABRIC | 12. UNION, AS PART OF UNIT | |
| | 8. PVC MAINLINE PIPE TO IRRIGATION SYSTEM | 13. APPURTENANCE PURPLE ID TAG | |
| | | 14. HYDROMETER, WIRE TO | |



- LEGEND**
- IRRIGATION MAINLINE
 - MAINLINE TEE FITTING, MAINLINE x MANIFOLD SIZE
 - MANIFOLD ISOLATION VALVE. REFER TO LEGEND FOR TYPE, MANIFOLD SIZE
 - ALL VALVE BOXES TO HAVE A MINIMUM 12" SEPARATION BETWEEN BOXES
 - IRRIGATION MANIFOLD "SUB-MAINLINE" PIPE. SIZE PER LARGEST LATERAL PIPE
 - REMOTE CONTROL VALVE
 - RECTANGULAR SPECIFICATION GRADE VALVE BOX. REFER TO LEGEND FOR TYPE
 - PVC SCH 80 UNION. ONE OR TWO REQUIRED. SEE RCV INSTALLATION DETAILS
 - LATERAL LINE TO SPRINKLERS
 - SIDEWALK / HARDSCAPE EDGE, INSTALL BOXES 12"-18" FROM EDGE
 - QUICK COUPLER VALVE
 - MAINLINE TEE FITTING, MAINLINE x 1-1/2" SIZE
 - QCV MANIFOLD ISOLATION BALL VALVE. REFER TO LEGEND FOR TYPE
 - QUICK COUPLER SWING JOINT
 - 10" ROUND SPECIFICATION GRADE VALVE BOX. REFER TO LEGEND FOR TYPE

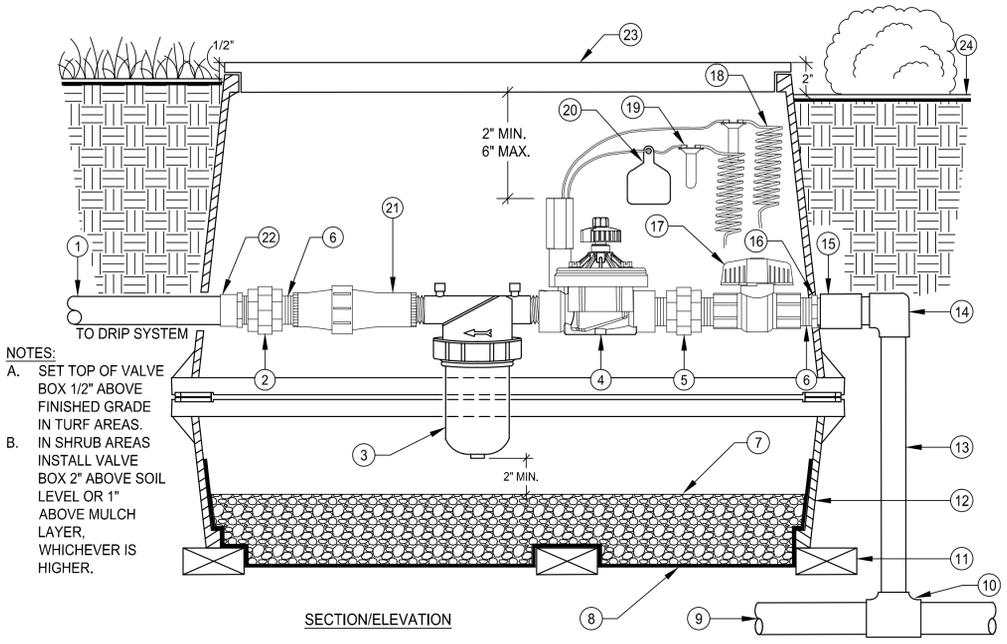


- PLAN VIEW**
- NOTES:**
- SPECIFICATION GRADE VALVE BOXES BY RAIN BIRD ONLY.
 - VALVE BOXES SHALL BE LABELED BY HOT IRON BRANDING.
 - LOCATE VALVE ASSEMBLIES 18"-24" FROM HARDSCAPE.
 - LOCATION OF VALVE ASSEMBLIES SHALL BE STAKED FOR APPROVAL BY LANDSCAPE ARCHITECT PRIOR TO INSTALLATION.
 - CENTER VALVE BOXES OVER VALVE TO FACILITATE SERVICING VALVE.
 - SET RCV AND VALVE ASSEMBLIES IN GROUND-COVER/SHRUB AREA WHERE POSSIBLE.
 - SET BOXES AT EQUAL ELEVATIONS W/ TOPS AT 2" ABOVE MULCH IN SHRUBS AND 1/2" ABOVE FINISH GRADE IN TURF.
 - SET BOXES PARALLEL TO EACH OTHER AND PERPENDICULAR TO EDGE.
 - AVOID HEAVILY COMPACTING SOIL AROUND VALVE BOXES TO PREVENT COLLAPSE AND DEFORMATION OF VALVE BOXES.
- LEGEND**
- | | |
|---------------------------|--------------------------|
| ARV AIR RELIEF VALVE | FV FLUSH VALVE ASSEMBLY |
| BS BASKET STRAINER | GV GATE VALVE |
| BV BALL VALVE | GRD GROUND ROD |
| CCC COMMUNICATION SPLICES | MS MOISTURE SENSOR |
| DRIP TREE DRIP MANIFOLD | MV MASTER VALVE |
| FI FERTILIZER INJECTOR | SB SPLICE BOX |
| FS FLOW SENSOR | RCV REMOTE CONTROL VALVE |
| | QCV QUICK COUPLER VALVE |
- LEGEND**
- 'RCV' HEAT BRANDED ON VALVE BOX LID
 - APPROPRIATE CONTROLLER AND STATION NUMBER HEAT BRANDED ON VALVE BOX LID
 - RECTANGULAR SPECIFICATION GRADE VALVE BOX, TYP.
 - 'QCV' HEAT BRANDED ON VALVE BOX LID
 - 'FV' WITH DRIP ZONE RCV STATION NUMBER HEAT BRANDED ON ALL DRIP SYSTEM FLUSH VALVE BOX LIDS
 - 10" ROUND SPECIFICATION GRADE QUICK COUPLER VALVE BOX, TYP.
 - 7" ROUND DRIP VALVE BOX, TYP.
 - 'DRIP' WITH TREE DRIP ZONE RCV STATION NUMBER HEAT BRANDED ON ALL TREE DRIP MANIFOLD BOX LIDS

A 1-1/2" HYDROMETER / MASTER VALVE
 SCALE: N.T.S.

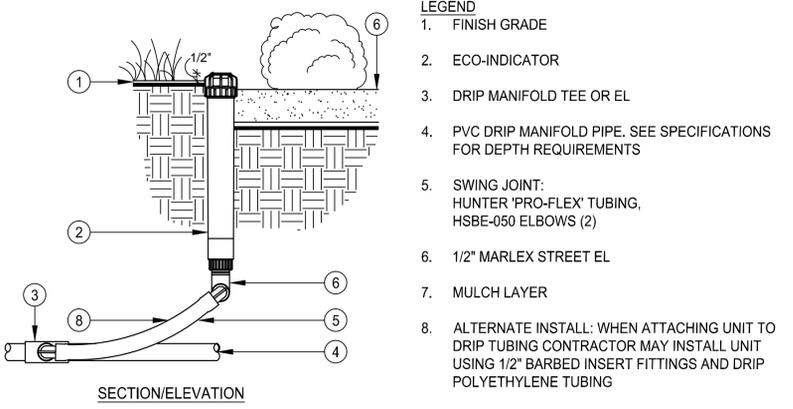
B MANIFOLD LAYOUT
 SCALE: N.T.S.

C VALVE BOX LOCATION / MARKING
 SCALE: N.T.S.



NOTES:
 A. SET TOP OF VALVE BOX 1/2" ABOVE FINISHED GRADE IN TURF AREAS.
 B. IN SHRUB AREAS INSTALL VALVE BOX 2" ABOVE SOIL LEVEL OR 1" ABOVE MULCH LAYER, WHICHEVER IS HIGHER.

- LEGEND**
- LATERAL LINE PIPE. SIZE PER PLANS
 - 1" PVC SCH 80 TT UNION. (MAY SUBSTITUTE WITH 1" DURA COUPLING MANIFOLD SYSTEM, P/N 332-010. NIPPLE IS NOT REQUIRED)
 - 1" NETAFIM DISC FILTER WITH 140 MESH (BLK) RINGS, MODEL DF100-140
 - 1" REMOTE CONTROL VALVE
 - 1" PVC SCH 80 TT UNION. (MAY SUBSTITUTE WITH 1" DURA COUPLING MANIFOLD SYSTEM, P/N 332-010. NIPPLE UPSTREAM OF RCV IS NOT REQUIRED)
 - 1"x3" PVC SCH 80 NIPPLE (4 REQ. WHEN UNIONS ARE USED)
 - 3/4" CRUSHED GRAVEL, MIN. 5" DEPTH
 - LANDSCAPE FABRIC
 - MAINLINE / MANIFOLD PIPE: DEPTH PER SPECS.
 - MAINLINE PVC SCH 80 FITTING-REDUCING. USE PVC BUSHING ON RCV OUTLET AS REQUIRED TO DOWNSIZE PIPE
 - NOMINAL SIZE SOLID BRICK (MIN. 6 REQ.)
 - RAIN BIRD JUMBO VALVE BOX 6.75" EXTENSION, MODEL VBMB6EXTB
 - SIZE RISER PIPE PER OUTLET LATERAL SIZE
 - PVC SCH 80 EL, SIZE PER #11
 - PVC SCH 40 SS COUPLING, SIZE PER #11
 - PVC SCH 40 BUSHING, SxT
 - 1" THREADED PVC BALL VALVE. REFER TO LEGEND FOR SPECIFICATION
 - CONTROL WIRES: PROVIDE 24" COIL OF WIRE AT VALVE
 - WIRE SPLICE CONNECTION
 - PURPLE RCV ID TAG
 - 1" NETAFIM 40 PSI PRESSURE REGULATOR, MODEL WRPR1-40
 - PVC SCH 40 MALE ADAPTER (REDUCING AS REQUIRED) MipT x Socket. OUTLET SIZE PER LATERAL PIPE SIZE. REFER TO PLAN FOR SIZE
 - RAIN BIRD JUMBO RECTANGULAR SPECIFICATION GRADE VALVE BOX, HEAT BRAND 'RCV' AND ZONE # ON LID
 - FINISH GRADE



- LEGEND**
- FINISH GRADE
 - ECO-INDICATOR
 - DRIP MANIFOLD TEE OR EL
 - PVC DRIP MANIFOLD PIPE. SEE SPECIFICATIONS FOR DEPTH REQUIREMENTS
 - SWING JOINT: HUNTER 'PRO-FLEX' TUBING, HSBE-050 ELBOWS (2)
 - 1/2" MARLEX STREET EL
 - MULCH LAYER
 - ALTERNATE INSTALL: WHEN ATTACHING UNIT TO DRIP TUBING CONTRACTOR MAY INSTALL UNIT USING 1/2" BARBED INSERT FITTINGS AND DRIP POLYETHYLENE TUBING
- NOTES:**
- INSTALL ONE (1) ECO-ID WITHIN EACH PLANTER TO SHOW EXTENT OF ZONE WHILE UNDER OPERATION.
 - DUE TO CLARITY ISSUES ECO-ID SYMBOLS ARE NOT SHOWN ON PLAN.
 - CONTRACTOR SHALL REVIEW EACH DRIP ZONE AREA AND LAYOUT TO DETERMINE EXACT QUANTITY OF ECO-ID UNITS TO INSTALL. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL UNITS REQUIRED ON THE PROJECT.
 - IN TURF AREAS INSTALL UNIT 1/2" ABOVE FINISHED GRADE.
 - IN SHRUB AREAS INSTALL UNIT 2" ABOVE SOIL LEVEL OR 1" ABOVE MULCH LAYER, WHICHEVER IS HIGHER.
 - DUE TO NO FACTORY INSTALLED CHECK VALVE INSTALL AT HIGH POINTS OF ZONE, OR INSTALL HUNTER MANUALLY INSTALLED CHECK VALVE, P/N 462237SP.

E DRIP ZONE OPERATION INDICATOR ASSEMBLY
 SCALE: N.T.S.

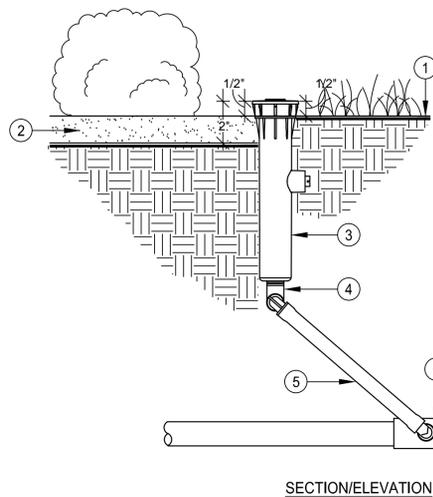
D RCV ASSEMBLY FOR DRIPLINE & POINT SOURCE SYSTEMS (1-20 GPM)
 SCALE: N.T.S.

STAFF APPRVL	NO.	REVISION	DATE	EXP. DATE	CITY ENG.	DATE	PUBLIC IMPROVEMENTS APPROVED FOR CONSTRUCTION
							CITY OF SANTA ROSA
							BY DAVID M. GUHIN, CITY ENGINEER, CITY OF SANTA ROSA, CA
							DATE
							CITY OF SANTA ROSA FILE NO. _____

ROUND BARN VILLAGE
 SANTA ROSA, CALIFORNIA

CTV124-P: 1st Agency Submittal (11-06-2018) NOT FOR CONSTRUCTION

SCALE: AS SHOWN
 JOB No. CTV124-P
IRRIGATION DETAILS
LI-5.02
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LEGEND

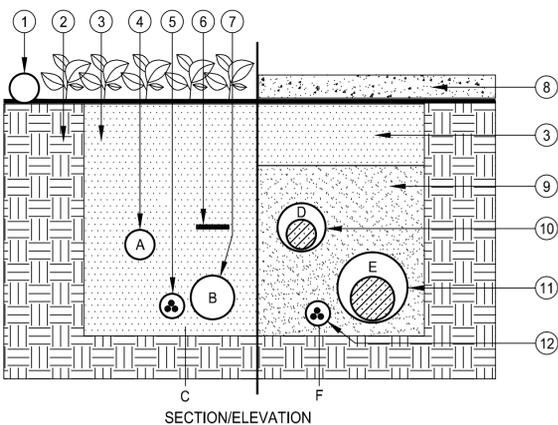
1. FINISH GRADE
2. MULCH LAYER*, REFER TO LANDSCAPE SPECIFICATIONS FOR TYPE AND DEPTH
3. POP-UP SPRINKLER. REFER TO LEGEND FOR TYPE
4. 1/2" MARLEX EL FITTING, PART OF SWING ASSEMBLY.
5. HUNTER MANUFACTURED SWING ASSEMBLY; 12" MIN. LENGTH, SIZE PER SPRINKLER INLET MODEL SJ-512 - 1/2" INLET MODEL SJ-712 - 3/4" INLET
6. PVC SCH 40 SxSxT TEE OR SxT EL
7. PVC LATERAL PIPE

NOTES:

- A. USE TEFLON TAPE ON ALL EXPOSED THREADS.
- B. WHERE A MULCH LAYER IS USED AS GROUND COVER INSTALL TOP OF SPRINKLER BODY 1/2" ABOVE MULCH COVER, AT NO TIME SHALL MULCH BURY THE CAP.
- C. WHEN MULCH LAYER IS NOT PRESENT INSTALL TOP OF SPRINKLER BODY 2" ABOVE FINISH GRADE.
- D. INSTALLATION TO BE COMPLETED IN ACCORDANCE WITH MANUFACTURERS SPECIFICATIONS.
- E. INSTALL SPRINKLER HEADS 6" FROM PAVING EDGE IN GROUND COVER AREAS.
- F. INSTALL SPRINKLER HEADS 4" FROM PAVING EDGE IN TURF AREAS.
- G. INSTALL SPRINKLER HEADS 12" FROM ALL BUILDINGS, WALLS, AND FENCES.
- H. INSTALL SPRINKLER HEADS PLUMB.
- I. ADJUST SPRAYS OR NOZZLE STREAM TO COVER LANDSCAPE AREA WITHOUT OVERSPRAY ONTO PAVING, FENCES, WALLS, OR BUILDINGS. DO NOT SCALE DRAWINGS.

A POP-UP SPRINKLER

SCALE: N.T.S.



LEGEND

1. ON-GRADE LATERAL PIPE
2. UNDISTURBED SOIL
3. COMPACTED BACKFILL
4. LATERAL LINE
5. 2-WIRE CABLE WITHIN ELECTRICAL CONDUIT
6. MAINLINE TRACER TAPE OR AWG #6 BARE COPPER TRACER WIRE, REFER TO LEGEND FOR SPECIFICATION
7. MAINLINE, REFER TO LEGEND FOR SPECIFICATION
8. ROADWAY / PAVING
9. SAND BACKFILL
10. LATERAL LINE SLEEVE
11. MAINLINE SLEEVE
12. CONTROL WIRE SLEEVE

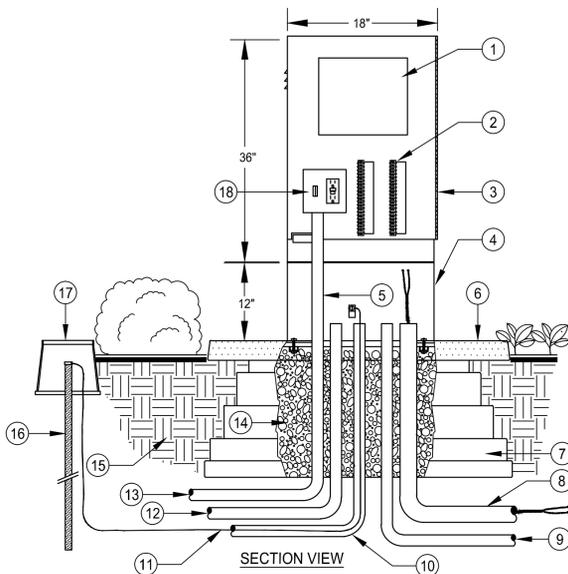
DEPTH CHART	A	B	C	D	E	F
6" & LARGER	-	36"	36"	36"	36"	36"
3" & 4"	18"	24"	24"	30"	36"	36"
2 1/2" & SMALLER	12"	18"	18"	24"	30"	30"
WIRING	-	-	BESIDE MAIN	-	-	BESIDE MAIN

NOTES:

- A. SLEEVE UNDER PEDESTRIAN WALKWAYS SHALL EQUAL DEPTHS INDICATED IN COLUMNS A, B, & C.
- B. LINES MUST HAVE MIN. CLEARANCE OF 4" FROM EACH OTHER & 12" FROM OTHER TRADES.
- C. RUN WIRING BESIDE MAINLINE AT LOCATION SHOWN, TAPE & BUNDLE @ 10' O.C.
- D. TIE A 24" LOOP IN ALL WIRING AT CHANGES IN DIRECTION, WHEN NOT INSTALLED WITHIN CONDUIT.
- E. ALL SLEEVES MUST BE 2X THE DIAMETER OF THE PIPE WITHIN.
- F. ALL SLEEVE ENDS MUST BE SEALED WITH FOAM SEALANT INSIDE PIPE TO MINIMIZE DEBRIS INTRUSION.
- G. ALL SLEEVES MUST EXTEND 12" MIN. DISTANCE PAST EDGE OF ROADWAY, CURB, OR SIDEWALK.
- H. CONTRACTOR MUST ADJUST MAINLINE AROUND ALL STREET LIGHT LOCATIONS, LIGHT BOLLARDS, TREE ROOT BALLS, (MIN. 5' CLEARANCE), AND OTHER OBSTACLES.

C PIPE / WIRE / SLEEVE INSTALLATION

SCALE: N.T.S.



LEGEND

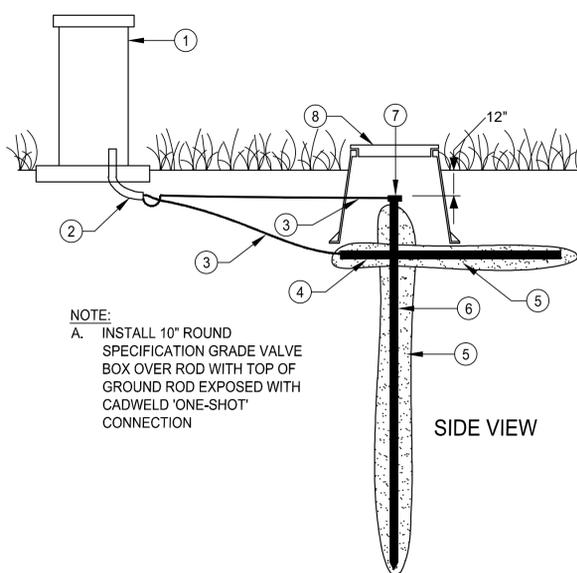
1. IRRIGATION CONTROLLER, INSTALLED WITHIN ENCLOSURE, REFER TO LEGEND FOR SPECIFICATION
2. CONTROLLER ENCLOSURE TERMINAL STRIP FOR REMOTE CONTROL VALVE WIRE CONNECTION
3. FRONT OPENING STAINLESS STEEL PEDESTAL. REFER TO LEGEND FOR SPECIFICATION
4. 12" RISER PEDESTAL EXTENSION. REFER TO LEGEND FOR SPECIFICATION
5. 120 VOLT SERVICE IN ELECTRICAL CONDUIT
6. PREFORMED ALUMINUM PAD, PART OF 'QUICKPAD' ASSEMBLY
7. V.I.T. PRODUCTS (STRONGBOX) ENCLOSURE MOUNTING PAD; 'QUICKPAD' WITH PREFORMED ALUMINUM PAD, PLASTIC BASE AND ALL STAINLESS STEEL HARDWARE
8. 2" SCH 40 ELECTRICAL CONDUIT WITH SWEEP ELL FOR CONTROL WIRES
9. 3/4" SCH 40 ELECTRICAL CONDUIT WITH SWEEP ELL FOR HARDWIRED PHONE COMMUNICATION LINE, INSTALL ONLY IF REQUIRED
10. 3" SCH 40 ELECTRICAL CONDUIT WITH SWEEP EL FOR GROUND WIRE
11. #6 AWG GROUND WIRE. PROVIDE ONE WIRE EACH TO GROUND ROD AND TO GROUND PLATE. (PLATE NOT SHOWN)
12. 3/4" SCH 40 ELECTRICAL CONDUIT WITH SWEEP ELL FOR FLOW SENSOR CABLE. INSTALL ONLY IF SEPARATE FLOW SENSOR WIRES ARE REQUIRED
13. SCH 40 ELECTRICAL CONDUIT WITH SWEEP ELL FOR 117 VAC POWER - SIZE PER ELECTRICAL REQUIREMENTS
14. FILL BASE OF 'QUICKPAD' WITH 3/4" CRUSHED GRAVEL TO TOP OF BASE UNIT
15. COMPACTED SITE SOIL
16. COPPER GROUND ROD, MINIMUM SPECIFICATION: 5/8"x8" WITH CADWELD 'ONE-SHOT' CONNECTION. INSTALL INSIDE A 10" ROUND BOX, GROUND ROD TO BE LOCATED WITHIN 8' TO 15' OF CONTROLLER. CONTRACTOR SHALL INSTALL PER CONTROLLER MANUFACTURER'S SPECIFICATION. (GROUND PLATE/WIRE NOT SHOWN. REFER TO GROUNDING DETAIL)
17. 10" ROUND SPECIFICATION GRADE VALVE BOX
18. ON/OFF SWITCH AND GFI OUTLET RECEPTACLE AS PART OF ENCLOSURE ASSEMBLY
19. GROUND PLATE WITH CONNECTION NOT SHOWN

NOTES:

- A. CONTROLLER GROUNDING SYSTEM SHALL REQUIRE A COPPER CLAD GROUND PLATE (NOT SHOWN HERE) IN ADDITION TO THE 8" GROUND ROD. PLATE SIZES MAY BE 1/32" x 4" x 96" OR 1/32" x 18" x 24" IN SIZE. REFER TO LEGEND FOR SPECIFICATION AND GROUNDING DETAILS WITHIN PACKAGE FOR ADDITIONAL INFORMATION.
- B. GROUNDING RODS AND PLATES SHALL BE COMPLETELY SURROUNDED WITH MINIMUM 1 INCH THICKNESS OF GROUNDING ENHANCEMENT MATERIAL PER GROUNDING EQUIPMENT MANUFACTURERS. REFER TO MANUFACTURERS SPECIFICATIONS FOR ADDITIONAL INFORMATION.

B PEDESTAL MOUNT CONTROLLER ASSEMBLY

SCALE: N.T.S.



LEGEND

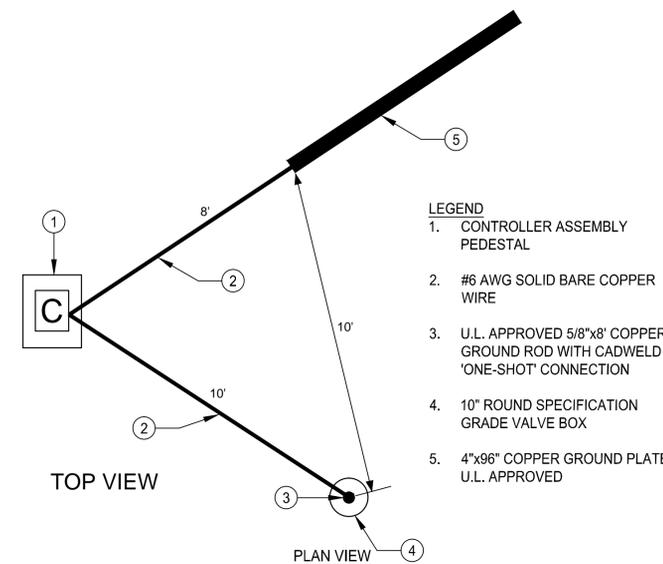
1. CONTROLLER ASSEMBLY PEDESTAL. REFER TO LEGEND FOR SPECIFICATION
2. PVC ELECTRICAL SWEEP ELL (1-1/2" OR LARGER)
3. #6 AWG SOLID BARE COPPER WIRE
4. U.L. APPROVED 4"x96" COPPER GROUND PLATE
5. GROUNDING ENHANCEMENT EARTH CONTACT MATERIAL. SEE NATIONAL ELECTRIC CODE FOR SPECIFICATION
6. 5/8"x8" COPPER CLAD GROUND ROD, U.L. APPROVED
7. CADWELD 'ONE-SHOT' CONNECTION
8. 10" ROUND SPECIFICATION GRADE VALVE BOX

NOTE:

- A. INSTALL 10" ROUND SPECIFICATION GRADE VALVE BOX OVER ROD WITH TOP OF GROUND ROD EXPOSED WITH CADWELD 'ONE-SHOT' CONNECTION

D PEDESTAL CONTROLLER GROUNDING

SCALE: N.T.S.



LEGEND

1. CONTROLLER ASSEMBLY PEDESTAL
2. #6 AWG SOLID BARE COPPER WIRE
3. U.L. APPROVED 5/8"x8" COPPER GROUND ROD WITH CADWELD 'ONE-SHOT' CONNECTION
4. 10" ROUND SPECIFICATION GRADE VALVE BOX
5. 4"x96" COPPER GROUND PLATE, U.L. APPROVED

E PEDESTAL CONTROLLER GROUNDING

SCALE: N.T.S.

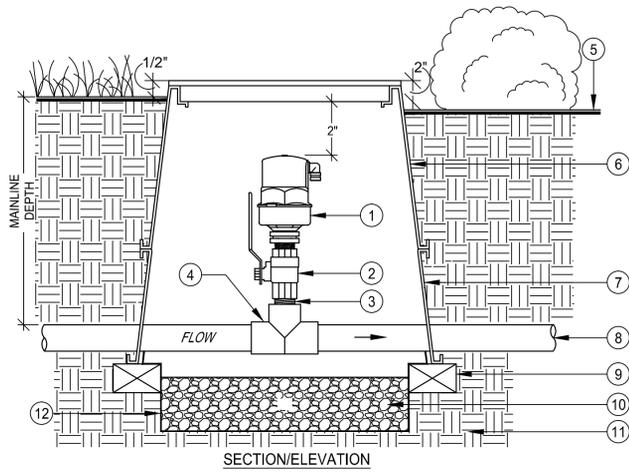
STAFF APPRVL	NO.	REVISIONS			EXP. DATE	CITY ENG. DATE	PUBLIC IMPROVEMENTS APPROVED FOR CONSTRUCTION CITY OF SANTA ROSA
		REVISION	DATE	R.C.E.			
							BY DAVID M. GUHIN CITY ENGINEER CITY OF SANTA ROSA, CA R.C.E. 65663
							DATE _____
							CITY OF SANTA ROSA FILE NO. _____

ROUND BARN VILLAGE
SANTA ROSA, CALIFORNIA

CTV124-P: 1st Agency Submittal (11-06-2018) NOT FOR CONSTRUCTION

SCALE AS SHOWN
JOB No. CTV124-P
IRRIGATION DETAILS
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SHEET 185 OF 212

DATE: 11/09/2018

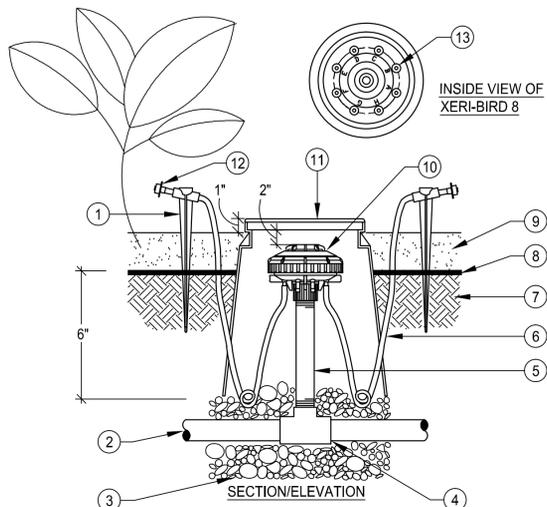


NOTES:
 A. INSTALL AIR VENT PER MANUFACTURES RECOMMENDATIONS.
 B. SET TOP OF VALVE BOX 1/2" ABOVE FINISH GRADE IN TURF AREAS.
 C. IN SHRUB AREAS INSTALL VALVE BOX 2" ABOVE SOIL LEVEL OR 1" ABOVE MULCH LAYER, WHICHEVER IS HIGHER.

- LEGEND
- | | | |
|--|---|---|
| 1. NETAFIM AIR/VACUUM CONTINUOUS ACTING AIR VENT | 5. FINISH GRADE | 8. MAINLINE |
| 2. BRASS BALL VALVE | 6. RECTANGULAR PLASTIC VALVE BOX WITH LOCKING LID. HEAT BRAND "ARV" ON LID IN 2" HIGH BLOCK LETTERS | 9. COMMON BRICK SUPPORTS (4 REQUIRED) |
| 3. SCH 80 PVC NIPPLE, LENGTH AS NEEDED | 7. RECTANGULAR PLASTIC VALVE BOX EXTENSION | 10. FILL BASE OF BOX WITH 3/4" GRAVEL |
| 4. SCH 80 PVC MAINLINE SxSxT TEE | 11. COMPACTED NATIVE SOIL | 12. FILTER FABRIC - COVER ALL BOX HOLES |

A 1" AIR/VACUUM CONTINUOUS ACTING AIR VENT

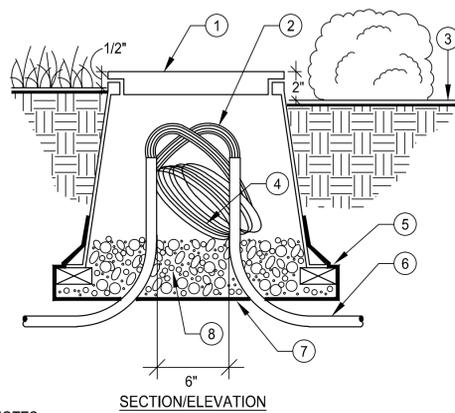
SCALE: N.T.S.



NOTES:
 A. COIL ADDITIONAL 9-INCHES OF 1/4" TUBING IN VALVE BOX TO FACILITATE MAINTENANCE.
 B. INSTALLED VALVE BOX HEIGHT AT 1/2" ABOVE MULCH COVER.
 C. INSTALL MANIFOLD AT MINIMUM OF FORTY EIGHT INCHES (48") FROM EDGE OF ROOTBALL.

D TREE DRIP EMITTER MANIFOLD ASSEMBLY

SCALE: N.T.S.



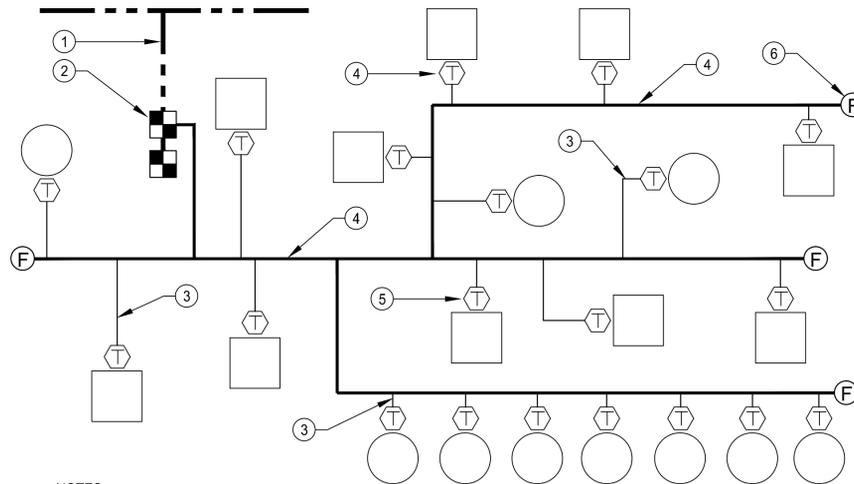
LEGEND

- RECTANGULAR SPECIFICATION GRADE VALVE BOX WITH BOLT DOWN COVER. BOX TO BE PLACED AT RIGHT ANGLE TO HARDSCAPE EDGE. HEAT BRAND "PB" ONTO LID
- FLOW SENSOR WIRE
- FINISH GRADE
- 36" WIRE EXPANSION LOOP TYPICAL
- BRICK SUPPORTS
- PVC ELECTRICAL SWEEP EL
- LANDSCAPE FABRIC
- 3/4" CRUSHED GRAVEL, MIN. 6" DEPTH

NOTES:
 A. PROVIDE WIRE JUNCTION/PULL BOX AT EVERY CHANGE OF DIRECTION AND AT MAXIMUM 200 FOOT INTERVALS.
 B. SET TOP OF VALVE BOX 1/2" ABOVE FINISHED GRADE IN TURF AREAS.
 C. IN SHRUB AREAS INSTALL VALVE BOX 2" ABOVE SOIL LEVEL OR 1/2" ABOVE MULCH LAYER, WHICHEVER IS HIGHER.

B FLOW SENSOR WIRE PULL BOX

SCALE: N.T.S.

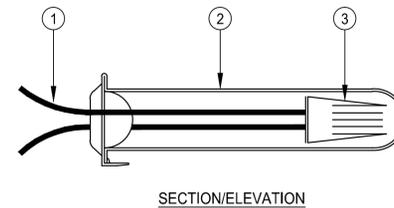


NOTES:
 A. CONTRACTOR SHALL ROUTE LATERAL PIPE THROUGHOUT ZONE USING BEST INSTALLATION PRACTICES.
 B. PLACE MULTI-EMISSION MANIFOLD AT MINIMUM FORTY EIGHT INCHES (48") FROM TREE/PALM ROOT BALL, TYPICAL.

- LEGEND
- MAINLINE, REFER TO LEGEND FOR TYPE
 - TREE/PALM DRIP ZONE CONTROL VALVE ASSEMBLY, REFER TO LEGEND FOR SPECIFICATION
 - 1/2" SCH 40 PVC SUB-LATERAL PIPE TO DRIP MANIFOLD ASSEMBLY, TYPICAL
 - SCH 40 PVC LATERAL 'BACKBONE' PIPE, TYPICAL. REFER TO PLAN FOR SIZES
 - MULTI-EMISSION MANIFOLD DEVICE PLACEMENT EXAMPLE
 - FLUSH VALVE WITHIN 7" ROUND VALVE BOX, TYPICAL. SEE DETAIL LI-5.02/E

E TREE DRIP SYSTEMS PVC LATERAL LAYOUT

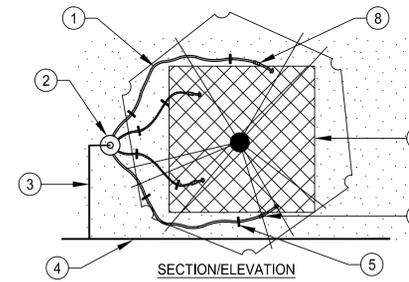
SCALE: N.T.S.



- LEGEND
- LOW VOLTAGE WIRES
 - POLY TUBE PRE-FILLED WITH WATERPROOF GEL
 - WIRE CONNECTOR. WIRES SHALL BE PRE-STRIPPED OF 1/2" OF THE INSULATION PRIOR TO INSERTION INTO THE CONNECTOR. TWIST CONNECTOR ONTO WIRES TO SEAT FIRMLY

C WIRE CONNECTION

SCALE: N.T.S.



- LEGEND
- 1/4" DISTRIBUTION TUBING: RAIN BIRD, MODEL XQ
 - MULTI-OUTLET EMISSION DEVICE: RAIN BIRD XERI-BIRD 8, MODEL XBD-80 (W/O EMITTERS) INSTALLED WITHIN 7" SPECIFICATION GRADE VALVE BOX
 - 1/2" PVC SCH 40 LATERAL LINE PIPE
 - PVC SCH 40 LATERAL LINE PIPE, SEE SPECIFICATIONS FOR DEPTH REQUIREMENTS
 - GALVANIZED TIE-DOWN TUBING U-STAKE: RAIN BIRD, MODEL TDS-050
 - 1/4-INCH TUBING STAKE: RAIN BIRD, MODEL TS-025
 - ROOTBALL OF TREE
 - DIFFUSER BUG CAP: RAIN BIRD MODEL DBC-025

TREE EMITTER TABLE (SUN)	
PLANT SIZE	# OF EMITTERS
15 GAL. TREE	3 - 2 GPH
24" BOX TREE	4 - 2 GPH
36" BOX TREE	4 - 5 GPH
48" BOX TREE	6 - 5 GPH
60" BOX TREE	6 - 7 GPH
72" BOX TREE	6 - 10 GPH
84" BOX TREE	8 - 12 GPH
96" BOX TREE	8 - 18 GPH

DRIP SYSTEM NOTES:

- EMITTER TABLE AT RIGHT IS ESTIMATED EMITTER QUANTITIES AND FLOWS. CONTRACTOR SHALL INSTALL EMITTERS AS SHOWN AT INITIAL INSTALLATION.
- ALL LATERAL LINES FOR DRIP ZONES SHALL BE PVC SCH 40 PIPE.
- SUB-LATERAL PIPING AS SHOWN IN DETAIL 'E' SHALL BE 1/2" SCH 40 PIPE. 'BACKBONE' LATERALS SHALL BE PER PLAN SIZE.
- CONTRACTOR TO PROVIDE THE QUANTITY OF EMITTERS BASED ON THE ACTUAL PLANT COUNT AND THE EMITTER TABLE SHOWN AT RIGHT.
- VERIFY THE ACTUAL PLANT QUANTITIES AND SIZES FROM THE LANDSCAPE PLANS PRIOR TO BIDDING OR COMMENCING WORK.
- POST PLANT INSTALLATION: IT SHALL BE THE RESPONSIBILITY OF LANDSCAPE CONTRACTOR TO REVISE EMITTER SIZES AS MAY BE NEEDED TO PROVIDE ANY WATER VOLUME ADJUSTMENTS FOR HEALTHY PLANT GROWTH. THIS TASK SHALL BE COMPLETED AFTER THREE WEEKS OF PLANT OBSERVATIONS AFTER THE INITIAL INSTALLATION AND AGAIN ONE WEEK BEFORE MAINTENANCE PERIOD IS COMPLETED. THESE EMITTER CHANGES AND FINE TUNE ADJUSTMENTS SHALL BE CARRIED OUT AFTER CONSULTATION AND REVIEW OF WATER NEEDS WITH THE IRRIGATION CONSULTANT AND LANDSCAPE ARCHITECT.

F TREE DRIP MANIFOLD INSTALLATION

SCALE: N.T.S.

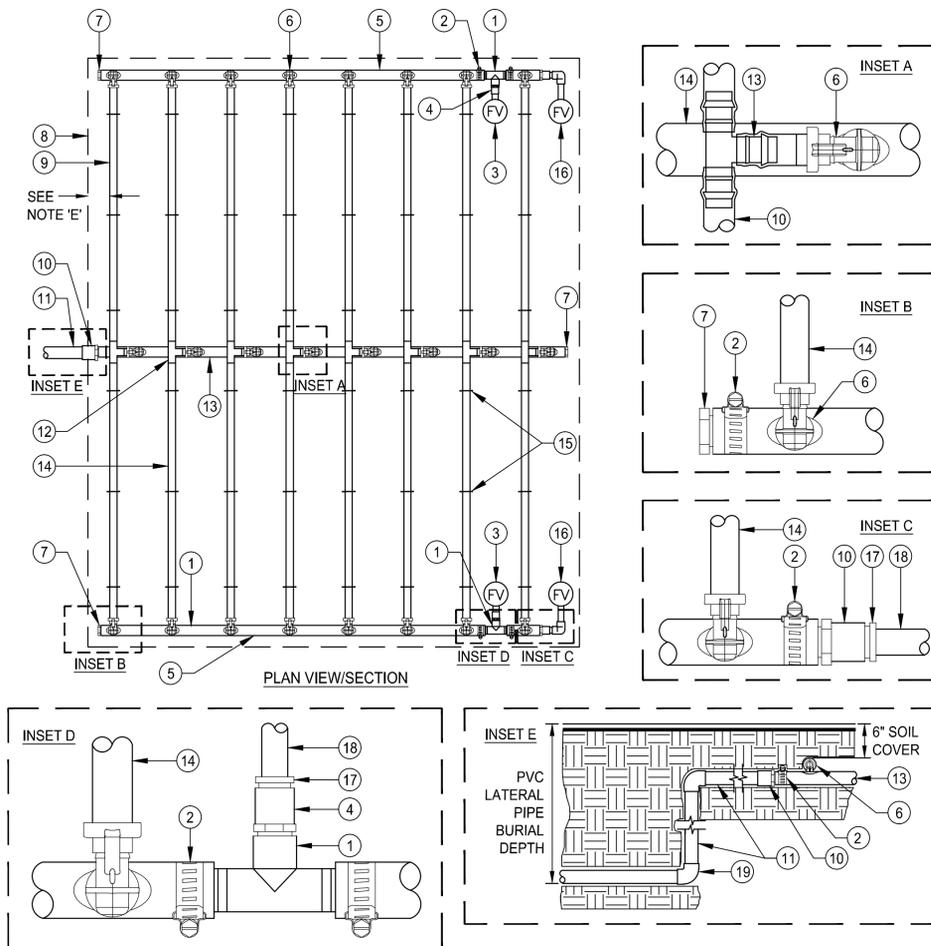
STAFF APPRVL	NO.	REVISIONS	DATE	R.C.E.	EXP. DATE	CITY ENG.	DATE

PUBLIC IMPROVEMENTS APPROVED FOR CONSTRUCTION
 CITY OF SANTA ROSA

BY: DAVID M. GUHIN, CITY ENGINEER, CITY OF SANTA ROSA, CA. R.C.E. 65663

DATE: _____

CITY OF SANTA ROSA FILE NO. _____



NOTES:

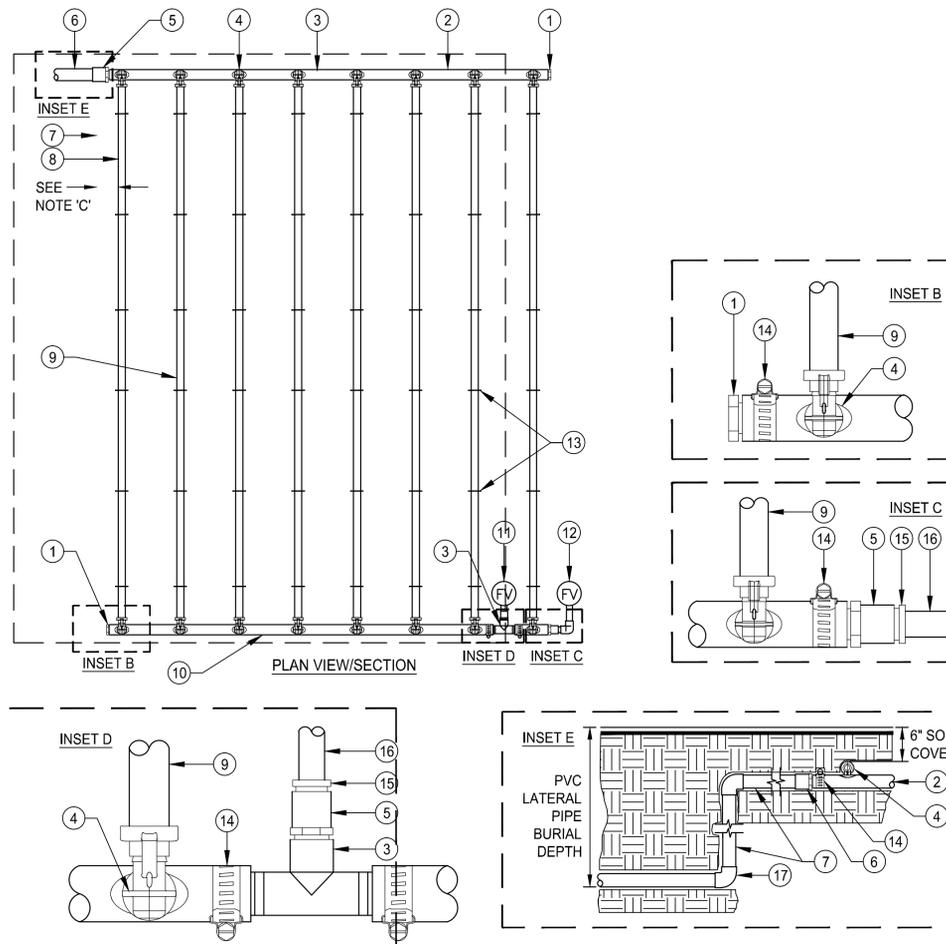
- A. RAIN BIRD 'QF' DRIPLINE HEADER -USE 3/4" FOR ZONE OR 'ZONE SECTION' FLOWS 6 GPM OR LESS.
- B. RAIN BIRD 'QF' DRIPLINE HEADER-USE 1" FOR ZONE OR 'ZONE SECTION' FLOWS 7 GPM TO 11 GPM MAXIMUM FLOW. FOR ZONES HIGHER THAN 11 GPM, UP TO 21 GPM FLOW THE USE OF TWO HEADERS INSTALLED IN PARALLEL ARE REQUIRED, OR USE 1-1/4" PVC PIPE. HIGHER FLOW THAN 21 GPM USE 1-1/2" PVC PIPE.
- C. QF-DRIPLINE HEADER SHALL ALWAYS BE INSTALLED AT DEPTH TO ACCOMMODATE THE 6" INSTALLATION DEPTH FOR THE SUB-SURFACE DRIPLINE TUBING.
- D. DISTANCE BETWEEN LATERAL ROWS TO BE BASED ON SOIL TYPE, PLANT MATERIALS AND CHANGES IN ELEVATION. MAXIMUM SPACING SHALL BE 12" APART FOR TURF AREAS. MAXIMUM SPACING SHALL BE 18" APART FOR FLAT SHRUB AREAS.
- E. INSTALL SUB-SURFACE TUBING MAXIMUM 3" FROM ANY HARDSCAPE EDGE IN TURF AND 9" IN SHRUBS.
- F. AIR RELEASE / VACUUM VALVE WHERE SHOWN IS DIAGRAMMATIC ONLY. CONTRACTOR MUST INSTALL AT HIGHEST POINT IN ZONE SECTION AREA FOR PROPER VACUUM RELEASE ACTION.
- G. MAXIMUM TUBING LENGTH OF RUN IN EITHER DIRECTION OF SUPPLY MANIFOLD SHALL NOT EXCEED 150' FROM SUPPLY MANIFOLD.

LEGEND

- | | |
|--|--|
| <ul style="list-style-type: none"> 1. PVC INSERT REDUCING TEE, SPEARS, MODEL 1402-101 OR 1402-130. (X" x 1/2") SIZED TO FIT QF DRIPLINE HEADER 2. STAINLESS STEEL CLAMP, OETIKER OR MURRAY TYPE 3. FLUSH VALVE ASSEMBLY WITHIN 7" ROUND BOX. (INSTALLATION FOR TURF ZONE, TYP.) REFER TO LEGEND FOR SPECIFICATION 4. PVC 1/2" MALE ADAPTER (MIPTXSOC), SPEARS, MODEL 436-005 5. RAIN BIRD 'QF' DRIPLINE EXHAUST HEADER: -USE 3/4" FOR ZONE OR 'ZONE SECTION' FLOWS LESS THAN 12 GPM -USE 1" FOR ZONE OR 'ZONE SECTION' FLOWS 12 GPM TO 22 GPM 6. PRE-INSTALLED BARB FITTING (TYP.) 7. PVC INSERT PLUG. SPEARS, MODEL 1449-007 OR 1449-010. SIZED TO FIT QF DRIPLINE HEADER. SEE INSET 'A' 8. EDGE OF PERIMETER (PLANTER) AREA 9. PERIMETER DRIPLINE TO BE INSTALLED MAXIMUM OF 3" FROM EDGE OF PERIMETER IN TURF AND 9" FROM EDGE OF PERIMETER IN SHRUB AREA 10. PVC INSERT MALE ADAPTER (BARB X SOC), SPEARS, MODEL 474-007 (3/4") OR 474-010 (1"). SIZED TO FIT QF DRIPLINE HEADER | <ul style="list-style-type: none"> 11. PVC SUPPLY PIPE FROM RCV (SIZED TO MEET LATERAL FLOW DEMAND, REFER TO PLAN FOR SIZE). INSTALL AT PVC LATERAL PIPE DEPTH PER SPECIFICATIONS 12. BARB INSERT FITTING: RAIN BIRD, XFF-TEE. SEE INSET 'A' 13. RAIN BIRD 'QF' DRIPLINE SUPPLY HEADER: -USE 3/4" FOR ZONE OR 'ZONE SECTION' FLOWS 6 GPM OR LESS -USE 1" FOR ZONE OR 'ZONE SECTION' FLOWS 7 GPM TO 11 GPM 14. SUB-SURFACE DRIPLINE TUBING. REFER TO LEGEND FOR SPECIFICATION 15. GALVANIZED TIE-DOWN STAKE, RAIN BIRD, MODEL TDS-050. (TYPICAL) REFER TO LEGEND FOR SPACING 16. FLUSH VALVE ASSEMBLY WITHIN 7" ROUND BOX. (INSTALLATION IN SHRUB PLANTER, TYP.) REFER TO LEGEND FOR SPECIFICATION 17. PVC SCH 40 REDUCER BUSHING (1"x1/2" or 3/4"x1/2") 18. PVC PIPE TO FLUSH VALVE ASSEMBLY. REFER TO FV ASSEMBLY DETAIL FOR ASSEMBLY CONSTRUCTION 19. PVC SCH 40 ELL (TYP.) |
|--|--|

A DRIPLINE- CENTER FEED LAYOUT W/ RAIN BIRD QF HEADER

SCALE: N.T.S.



NOTES:

- A. RAIN BIRD 'QF' DRIPLINE HEADER -USE 3/4" FOR ZONE OR 'ZONE SECTION' FLOWS 6 GPM OR LESS.
- B. RAIN BIRD 'QF' DRIPLINE HEADER-USE 1" FOR ZONE OR 'ZONE SECTION' FLOWS 7 GPM TO 11 GPM MAXIMUM FLOW. FOR ZONES HIGHER THAN 11 GPM, UP TO 21 GPM FLOW THE USE OF TWO HEADERS INSTALLED IN PARALLEL ARE REQUIRED, OR USE 1-1/4" PVC PIPE. HIGHER FLOW THAN 21 GPM USE 1-1/2" PVC PIPE.
- C. QF-DRIPLINE HEADER SHALL ALWAYS BE INSTALLED AT DEPTH TO ACCOMMODATE THE 6" INSTALLATION DEPTH FOR THE SUB-SURFACE DRIPLINE TUBING.
- D. DISTANCE BETWEEN LATERAL ROWS TO BE BASED ON SOIL TYPE, PLANT MATERIALS AND CHANGES IN ELEVATION. MAXIMUM SPACING SHALL BE 12" APART FOR TURF AREAS. MAXIMUM SPACING SHALL BE 18" APART FOR FLAT SHRUB AREAS.
- E. INSTALL SUB-SURFACE TUBING MAXIMUM 3" FROM ANY HARDSCAPE EDGE IN TURF AND 9" IN SHRUBS.
- F. AIR RELEASE / VACUUM VALVE WHERE SHOWN IS DIAGRAMMATIC ONLY. CONTRACTOR MUST INSTALL AT HIGHEST POINT IN ZONE SECTION AREA FOR PROPER VACUUM RELEASE ACTION.
- G. MAXIMUM TUBING LENGTH OF RUN IN EITHER DIRECTION OF SUPPLY MANIFOLD SHALL NOT EXCEED 200' FROM SUPPLY MANIFOLD.

LEGEND

- | | |
|---|---|
| <ul style="list-style-type: none"> 1. PVC INSERT PLUG. SPEARS, MODEL 1449-007 OR 1449-010. SIZED TO FIT QF DRIPLINE HEADER. SEE INSET 'A' 2. RAIN BIRD QF DRIPLINE SUPPLY HEADER: -USE 3/4" FOR ZONE OR 'ZONE SECTION' FLOWS 6 GPM OR LESS -USE 1" FOR ZONE OR 'ZONE SECTION' FLOWS 7 GPM TO 11 GPM 3. PVC INSERT REDUCING TEE, SPEARS, MODEL 1402-101 OR 1402-130. (X" X 1/2") SIZED TO FIT QF DRIPLINE HEADER 4. PRE-INSTALLED BARB FITTING (TYP.) 5. PVC INSERT MALE ADAPTER (BARB X SOC), SPEARS, MODEL 474-007 (3/4") or 474-010 (1"). SIZED TO FIT DRIPLINE HEADER 6. PVC SUPPLY PIPE FROM RCV (SIZED TO MEET LATERAL FLOW DEMAND, REFER TO PLAN FOR SIZE). INSTALL AT PVC LATERAL PIPE DEPTH PER SPECIFICATION 7. EDGE OF PERIMETER (PLANTER) AREA 8. PERIMETER DRIPLINE TO BE INSTALLED MAXIMUM OF 3" FROM EDGE OF PERIMETER IN TURF AND 9" FROM EDGE OF PERIMETER IN SHRUB AREAS | <ul style="list-style-type: none"> 9. SUB-SURFACE DRIPLINE TUBING. REFER TO LEGEND FOR SPECIFICATION 10. QF-MANIFOLD EXHAUST HEADER: -USE 3/4" FOR ZONE OR 'ZONE SECTION' FLOWS LESS THAN 10 GPM -USE 1" FOR ZONE OR 'ZONE SECTION' FLOWS 11 GPM TO 15 GPM 11. FLUSH VALVE ASSEMBLY (TYP.) WITHIN 7" ROUND BOX. (INSTALLATION FOR TURF ZONE, TYP.) REFER TO LEGEND FOR SPECIFICATION 12. FLUSH VALVE ASSEMBLY WITHIN 7" ROUND BOX. (INSTALLATION IN SHRUB PLANTER, TYP.) REFER TO LEGEND FOR SPECIFICATION 13. GALVANIZED TIE-DOWN STAKE, RAIN BIRD, MODEL TDS-050. REFER TO LEGEND FOR SPACING 14. STAINLESS STEEL CLAMP, OETIKER OR MURRAY TYPE 15. PVC REDUCER BUSHING, SPEARS, MODEL 437-101 or 437-130. SIZED TO FIT INSERT ADAPTER (3/4"x1/2" or 1"x1/2") 16. 1/2" PVC PIPE TO FLUSH VALVE ASSEMBLY. REFER TO FV ASSEMBLY DETAIL FOR ASSEMBLY CONSTRUCTION 17. PVC SCH 40 ELL (TYP.) |
|---|---|

B DRIPLINE- END FEED LAYOUT W/ RAIN BIRD QF HEADER

SCALE: N.T.S.

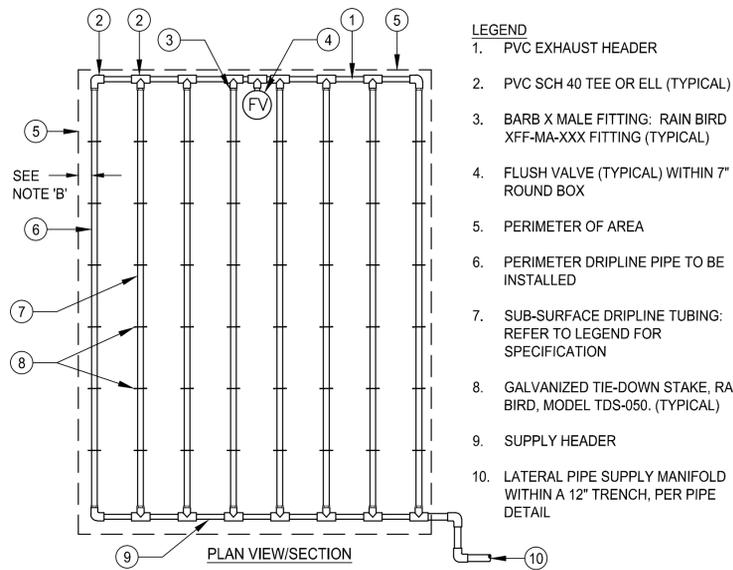
STAFF APPRVL	REVISIONS				CITY ENG. DATE	PUBLIC IMPROVEMENTS APPROVED FOR CONSTRUCTION CITY OF SANTA ROSA
	NO.	REVISION	DATE	R.C.E.		

BY: DAVID M. GUHIN, CITY ENGINEER, CITY OF SANTA ROSA, CA
 DATE: _____
 CITY OF SANTA ROSA FILE NO. _____

ROUND BARN VILLAGE
SANTA ROSA, CALIFORNIA

CTV124-P: 1st Agency Submittal (11-06-2018) NOT FOR CONSTRUCTION

SCALE: AS SHOWN
 JOB No. CTV124-P
IRRIGATION DETAILS
LI-5.05
 SHEET 187 OF 212

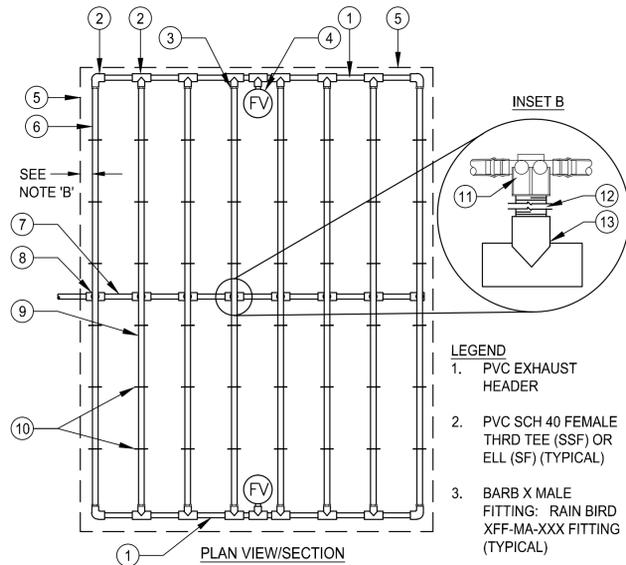


- LEGEND**
- PVC EXHAUST HEADER
 - PVC SCH 40 TEE OR ELL (TYPICAL)
 - BARB X MALE FITTING: RAIN BIRD XFF-MA-XXX FITTING (TYPICAL)
 - FLUSH VALVE (TYPICAL) WITHIN 7" ROUND BOX
 - PERIMETER OF AREA
 - PERIMETER DRIPLINE PIPE TO BE INSTALLED
 - SUB-SURFACE DRIPLINE TUBING: REFER TO LEGEND FOR SPECIFICATION
 - GALVANIZED TIE-DOWN STAKE, RAIN BIRD, MODEL TDS-050. (TYPICAL)
 - SUPPLY HEADER
 - LATERAL PIPE SUPPLY MANIFOLD WITHIN A 12" TRENCH, PER PIPE DETAIL

- NOTES:**
- DISTANCE BETWEEN LATERAL ROWS TO BE BASED ON SOIL TYPE, PLANT MATERIALS AND CHANGES IN ELEVATION. MAXIMUM SPACING SHALL BE 14" APART FOR TURF AREAS. MAXIMUM SPACING SHALL BE 18" APART FOR FLAT SHRUB AREAS. FOR ADDITIONAL INFORMATION SEE RAIN BIRD DRIPLINE INSTALLATION GUIDE FOR SUGGESTED SPACING.
 - INSTALL SUB-SURFACE TUBING MAXIMUM 3" FROM ANY HARDSCAPE EDGE IN TURF AND 9" IN SHRUBS.
 - PLACE TIE DOWN STAKES EVERY 3' IN SAND, 4' IN LOAM, AND 5' IN CLAY.
 - MAXIMUM TUBING LENGTH OF RUN SHALL NOT EXCEED 150' FROM LATERAL PIPE SUPPLY MANIFOLD.

A DRIPLINE- END FEED LAYOUT

SCALE: N.T.S.

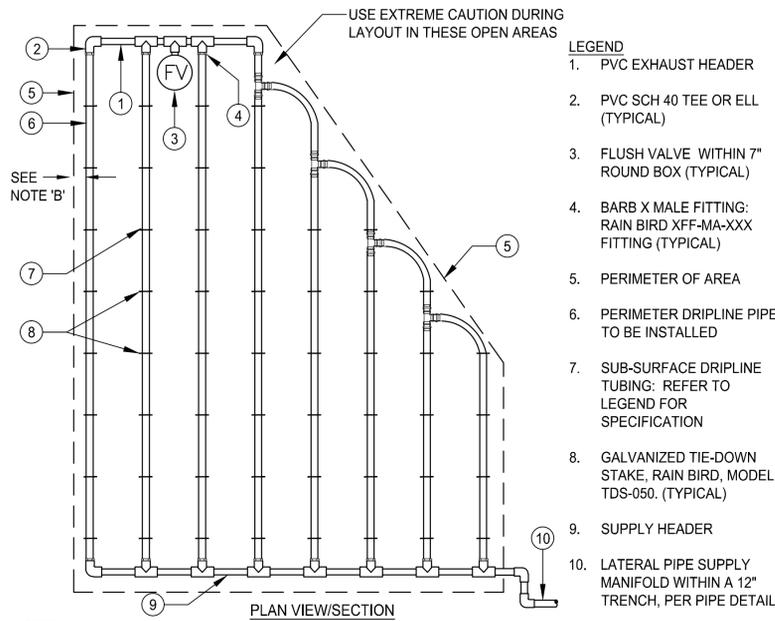


- LEGEND**
- PVC EXHAUST HEADER
 - PVC SCH 40 FEMALE THRD TEE (SSF) OR ELL (SF) (TYPICAL)
 - BARB X MALE FITTING: RAIN BIRD XFF-MA-XXX FITTING (TYPICAL)
 - FLUSH VALVE (TYPICAL) WITHIN 7" ROUND BOX
 - PERIMETER OF AREA
 - PERIMETER DRIPLINE PIPE TO BE INSTALLED
 - LATERAL PIPE SUPPLY MANIFOLD WITHIN A 12" TRENCH, PER PIPE DETAIL
 - CONNECTION FROM SUPPLY MANIFOLD TO DRIPLINE (TYPICAL)- SEE INSET B
 - SUB-SURFACE DRIPLINE TUBING: REFER TO LEGEND FOR SPECIFICATION
 - GALVANIZED TIE-DOWN STAKE, RAIN BIRD, MODEL TDS-050. (TYPICAL)
 - BARB x FEMALE FITTING: RAIN BIRD XFD-TFA-075 OR XFF-TMA-050 WITH PVC THREADED COUPLER
 - PVC SCH 80 NIPPLE, 6" LENGTH FOR 12" LATERAL PIPE TRENCH DEPTH
 - PVC SCH 40 TEE OR ELL, SxF

- NOTES:**
- DISTANCE BETWEEN LATERAL ROWS TO BE BASED ON SOIL TYPE, PLANT MATERIALS AND CHANGES IN ELEVATION. MAXIMUM SPACING SHALL BE 14" APART FOR TURF AREAS. MAXIMUM SPACING SHALL BE 18" APART FOR FLAT SHRUB AREAS. FOR ADDITIONAL INFORMATION SEE RAIN BIRD DRIPLINE INSTALLATION GUIDE FOR SUGGESTED SPACING.
 - INSTALL SUB-SURFACE TUBING MAXIMUM 3" FROM ANY HARDSCAPE EDGE IN TURF AND 9" IN SHRUBS.
 - PLACE TIE DOWN STAKES EVERY 3' IN SAND, 4' IN LOAM, AND 5' IN CLAY.
 - MAXIMUM TUBING LENGTH OF RUN IN EITHER DIRECTION SHALL NOT EXCEED 150' FROM LATERAL PIPE SUPPLY MANIFOLD.

C DRIPLINE- CENTER FEED LAYOUT

SCALE: N.T.S.

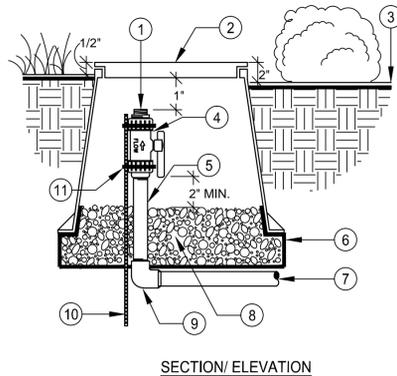


- LEGEND**
- PVC EXHAUST HEADER
 - PVC SCH 40 TEE OR ELL (TYPICAL)
 - FLUSH VALVE WITHIN 7" ROUND BOX (TYPICAL)
 - BARB X MALE FITTING: RAIN BIRD XFF-MA-XXX FITTING (TYPICAL)
 - PERIMETER OF AREA
 - PERIMETER DRIPLINE PIPE TO BE INSTALLED
 - SUB-SURFACE DRIPLINE TUBING: REFER TO LEGEND FOR SPECIFICATION
 - GALVANIZED TIE-DOWN STAKE, RAIN BIRD, MODEL TDS-050. (TYPICAL)
 - SUPPLY HEADER
 - LATERAL PIPE SUPPLY MANIFOLD WITHIN A 12" TRENCH, PER PIPE DETAIL

- NOTES:**
- DISTANCE BETWEEN LATERAL ROWS TO BE BASED ON SOIL TYPE, PLANT MATERIALS AND CHANGES IN ELEVATION. MAXIMUM SPACING SHALL BE 14" APART FOR TURF AREAS. MAXIMUM SPACING SHALL BE 18" APART FOR FLAT SHRUB AREAS. FOR ADDITIONAL INFORMATION SEE RAIN BIRD DRIPLINE INSTALLATION GUIDE FOR SUGGESTED SPACING.
 - INSTALL SUB-SURFACE TUBING MAXIMUM 3" FROM ANY HARDSCAPE EDGE IN TURF AND 9" IN SHRUBS.
 - PLACE TIE DOWN STAKES EVERY 3' IN SAND, 4' IN LOAM, AND 5' IN CLAY.
 - MAXIMUM TUBING LENGTH OF RUN SHALL NOT EXCEED 150' FROM LATERAL PIPE SUPPLY MANIFOLD.

B DRIPLINE- IRREGULAR FEED LAYOUT

SCALE: N.T.S.

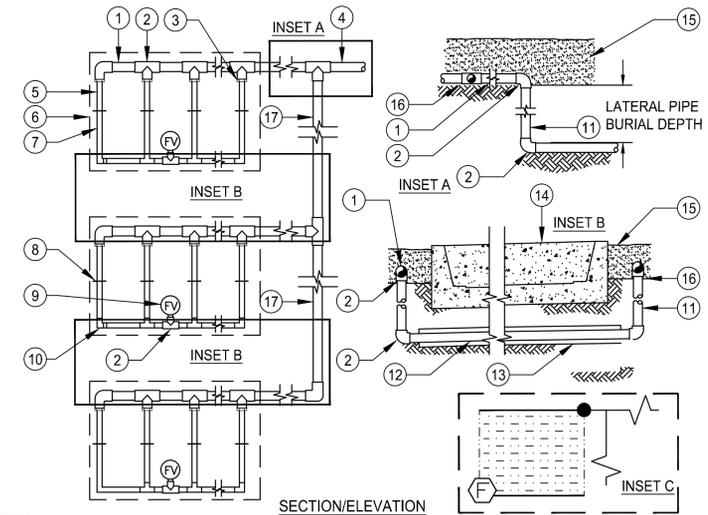


- LEGEND**
- BRASS HOSE/PIPE ADAPTER, ARROWHEAD BRASS/CHAMPION IRRIGATION PRODUCTS, MODEL #10F (3/4" MALE HOSE THREAD TO 1/2" MALE PIPE THREAD)
 - 10" ROUND SPECIFICATION GRADE VALVE BOX, HEAT BRAND "FV" ONTO LID
 - FINISH GRADE
 - 1/2" PVC SCH 80 THREADED BALL VALVE. REFER TO LEGEND FOR SPECIFICATION
 - SCH 80 PVC NIPPLE 1/2" x LENGTH AS REQUIRED
 - LANDSCAPE FABRIC
 - SUB-SURFACE TUBING DRIP ZONES: PVC SCH 40 PIPE FROM DRIP ZONE MANIFOLD "FOOTER". MANIFOLD PIPE SIZE BASED ON ZONE FLOW. REFER TO LEGEND FOR SIZES.
 - POINT SOURCE DRIP ZONES: PIPE FROM PVC "BACKBONE" PIPE. REFER TO PLAN FOR SIZE
 - 3/4" CRUSHED GRAVEL, MIN. 5"-6" DEPTH
 - PVC SLIP (LINE SIZE) x 1/2" THREAD ELL (SF)
 - (#3) 3/8" x 24" REBAR STAKE
 - STAINLESS STEEL CLAMPS, TYPICAL

- NOTES:**
- FOR SUB-SURFACE DRIPLINE ZONE: INSTALL ONE (1) FV FOR MAXIMUM OF EVERY 800 FEET OF TUBING, OR PART THEREOF, IN ANY ZONE.
 - FOR POINT SOURCE DRIP ZONE: INSTALL FLUSH VALVE IN EACH DIRECTION AT END OF EVERY RUN, OR WHERE SHOWN ON PLANS.
 - INSTALL IN LOCATIONS AS DESCRIBED IN THE LEGEND AND SHOWN IN INSTALLATION DETAILS.
 - DUE TO FIELD CHANGES OR OTHER UNFORESEEN ISSUES TOTAL FLUSH VALVE SYMBOLS SHOWN ON PLAN MAY NOT EQUAL TOTAL QUANTITY OF FLUSH VALVE'S REQUIRED.
 - CONTRACTOR SHALL REVIEW DRIP ZONE AREA AND LAYOUT TO DETERMINE EXACT QUANTITY OF FLUSH VALVE'S TO INSTALL.
 - IN TURF AREAS SET TOP OF VALVE BOX 1/2" ABOVE FINISHED GRADE.
 - IN SHRUB AREAS SET TOP OF VALVE BOX 2" ABOVE SOIL LEVEL OR 1" ABOVE MULCH LAYER, WHICHEVER IS HIGHER.

D DRIP ZONE FLUSH VALVE ASSEMBLY

SCALE: N.T.S.



- NOTES:**
- REFER TO INSET 'C' FOR EQUIPMENT SYMBOLOLOGY OF A MULTI-PLANTER LAYOUT AS SHOWN ON PLANS. CONNECT PVC LATERAL PIPE TO DRIPLINE SUPPLY HEADER(S) AT BLACK DOT WHERE SHOWN ON PLANS. PLACE FLUSH VALVE ON EXHAUST HEADER/FOOTER AT FAR END OF PLANTER(S) WHERE SHOWN ON PLANS.
 - DISTANCE BETWEEN LATERAL ROWS TO BE BASED ON SOIL TYPE, PLANT MATERIALS AND CHANGES IN ELEVATION. SEE LEGEND FOR SPECIFICATION.
 - LENGTH OF LONGEST DRIPLINE LATERAL SHOULD NOT EXCEED THE MAXIMUM SPACING SHOWN IN THE ACCOMPANYING TABLE.
 - PLACE TIE DOWN STAKES EVERY 3' IN SAND, 4' IN LOAM, AND 5' IN CLAY.
 - AT FITTINGS WHERE THERE IS A CHANGE IN DIRECTION SUCH AS TEES OR ELBOWS, USE TIE-DOWN STAKES ON EACH LEG OF THE CHANGE OF DIRECTION.

	12" Spacing		18" Spacing		24" Spacing	
	PSI	GPH	GPH	GPH	GPH	GPH
40	150	150	200	200	300	300

- LEGEND**
- PVC SUPPLY HEADER PIPE
 - PVC SCH 40 TEE OR EL (TYPICAL)
 - BARB X MALE FITTING (TYPICAL): RAIN BIRD, XFF-MA-XXX FITTING
 - PVC LATERAL PIPE FROM DRIP ZONE RCV ASSEMBLY
 - SUB-SURFACE DRIPLINE: REFER TO LEGEND FOR SPECIFICATION
 - PLANTER EDGE; PERIMETER OF AREA
 - MAXIMUM INSTALLED DISTANCE FOR PERIMETER DRIPLINE TUBING SHALL BE 3" IN TURF AND 9" IN SHRUBS, FROM PERIMETER OF AREA
 - GLVANIZED TIE-DOWN STAKE, RAIN BIRD, MODEL TDS-050. (TYPICAL) REFER TO LEGEND FOR SPACING
 - FLUSH VALVE WITHIN A 7" ROUND VALVE BOX, TYPICAL. REFER TO LEGEND FOR TYPE. INSTALL VALVE ON EXHAUST HEADER/FOOTER IN PLANTERS AS SHOWN. (TYPICAL)
 - BARB X BARB INSERT TEE OR EL: (TYPICAL) RAIN BIRD MODEL: XFF-TEE, XFF-EL
 - PVC RISER PIPE
 - PVC LATERAL SUPPLY PIPE
 - PVC SLEEVE PIPE. SIZED TWICE THE SIZE OF MANIFOLD PIPE SIZE
 - HARDSCAPE PAVEMENT/CURB, OR SIDEWALK
 - 6" OF SOIL COVER OVER DRIPLINE TUBING
 - SUB-FINISH GRADE
 - PVC LATERAL SUPPLY PIPE SHALL BE INSTALLED WITHIN PLANTERS UNLESS CROSSING PAVEMENT TO ADJACENT PLANTER

E DRIPLINE- MULTIPLE PLANTERS LAYOUT

SCALE: N.T.S.

STAFF APPRVL	NO.	REVISION	DATE	EXP. DATE	CITY ENG. DATE	PUBLIC IMPROVEMENTS APPROVED FOR CONSTRUCTION
						CITY OF SANTA ROSA
						BY DAVID M. GUHIN CITY ENGINEER CITY OF SANTA ROSA, CA
						R.C.E. 65663
						DATE
						CITY OF SANTA ROSA FILE NO. _____

NAME: _____ DATE: _____
 LICENSE NO.: _____

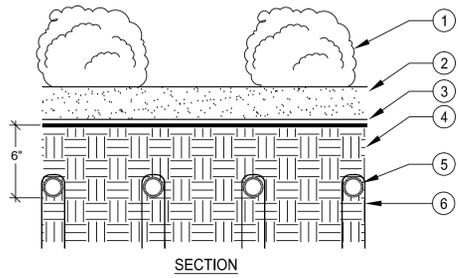
C2 Collaborative
 Landscape Architecture
 Urban Design
 Horticulture
 Irrigation
 414 N. Lincoln Avenue
 Santa Rosa, CA 95404
 Phone: 707.546.2222
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PLANS PREPARED BY: TWO

ROUND BARN VILLAGE
 SANTA ROSA, CALIFORNIA

CTV124-P: 1st Agency Submittal (11-06-2018) NOT FOR CONSTRUCTION

SCALE: AS SHOWN
 JOB No. CTV124-P
IRRIGATION DETAILS
LI-5.06
 SHEET 188 OF 212

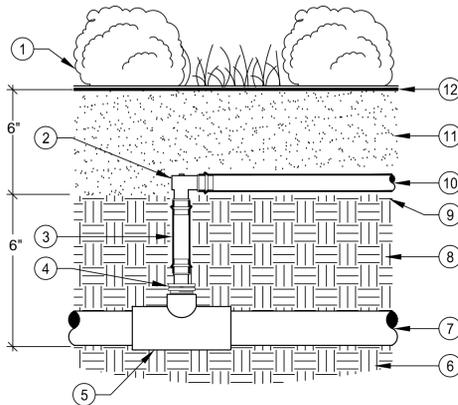


- LEGEND**
1. SHRUBS/GROUND COVER
 2. MULCH LAYER, REFER TO LANDSCAPE DRAWINGS FOR TYPE AND DEPTH
 3. FINISH GRADE
 4. AMENDED SOIL, REFER TO LANDSCAPE DRAWINGS FOR SPECIFICATION
 5. DRIPLINE TUBING INSTALLATION: 6" BELOW FINISH GRADE
 6. GALVANIZED WIRE STAKE, SPACE AT 4 FEET O.C. ALONG ALL TUBING

NOTES:

A. TO INSURE EVEN PARALLEL AND LEVEL TUBING ROWS IT IS RECOMMENDED THAT THE SOIL LEVEL IN THE PLANTER AREAS BE BROUGHT TO SIX INCHES BELOW FINISH GRADE, LEVELED, AND PROPERLY COMPACTED AS PER THE LANDSCAPED DRAWINGS PRIOR TO THE INSTALLATION OF THE TUBING.

B. INSTALL TUBING AS INDICATED ON THESE DRAWINGS AND SECURE TO GRADE USING GALVANIZED WIRE HOOP STAKES AT 4 O.C. SPACING.



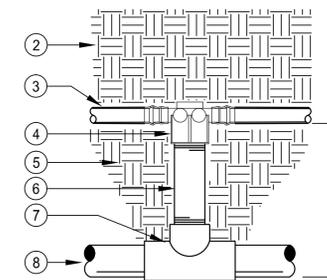
NOTES:

A. REFER TO LEGEND FOR MAXIMUM DRIPLINE TUBING SPACING.

B. LAY DEPTH FOR DRIPLINE SHALL BE 6 INCHES BELOW AMENDED SOIL FINISH GRADE.

C. INSTALL FIRST ROW OF DRIPLINE TUBING 6 INCHES FROM ANY HARDSCAPE EDGE.

- LEGEND**
1. SHRUBS/GROUND COVER
 2. 17mm BARB 90 ELBOW FITTING, REFER TO LEGEND FOR SPECIFICATION
 3. 1/2" BLANK POLY TUBING, REFER TO LEGEND FOR SPECIFICATION
 4. 1/2" MIPT x 17mm BARB ADAPTER, REFER TO LEGEND FOR SPECIFICATION
 5. PVC SCH 40 SST TEE/EL FITTING, LINE SIZE X 1/2"
 6. SITE SOIL
 7. PVC SUPPLY / EXHAUST MANIFOLD HEADER LATERAL LINE
 8. SCREENED BACKFILL MATERIAL
 9. SUB-GRADE
 10. 17mm DRIPLINE TUBING, REFER TO LEGEND FOR SPECIFICATION
 11. AMENDED SOIL. REFER TO PLANTING DRAWINGS FOR SPECIFICATION
 12. FINISH GRADE



- LEGEND**
1. MULCH LAYER, REFER TO LANDSCAPE DRAWINGS FOR TYPE AND DEPTH
 2. AMENDED SOIL, REFER TO LANDSCAPE DRAWINGS FOR SPECIFICATION
 3. SUB-SURFACE DRIPLINE TUBING. REFER TO LEGEND FOR SPECIFICATION
 4. 17mm BARB TEE x 3/4" THRD. FITTING. REFER TO LEGEND FOR SPECIFICATION
 5. AMENDED SOIL / BACKFILL MATERIAL
 6. 3/4" SCH 80 PVC NIPPLE. LENGTH AS REQUIRED
 7. SCH 40 PVC TEE SxSxT, LINE SIZE BY 3/4"
 8. PVC SUPPLY MANIFOLD HEADER LATERAL LINE

A DRIPLINE INSTALLATION

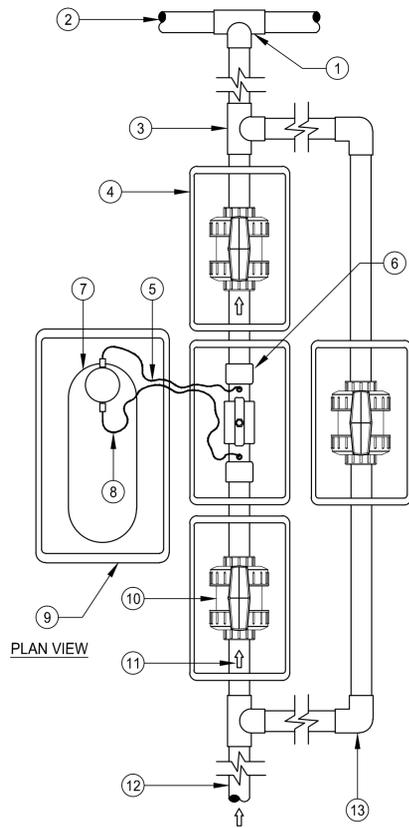
SCALE: N.T.S.

B DRIPLINE- PVC / DRIPLINE MANIFOLD CONNECTION

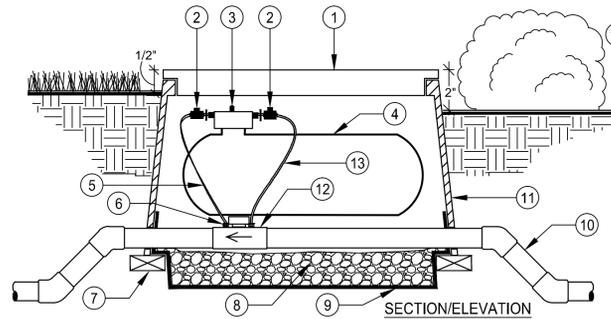
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C DRIPLINE- CENTER FEED PVC / DRIP CONNECTION

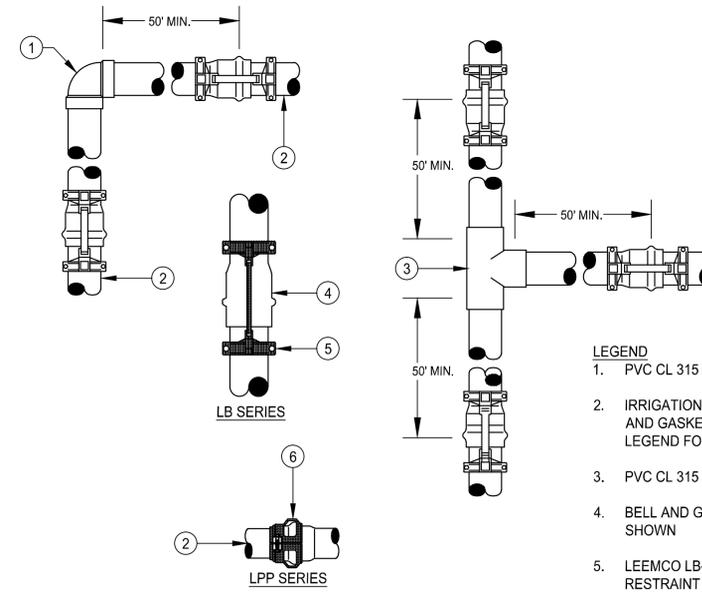
SCALE: N.T.S.



- LEGEND**
1. PVC SCH 80 TEE FITTING, MAINLINE SIZE, TYP.
 2. PVC MAINLINE. REFER TO LEGEND FOR TYPE
 3. PVC SCH 80 TEE SLIP FITTING, TYP.
 4. 12" STANDARD RECTANGULAR SPECIFICATION GRADE VALVE BOX. HEAT BRAND "BV" ON LID. TYP.
 5. 1/4" "FERTILIZER OUT" TUBE
 6. EZ-FLO BALL VALVE COUPLING CONNECTOR, CBV-XXX. MAINLINE SIZE
 7. EZ-FLO FERTILIZER INJECTOR UNIT, REFER TO LEGEND FOR MODEL AND SIZE
 8. 1/4" "WATER IN" TUBE
 9. RECTANGULAR SPECIFICATION GRADE VALVE BOX. HEAT BRAND "FERT" ON LID. REFER TO LEGEND FOR SPECIFICATION. FIT FERTILIZER UNIT WITHIN FOR EASY REMOVAL. MINIMUM 3" CLEARANCE ON ALL SIDES OF UNIT
 10. LASCO FULL BLOCK TRUE UNION PVC BALL VALVE WITH TEFLON SEATS AND EPDM O-RINGS. MODEL VXX101N. MAINLINE SIZE. (3 REQ.)
 11. WATER FLOW DIRECTION
 12. IRRIGATION MAINLINE FROM P.O.C. / BACKFLOW ASSEMBLY. REFER TO PLAN FOR MAINLINE SIZE. REFER TO LEGEND FOR TYPE
 13. PVC SCH 80 EL FITTING, TYP.



- LEGEND**
1. RECTANGULAR SPECIFICATION GRADE VALVE BOX WITH BOLT DOWN "T" COVER. REFER TO LEGEND FOR SPECIFICATION. USE INVERTED VALVE BOX OF SAME SIZE AS REQUIRED FOR EXTENSION. INSTALL SIZE AS REQUIRED TO ALLOW FOR MAINTENANCE OF INJECTOR. HEAT BRAND "FERT" ON LID
 2. EZ FLO SHUT OFF VALVES
 3. PROPORTIONING CAP WITH FEED ADJUSTMENT KNOB
 4. FERTIGATION SYSTEM INJECTION TANK, REFER TO LEGEND FOR MODEL AND GALLON CAPACITY
 5. FERTILIZER OUT - CONNECT CLEAR TUBE TO GREEN CONNECTIONS ON PROPORTIONING CAP AND COUPLING
 6. 1/4" TUBING CLAMP - BOTH THE GREEN AND BLUE COUPLING TUBING CONNECTIONS
 7. SUPPORT BRICKS, (MIN. 6 REQ.)
 8. 3/4" CRUSHED GRAVEL, MIN. 8" IN DEPTH
 9. LANDSCAPE FABRIC
 10. MAINLINE PIPE, SEE LEGEND FOR SIZE AND TYPE
 11. RECTANGULAR VALVE BOX EXTENSION
 12. EZ BALL VALVE INJECTION COUPLING CONNECTOR - INSTALL ACCORDING TO WATER FLOW DIRECTION ARROW
 13. WATER IN - CONNECT BLACK TUBE TO BLUE CONNECTIONS ON PROPORTIONING CAP AND COUPLING
 14. TOP OF MULCH LAYER. REFER TO PLANTING SPECIFICATIONS FOR DEPTH
- NOTES:**
- A. CONTACT EZ-FLO SYSTEMS, ROCKLIN, CA (866) 393-5601, FOR ADDITIONAL INSTALLATION INFORMATION, IF NEEDED.
- B. MODEL EZ-017-HC SLIGHTLY DIFFERENT CONFIGURATION. UNIT INCLUDES A FILL VALVE AND DRAIN VALVE. REFER TO EZ-FLO SYSTEMS FOR MORE INFORMATION.
- C. INSTALL PVC SCH 80 45 DEGREE ELLS AS REQUIRED TO ACHIEVE PROPER INSTALLATION ABOVE MAINLINE DEPTH ON UPSTREAM AND DOWNSTREAM SIDE.
- D. ITEMS 3, 4, 5, 6, 7 AND 8 ARE INCLUDED WITH THE EZ-FLO SYSTEM. ITEM 11 IS PURCHASED SEPARATELY.
- E. SET TOP OF VALVE BOX 1/2" ABOVE FINISHED GRADE IN TURF AREAS.
- F. IN SHRUB AREAS INSTALL VALVE BOX 2" ABOVE SOIL LEVEL OR 1/2" ABOVE MULCH LAYER, WHICHEVER IS HIGHER.



- LEGEND**
1. PVC CL 315 ELBOW
 2. IRRIGATION MAINLINE, BELL AND GASKET TYPE PIPE, SEE LEGEND FOR SPECIFICATION
 3. PVC CL 315 TEE
 4. BELL AND GASKET COUPLING SHOWN
 5. LEEMCO LB-SERIES JOINT RESTRAINT
 6. LEEMCO LPP-SERIES JOINT RESTRAINT

NOTES:

A. USE JOINT RESTRAINTS ON ALL BELL AND GASKET MAINLINE PIPE.

B. USE LPP OR LB SERIES RESTRAINTS FOR BELL AND GASKET JOINTS.

C. INSTALL RESTRAINTS FOR TWO PVC BELL ENDS (JOINTS) OR 50 FEET BEFORE ANY CHANGE IN DIRECTION.

D. SIZE OF RESTRAINT TO BE AS PER PIPE AND FITTING USED.

D FERTIGATION INJECTOR W/ BYPASS

SCALE: N.T.S.

E FERTIGATION INJECTOR INSTALLATION

SCALE: N.T.S.

F PVC BELL JOINT RESTRAINT INSTALLATION

SCALE: N.T.S.

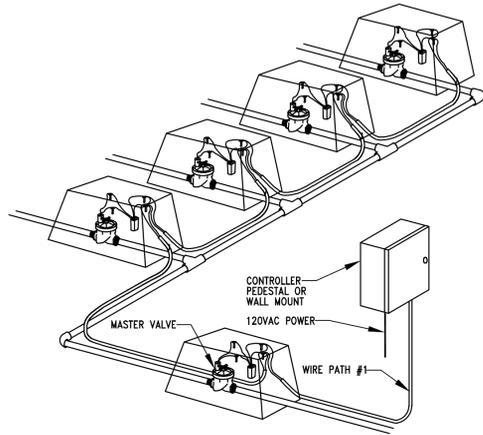
STAFF APPRVL	NO.	REVISION	DATE	R.C.E.	EXP. DATE	CITY ENG.	DATE	PUBLIC IMPROVEMENTS APPROVED FOR CONSTRUCTION
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								BY DAVID M. GUHIN CITY ENGINEER CITY OF SANTA ROSA, CA R.C.E. 65663
								DATE _____
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ROUND BARN VILLAGE
SANTA ROSA, CALIFORNIA

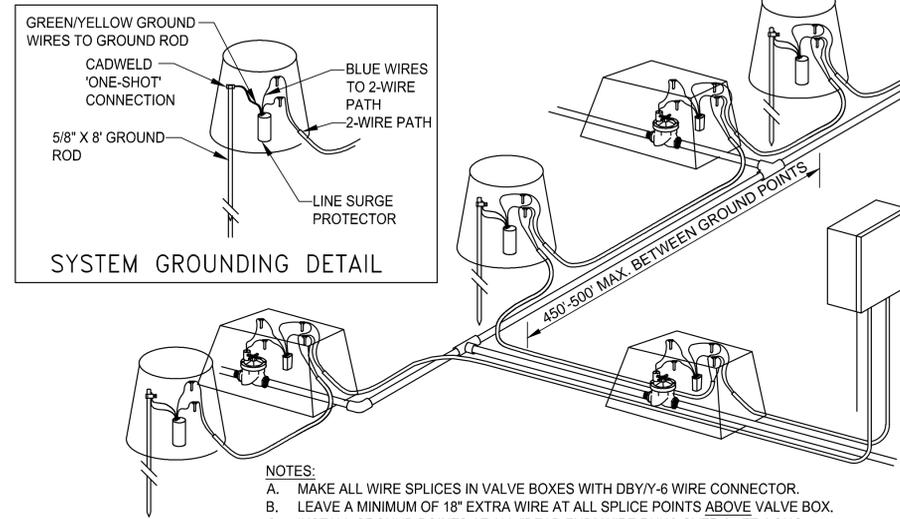
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JOB No. CTV124-P
IRRIGATION DETAILS
LI-5.07
SHEET 189 OF 212

DATE: 11/09/2018



- NOTES:
- A. SINGLE TWO-WIRE PATH LINE SURGE PROTECTOR TO BE INSTALLED AT END OF WIRE RUN THAT TERMINATES IN THE FIELD.
 - B. MAKE ALL WIRE SPLICES IN VALVE BOXES.
 - C. LEAVE A MINIMUM OF 18" EXTRA WIRE AT ALL SPLICE POINTS ABOVE VALVE BOX. SIZE CABLE LOOP ACCORDINGLY.

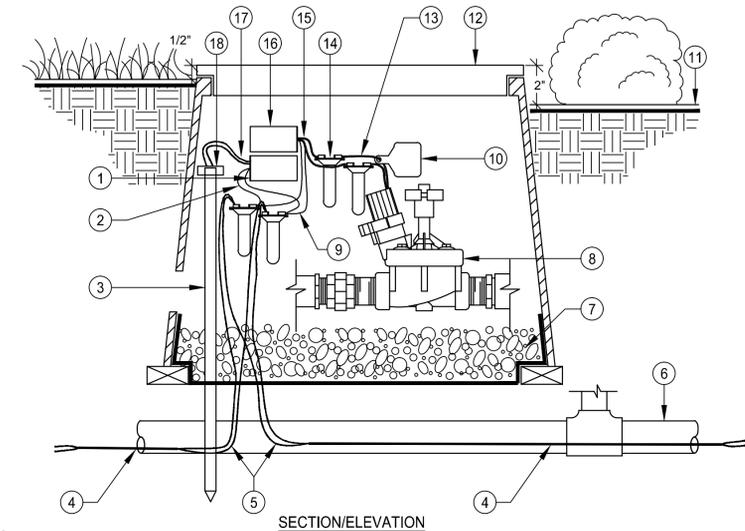


- NOTES:
- A. MAKE ALL WIRE SPLICES IN VALVE BOXES WITH DBY/Y-6 WIRE CONNECTOR.
 - B. LEAVE A MINIMUM OF 18" EXTRA WIRE AT ALL SPLICE POINTS ABOVE VALVE BOX.
 - C. INSTALL GROUND POINTS AT ALL "DEAD END" WIRE RUNS OVER 25 FT. LONG.
 - D. TEST EARTH TO GROUND RESISTANCE AT ALL GROUND POINTS.
 - E. ALL GROUND ASSEMBLIES INSTALLED IN VALVE BOXES.
 - F. EARTH TO GROUND RESISTANCE MUST BE LESS THAN 10 OHMS.

A DECODER SINGLE 2-WIRE PATH
SCALE: N.T.S.

B DECODER SYSTEM GROUNDING (TYP.)
SCALE: N.T.S.

C XXXXXXX
SCALE: N.T.S.



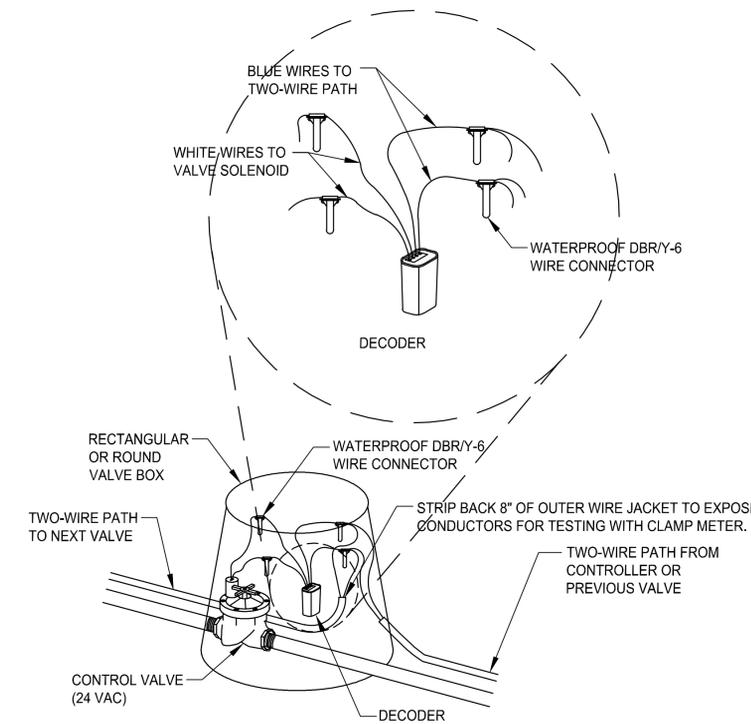
- NOTES:
- A. CONTRACTOR SHALL CONTACT SITEONE REPRESENTATIVE, ERIK ANDERSON, (949) 285-4048, FOR WIRING PROCEDURE AND ANY REQUIRED INSTALLATION INFORMATION.
 - B. SURGE PROTECTION SHOULD BE INSTALLED EVERY 450-500 FEET OR FOR EVERY EIGHT DECODERS ON 2-WIRE PATH.
 - C. MAXIMUM LENGTH OF SECONDARY WIRE PATH FROM DECODER TO SOLENOID IS 6 FEET.
 - D. PLACE 3 FEET OF EXTRA WIRE IN EVERY VALVE BOX FOR EASIER SERVICING.

- LEGEND
- | | | |
|---|--|---|
| 1. LINE SURGE PROTECTOR, REFER TO LEGEND FOR TYPE | 6. IRRIGATION MAINLINE | 14. WIRE CONNECTOR, (1 OF 4) |
| 2. BLUE WIRE FROM LINE SURGE PROTECTOR | 7. 3/4" CRUSHED GRAVEL | 15. WHITE WIRE FROM FIELD DECODER (1 OF 2) |
| 3. GROUNDING ROD OR PLATE: GROUNDED TO 10 OHMS OR LESS | 8. REMOTE CONTROL VALVE | 16. FIELD DECODER (WITHOUT LINE SURGE PROTECTION), REFER TO LEGEND FOR TYPE |
| 4. 2-WIRE CABLE TO NEXT DEVICE (FIELD DECODER, SENSOR DECODER, LINE SURGE PROTECTOR OR CONTROLLER) WITHIN 1-1/4" ELECTRICAL CONDUIT | 9. BLUE WIRE FROM FIELD DECODER | 17. GREEN/YELLOW WIRE TO CADWELD 'ONE-SHOT' CONNECTOR ON GROUNDING ROD (1 OF 2) |
| 5. 2-WIRE CABLE TO DECODER | 10. ID TAG | 18. CADWELD 'ONE-SHOT' GROUNDING CONNECTOR |
| | 11. FINISH GRADE OR TOP OF MULCH | |
| | 12. RECTANGULAR SPECIFICATION GRADE VALVE BOX WITH COVER | |
| | 13. SOLENOID WIRE (1 OF 2) | |

- NOTES:
- A. CONTRACTOR SHALL CONTACT SITEONE REPRESENTATIVE, ERIK ANDERSON, (949) 285-4048, FOR WIRING PROCEDURE AND ANY REQUIRED INSTALLATION INFORMATION.
 - B. LINE SURGE PROTECTOR SHALL BE INSTALLED EVERY 450-500 FEET OR FOR EVERY EIGHT DECODERS ON TWO-WIRE PATH.
 - C. LINE SURGE PROTECTOR TO BE INSTALLED AT END OF WIRE RUN THAT TERMINATES IN THE FIELD.

- LEGEND
- | | | |
|---|---|--|
| 1. GREEN/YELLOW WIRE FROM LINE SURGE PROTECTION TO CADWELD 'ONE-SHOT' CONNECTOR ON GROUNDING ROD (1 OF 2) | 4. 2-WIRE CABLE TO NEXT DEVICE (FIELD DECODER, SENSOR DECODER, LINE SURGE PROTECTOR OR CONTROLLER) WITHIN 1-1/4" ELECTRICAL CONDUIT | 8. BLUE WIRE FROM DECODER (1 OF 2) |
| 2. CADWELD 'ONE-SHOT' GROUNDING CONNECTOR | 5. 2-WIRE CABLE TO SENSOR DECODER | 9. FINISH GRADE OR TOP OF MULCH |
| 3. GROUNDING ROD OR PLATE: GROUNDED TO 10 OHMS OR LESS | 6. 3/4" CRUSHED GRAVEL | 10. LINE SURGE PROTECTOR, REFER TO LEGEND FOR TYPE |
| | 7. LANDSCAPE FABRIC | 11. WIRE CONNECTOR |
| | | 12. 10" ROUND SPECIFICATION GRADE VALVE BOX WITH COVER |

D CONNECTING LINE SURGE DECODER TO 2-WIRE PATH
SCALE: N.T.S.



- NOTES:
- A. CONTRACTOR SHALL CONTACT SITEONE REPRESENTATIVE, ERIK ANDERSON, (949) 285-4048, FOR WIRING PROCEDURE AND ANY REQUIRED INSTALLATION INFORMATION.

E DECODER WIRING
SCALE: N.T.S.

F LINE SURGE DECODER CONNECTION
SCALE: N.T.S.

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								R.C.E. 65663
								DATE _____
								CITY OF SANTA ROSA FILE NO. _____

DATE _____

NAME: **PAUL HADEN**
LICENSE NO. _____

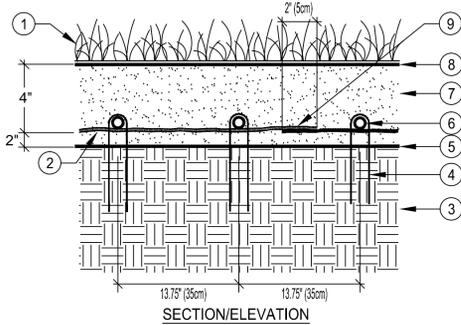
C2 Collaborative

PLANS PREPARED BY: **TWO**

ROUND BARN VILLAGE
SANTA ROSA, CALIFORNIA

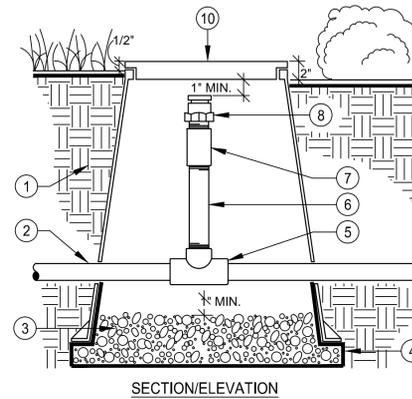
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- LEGEND**
- TURF GRASS
 - HUNTER 'ECO-MAT' SUBSURFACE IRRIGATION MAT
 - SCREENED BACKFILL MATERIAL
 - SOD STAKE INSTALLED 8 FT O.C. OVER TUBING
 - SUB-GRADE
 - 17MM DRIPLINE TUBING, POLYPROPYLENE FLEECE WRAPPED
 - AMENDED SOIL. REFER TO PLANTING SPECIFICATIONS FOR TYPE
 - FINISH GRADE
 - OVERLAP 'ECO-MAT' 2" ALONG EDGE

- NOTES:**
- BEFORE 'ECO-MAT' INSTALLATION CONTRACTOR SHALL VERIFY DEPTH OF SUB-GRADE BE A MINIMUM OF SIX INCHES BELOW AMENDED SOIL FINISH GRADE.
 - FOR SODDED TURF, CONTRACTOR SHALL ACCOUNT FOR SOD DIRT 'BASE' WHEN CALCULATING TOTAL REQUIRED DEPTH OF SUB-GRADE.
 - LAY DEPTH FOR 'ECO-MAT' MATERIAL SHALL BE MINIMUM FOUR INCHES BELOW AMENDED SOIL FINISH GRADE.
 - TO INSURE EVEN WATER COVERAGE THROUGHOUT THE TURF AREA IT IS REQUIRED THAT THE CONTRACTOR INSTALL MINIMUM TWO INCHES OF AMENDED SOIL ON TOP OF SUB-GRADE AND PROPERLY COMPACT PRIOR TO THE INSTALLATION OF 'ECO-MAT'. LAY DOWN 'ECO-MAT' MATERIAL IN ROWS THEN ADD MINIMUM OF FOUR INCHES OF AMENDED SOIL ON TOP OF 'ECO-MAT'.
 - THE AMENDED SOIL ABOVE 'ECO-MAT' MUST BE RECEIVE 80-90% COMPACTION TO PROPERLY ALLOW FOR WATER MOVEMENT THROUGH THE SOIL PROFILE BY CAPILLARY ACTION.
 - CONTRACTOR SHALL USE 'PLD-ESD' TUBING WHERE NECESSARY TO FILL IN GAPS, ALONG EDGES, AND CORNERS AS REQUIRED TO INSURE ALL PLANTED AREAS RECEIVE ADEQUATE AMOUNT OF WATER TO PREVENT TURF DIE-BACK.

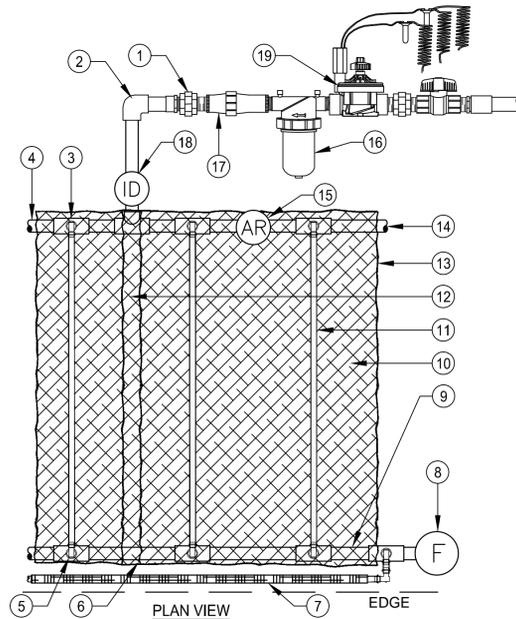


- LEGEND**
- AMENDED SOIL. REFER TO PLANTING PLAN FOR SPECIFICATION
 - PVC SUPPLY MANIFOLD OR EXHAUST HEADER PIPE
 - 3/4" CRUSHED GRAVEL, ± 1/2 CUBIC FT
 - LANDSCAPE FABRIC
 - SCH 40 PVC SST TEE
 - 1/2" SCH 80 PVC NIPPLE. LENGTH AS REQUIRED
 - SCH 40 PVC TT COUPLER
 - AIR / VACUUM RELIEF VALVE, REFER TO LEGEND FOR SPECIFICATIN
 - FINISH GRADE
 - 7" ROUND SPECIFICATION GRADE VALVE BOX, REFER TO LEGEND FOR TYPE. HEAT BRAND "ARV" ONTO LID

- NOTES:**
- INSTALL ONE (1) ARV ON PVC HEADER OR EXHAUST PIPE FOR MAXIMUM OF EVERY 550 FEET OF DRIPLINE OR ECO-MAT TUBING, OR PART THEREOF, IN ANY ZONE.
 - INSTALL AT EVERY HIGH POINT LOCATION WITHIN ZONE AS DESCRIBED IN THE LEGEND.
 - DUE TO FIELD CHANGES OR OTHER REASONS TOTAL ARV SYMBOLS SHOWN ON PLAN MAY NOT EQUAL TOTAL QUANTITY OF ARV'S REQUIRED.
 - CONTRACTOR SHALL REVIEW DRIP ZONE AREA AND LAYOUT TO DETERMINE EXACT QUANTITY OF ARV'S TO INSTALL IN SHRUB AREAS.
 - INSTALL VALVE BOX 2" ABOVE SOIL LEVEL OR 1" ABOVE MULCH LAYER, WHICHEVER IS HIGHER.

A ECOMAT- TUBING INSTALLATION
SCALE: N.T.S.

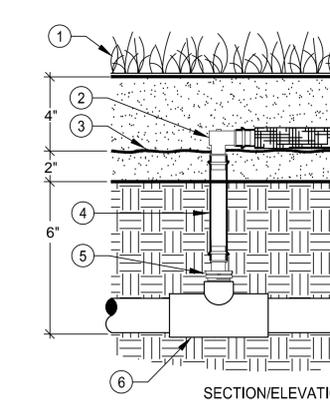
B ECOMAT- AIR RELIEF VALVE ON PVC MAINFOLD
SCALE: N.T.S.



- LEGEND**
- PVC SCH 80 UNION, (2 REQ.) TYP.
 - LATERAL PIPE TO SUPPLY MANIFOLD/HEADER. PIPE SIZE BY ZONE FLOW
2-5 GPM: 3/4"
6-9 GPM: 1"
10-16 GPM: 1-1/4"
17-22 GPM: 1-1/2"
 - PVC SCH 40 SST TEE FITTING, LINE SIZE x 1/2"
 - CONTINUE MANIFOLD /HEADER PIPE AS REQUIRED
 - CONNECTION FROM PVC MANIFOLD/HEADER TO DRIPLINE TUBING WITH BARBED FITTING (TYPICAL). USE HUNTER 1/2" MPT x 17mm , MODEL PLD-050
 - EDGE OF 'ECO-MAT' MATERIAL
 - INSTALL 'PLD-ESD' TO FILL IN GAPS, CORNERS, ALONG EDGES, AS REQUIRED TO PROVIDE WATER TO ALL AREAS WITHIN ZONE.
 - FLUSH VALVE WITHIN 10" ROUND BOX, (TYPICAL). REFER TO LEGEND FOR SPECIFICATION
 - PVC DISCHARGE MANIFOLD/HEADER. DEPTH PER SPECIFICATIONS. INSTALL ONE SIZE LESS THAN SUPPLY HEADER SIZE
 - 'ECO-MAT' SUBSURFACE IRRIGATION MAT, 32" WIDTH
 - 17mm 0.6 GPH DRIPLINE TUBING, POLYPROPYLENE FLEECE WRAPPED
 - ECO-MAT 2-INCH OVERLAP
 - EDGE OF 'ECO-MAT' MATERIAL
 - PVC SUPPLY MANIFOLD/ HEADER. DEPTH PER SPECIFICATIONS. PIPE SIZE BY ZONE FLOW
2-5 GPM: 3/4"
6-9 GPM: 1"
10-16 GPM: 1-1/4"
17-22 GPM: 1-1/2"
 - AIR RELIEF VALVE WITHIN 7" ROUND BOX, (TYPICAL). REFER TO LEGEND FOR SPECIFICATION. INSTALL AT HIGH POINT OF ZONE
 - 1" DISC FILTER. REFER TO LEGEND FOR SPECIFICATION
 - 1" 40 PSI PRESSURE REGULATOR. REFER TO LEGEND FOR SPECIFICATION
 - ECO-ID ZONE OPERATION INDICATOR
 - REMOTE CONTROL VALVE. REFER TO LEGEND FOR SPECIFICATION. SIZE RCV PER PLAN

- NOTES:**
- DISTANCE BETWEEN LATERAL ROWS TO BE BASED ON SOIL TYPE, PLANT MATERIALS AND CHANGES IN ELEVATION. MAXIMUM SPACING SHALL BE 14 INCHES APART FOR TURF AREAS.
 - INSTALL FIRST ROW OF SUB-SURFACE TUBING MAXIMUM SIX INCHES FROM ANY HARDSCAPE EDGE. CONTRACTOR SHALL FOLD OVER OR CUT MATERIAL SO TUBING IS SET AT SIX INCHES FROM HARDSCAPE.
 - AIR RELIEF VALVE WHERE SHOWN AS DIAGRAMMATIC ONLY. PLACE AT HIGHEST POINT IN ZONE FOR PROPER VACUUM RELEASE ACTION.
 - MAXIMUM TUBING LENGTH OF RUN IN EITHER DIRECTION SHALL NOT EXCEED 200' FROM LATERAL PIPE SUPPLY MANIFOLD/HEADER.

C ECOMAT- LAYOUT
SCALE: N.T.S.



- LEGEND**
- GREEN ROOF PLANTING OR TURF GRASS
 - HUNTER 17mm BARB 90 ELBOW FITTING, MODEL PLD-ELB
 - OVERLAP 'ECO-MAT' OVER CONNECTION AND TO EDGE OF PLANTED AND IRRIGATED AREA
 - HUNTER 1/2" BLANK TUBING, MODEL PLD
 - HUNTER 1/2" MIPT x 17mm BARB ADAPTER, MODEL PLD-050 WITH BLANK PLD TUBING
 - PVC SCH 40 SST TEE/EL FITTING, LINE SIZE X 1/2"
 - SITE SOIL
 - PVC SUPPLY / EXHAUST MANIFOLD HEADER LATERAL LINE
 - SCREENED BACKFILL MATERIAL
 - SUB-GRADE
 - 17mm 0.6 GPH DRIPLINE TUBING, POLYPROPYLENE FLEECE WRAPPED
 - AMENDED SOIL. REFER TO PLANTING SPECIFICATIONS FOR TYPE
 - FINISH GRADE

- NOTES:**
- MAXIMUM DRIPLINE TUBING SPACING SHALL BE 14 INCHES APART FOR TURF AREAS.
 - LAY DEPTH FOR 'ECO-MAT' MATERIAL SHALL BE 4 INCHES BELOW AMENDED SOIL FINISH GRADE.
 - INSTALL FIRST ROW OF DRIPLINE TUBING 6 INCHES FROM ANY HARDSCAPE EDGE. CONTRACTOR SHALL FOLD OVER OR CUT FLEECE MATERIAL SO TUBING IS SET AT 6 INCHES FROM HARDSCAPE.

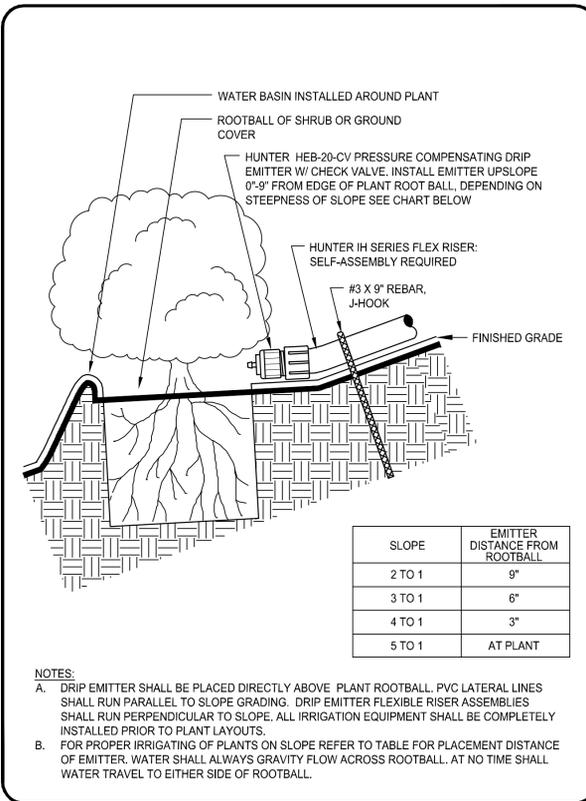
D ECOMAT- PVC/TUBING CONNECTION
SCALE: N.T.S.

STAFF APPRVL	REVISIONS					CITY ENG. DATE	PUBLIC IMPROVEMENTS APPROVED FOR CONSTRUCTION CITY OF SANTA ROSA
	NO.	REVISION	DATE	R.C.E.	EXP. DATE		

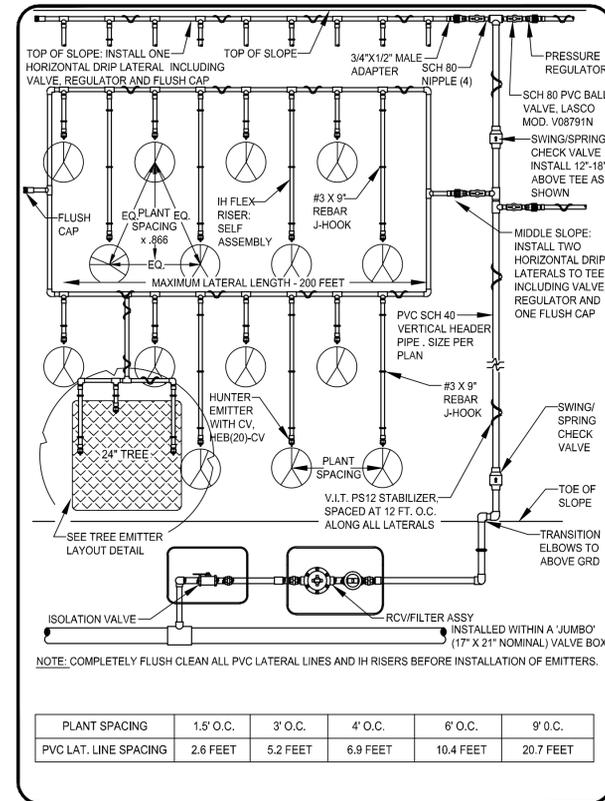
ROUND BARN VILLAGE
SANTA ROSA, CALIFORNIA

CTV124-P: 1st Agency Submittal (11-06-2018) NOT FOR CONSTRUCTION

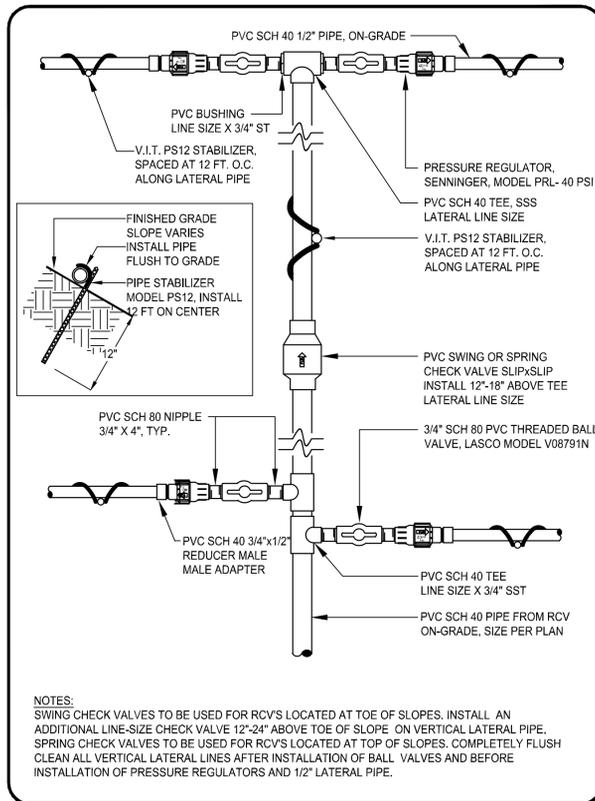
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JOB No. CTV124-P
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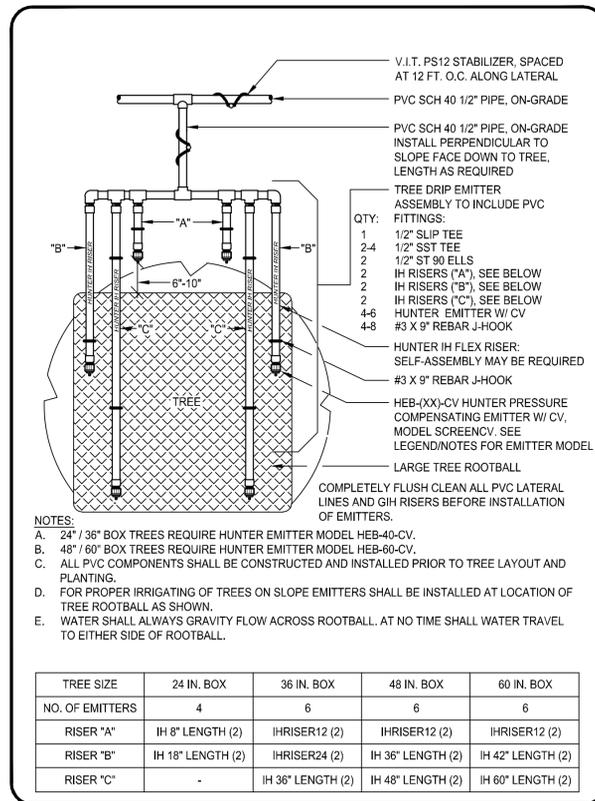
A SHRUB EMITTER LOCATION
SCALE: N.T.S.



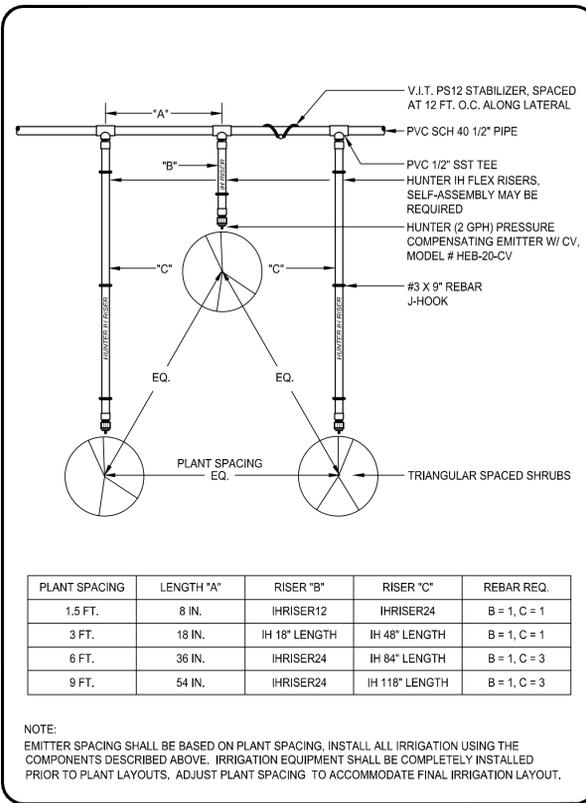
B LARGE SLOPE ZONE LAYOUT
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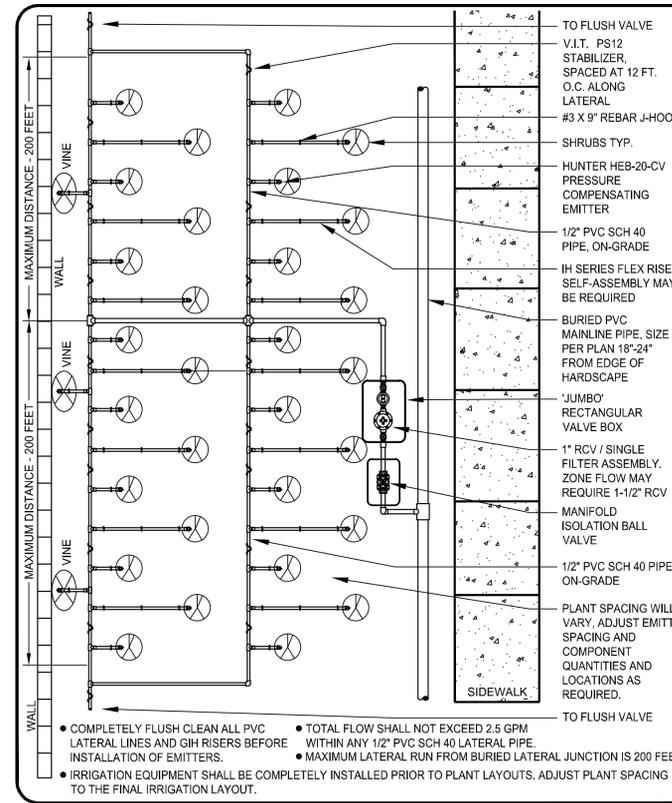
C LATERAL LINE EQUIPMENT
SCALE: N.T.S.



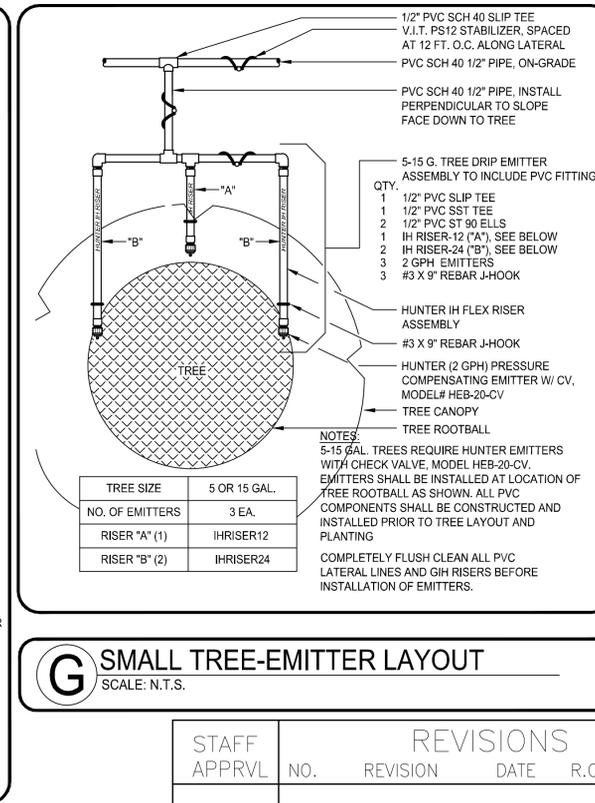
D TREE EMITTER LAYOUT-SLOPE
SCALE: N.T.S.



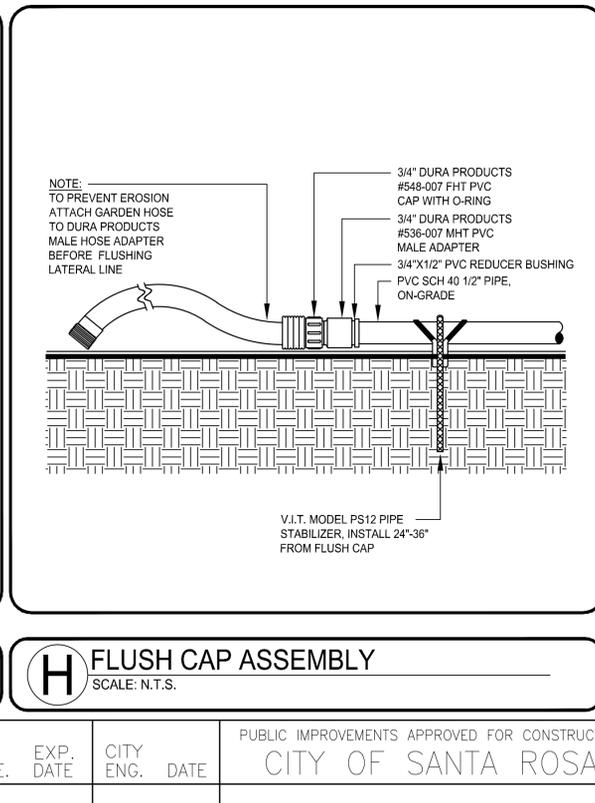
E SHRUB EMITTER LAYOUT
SCALE: N.T.S.



F SMALL SLOPE / PARKWAY LAYOUT
SCALE: N.T.S.



G SMALL TREE-EMITTER LAYOUT
SCALE: N.T.S.



H FLUSH CAP ASSEMBLY
SCALE: N.T.S.

STAFF APPRVL	NO.	REVISION	DATE	R.C.E.	EXP. DATE	CITY ENG. DATE	PUBLIC IMPROVEMENTS APPROVED FOR CONSTRUCTION
							CITY OF SANTA ROSA
							BY DAVID M. GUHIN, CITY ENGINEER, CITY OF SANTA ROSA, CA
							R.C.E. 65663
							DATE
							CITY OF SANTA ROSA FILE NO.

**SECTION 02810
IRRIGATION SYSTEM**

**PART 1 - GENERAL
1.1 DESCRIPTION OF WORK**

A. FURNISH ALL MATERIALS, LABOR, TRANSPORTATION, SERVICES, AND EQUIPMENT NECESSARY TO INSTALL LANDSCAPE IRRIGATION AS SHOWN ON THE DRAWINGS AND AS SPECIFIED HEREIN.

1.2 DEFINITIONS
A. THE OWNER'S AUTHORIZED REPRESENTATIVE IN THIS SECTION WILL REFER TO THE LANDSCAPE ARCHITECT.

1.3 REQUIREMENTS OF REGULATORY AGENCIES
A. ALL LOCAL, MUNICIPAL AND STATE LAWS, AND RULES AND REGULATIONS GOVERNING OR RELATING TO ANY PORTION OF THIS WORK ARE HEREBY INCORPORATED INTO AND MADE A PART OF THIS SPECIFICATION, AND ITS PROVISIONS SHALL BE CARRIED OUT BY THE CONTRACTOR. ANYTHING CONTAINED IN THIS SPECIFICATION SHALL NOT BE CONSTRUED TO CONFLICT WITH ANY OF THE ABOVE RULES AND REGULATIONS OR REQUIREMENTS OF THE SAME. HOWEVER, WHEN THE DRAWINGS AND SPECIFICATIONS CALL FOR OR DESCRIBE MATERIALS, WORKMANSHIP, OR CONSTRUCTION OF A BETTER QUALITY, HIGHER STANDARD, OR LARGER SIZE THAN IS REQUIRED BY THE ABOVE RULES AND REGULATIONS, THE PROVISIONS OF THE DRAWINGS AND SPECIFICATIONS SHALL TAKE PRECEDENCE.

1.4 QUALITY CONTROL
A. MANUFACTURER'S DIRECTIONS
1. THE MANUFACTURER'S DIRECTIONS AND DRAWINGS SHALL BE FOLLOWED IN ALL CASES WHERE THE MANUFACTURERS OF ARTICLES USED IN THIS SPECIFICATION, FURNISH DIRECTIONS COVERING POINTS NOT SHOWN IN THE DRAWINGS AND SPECIFICATIONS.
B. PERMITS, FEES, BONDS AND INSPECTIONS
1. THE CONTRACTOR SHALL PAY FOR ANY AND ALL PERMITS, FEES, BONDS AND INSPECTIONS NECESSARY TO PERFORM AND COMPLETE HIS PORTION OF THE WORK.
C. EXPLANATION OF THE DRAWINGS
1. DUE TO THE SCALE OF THE DRAWINGS, IT IS NOT POSSIBLE TO INDICATE ALL OFFSETS, FITTINGS, SLEEVES, ETC. WHICH MAY BE REQUIRED. THE CONTRACTOR SHALL CAREFULLY INVESTIGATE THE STRUCTURAL AND FINISHED CONDITIONS AFFECTING ALL OF HIS WORK AND PLAN HIS WORK ACCORDINGLY, FURNISHING SUCH FITTINGS, ETC. AS MAY BE REQUIRED TO MEET SUCH CONDITIONS. THE DRAWINGS ARE DIAGRAMMATIC ONLY AND ARE INDICATIVE OF THE WORK TO BE INSTALLED. THE WORK SHALL BE INSTALLED IN SUCH A MANNER AS TO AVOID CONFLICTS BETWEEN IRRIGATION SYSTEMS, PLANTING, AND ARCHITECTURAL FEATURES.
2. ALL WORK CALLED FOR ON THE DRAWINGS BY NOTES OR DETAILS SHALL BE FURNISHED AND INSTALLED WHETHER OR NOT SPECIFICALLY MENTIONED IN THIS SPECIFICATION.
3. THE CONTRACTOR SHALL NOT WILLFULLY INSTALL THE IRRIGATION SYSTEM AS SHOWN ON THE DRAWINGS WHEN IT IS OBVIOUS IN THE FIELD THAT OBSTRUCTIONS, GRADE DIFFERENCES OR DISCREPANCIES IN AREA DIMENSIONS EXIST THAT MIGHT NOT HAVE BEEN CONSIDERED IN ENGINEERING. SUCH OBSTRUCTIONS OR DIFFERENCES SHOULD BE BROUGHT TO THE ATTENTION OF THE OWNER'S AUTHORIZED REPRESENTATIVE. IN THE EVENT THIS NOTIFICATION IS NOT PERFORMED, THE CONTRACTOR SHALL ASSUME FULL RESPONSIBILITY FOR ANY REVISIONS.

1.5 SUBMITTALS
A. MATERIALS LIST
1. THE CONTRACTOR SHALL FURNISH THE ARTICLES, EQUIPMENT, MATERIALS, OR PROCESSES SPECIFIED BY NAME IN THE DRAWINGS AND SPECIFICATIONS. NO SUBSTITUTION WILL BE ALLOWED WITHOUT PRIOR WRITTEN APPROVAL BY THE OWNER'S AUTHORIZED REPRESENTATIVE. COMPLETE MATERIAL LIST SHALL BE SUBMITTED PRIOR TO PERFORMING ANY WORK. MATERIAL LIST SHALL INCLUDE THE MANUFACTURER, MODEL NUMBER AND DESCRIPTION OF ALL MATERIALS AND

EQUIPMENT TO BE USED. ALTHOUGH MANUFACTURER AND OTHER INFORMATION MAY BE DIFFERENT, THE FOLLOWING IS A GUIDE TO PROPER SUBMITTAL FORMAT:

ITEM NO.	DESCRIPTION	MANUFACTURER MODEL NO.
1.	BACKFLOW ASSEMBLY FEBCO 825Y	
2.	GATE VALVE NIBCO T-113	
3.	ETC. ETC.	
THE IRRIGATION SUBMITTAL LIST MUST BE SPECIFIC AND COMPLETE. ALL ITEMS MUST BE LISTED AND SHOULD INCLUDE SOLVENT/PRIMER, WIRE, WIRE CONNECTORS, VALVE BOXES, ETC. NO COPIES OF MANUFACTURER'S LITERATURE (CATALOG CUTS) ARE REQUIRED AS SUBMITTAL INFORMATION.		
3.	THE CONTRACTOR MAY SUBMIT SUBSTITUTIONS FOR EQUIPMENT AND MATERIALS LISTED ON THE DRAWINGS BY FOLLOWING PROCEDURES AS OUTLINED IN SECTION 1.6 OF THIS SPECIFICATION.	
4.	EQUIPMENT OR MATERIALS INSTALLED OR FURNISHED WITHOUT PRIOR APPROVAL OF THE OWNER'S AUTHORIZED REPRESENTATIVE MAY BE REJECTED AND THE CONTRACTOR REQUIRED TO REMOVE SUCH MATERIALS FROM THE SITE AT NO COST TO THE OWNER.	
5.	APPROVAL OF ANY ITEM, ALTERNATE OR SUBSTITUTE INDICATES ONLY THAT THE PRODUCT OR PRODUCTS APPARENTLY MEET THE REQUIREMENTS OF THE DRAWINGS AND SPECIFICATIONS ON THE BASIS OF THE INFORMATION OR SAMPLES SUBMITTED.	
6.	MANUFACTURER'S WARRANTIES SHALL NOT RELIEVE THE CONTRACTOR OF HIS LIABILITY UNDER THE GUARANTEE. SUCH WARRANTIES SHALL ONLY SUPPLEMENT THE GUARANTEE.	
B. RECORD DRAWINGS OR "AS-BUILTS"		
1.	THE CONTRACTOR SHALL PROVIDE AND KEEP UP TO DATE AT ALL TIMES, A COMPLETE RECORD SET "AS-BUILTS" OF BLUE LINE OZALID PRINTS WHICH SHALL BE CORRECTED DAILY AND SHOW EVERY CHANGE FROM THE ORIGINAL DRAWINGS AND SPECIFICATIONS AND THE EXACT INSTALLED LOCATIONS, SIZES, AND KINDS OF EQUIPMENT. PRINTS FOR THIS PURPOSES MAY BE OBTAINED FROM THE OWNER'S AUTHORIZED REPRESENTATIVE AT THE CONTRACTOR'S COST. "AS-BUILTS" SHALL BE KEPT ON THE SITE AND SHALL BE USED ONLY AS A RECORD SET.	
2.	"AS-BUILTS" SHALL ALSO SERVE AS WORK PROGRESS SHEETS AND SHALL BE THE BASIS FOR MEASUREMENT AND PAYMENT FOR WORK COMPLETED. "AS-BUILTS" SHALL BE AVAILABLE AT ALL TIMES FOR OBSERVATION AND SHALL BE KEPT IN A LOCATION EASILY ACCESSIBLE TO THE OWNER'S AUTHORIZED REPRESENTATIVE. SHOULD THE "AS-BUILT" PROGRESS SHEETS NOT BE AVAILABLE FOR REVIEW OR NOT CURRENT AT THE TIME OF ANY SITE VISIT BY THE OWNER'S AUTHORIZED REPRESENTATIVE, IT WILL BE ASSUMED NO WORK HAS BEEN COMPLETED AND THE CONTRACTOR WILL BE ASSESSED THE COST OF THAT SITE VISIT AT THE CURRENT BILLING RATE OF THE OWNER'S AUTHORIZED REPRESENTATIVE. NO OTHER SITE OBSERVATIONS SHALL TAKE PLACE WITHOUT PRIOR PAYMENT OF THIS ASSESSMENT.	
3.	THE CONTRACTOR SHALL MAKE NEAT AND LEGIBLE NOTATIONS ON THE "AS-BUILT" PROGRESS SHEETS DAILY AS THE WORK PROCEEDS, SHOWING THE WORK AS ACTUALLY INSTALLED. FOR EXAMPLE, SHOULD A PIECE OF EQUIPMENT BE INSTALLED IN A LOCATION THAT DOES NOT MATCH THE DRAWINGS, THE CONTRACTOR MUST INDICATE THAT EQUIPMENT HAS BEEN RELOCATED IN A GRAPHIC MANNER SO AS TO MATCH THE ORIGINAL SYMBOLS AS INDICATED IN THE IRRIGATION LEGEND. THE RELOCATED EQUIPMENT AND DIMENSIONS WILL THEN BE TRANSFERRED TO THE ORIGINAL "AS-BUILTS" AT THE PROPER TIME.	
4.	BEFORE THE DATE OF THE FINAL WALKTHROUGH, THE CONTRACTOR SHALL TRANSFER ALL INFORMATION FROM THE "AS-BUILT" PRINTS TO SEPIA MYLAR PLANS PROCURED FROM THE OWNER'S AUTHORIZED REPRESENTATIVE AT THE CONTRACTOR'S COST. ALL DRAFTING SHALL BE DONE WITH WATERPROOF TECHNICAL PEN INK AND APPLIED TO THE SEPIA MYLAR BY TECHNICAL DRAFTING PENS MADE EXPRESSLY FOR USE ON MYLAR SURFACES. DIMENSIONS SHALL BE	

MADE ON THE SEPIA MYLAR SO AS TO BE EASILY READABLE EVEN ON THE FINAL IRRIGATION CONTROLLER CHART. THE ORIGINAL SEPIA MYLAR "AS-BUILTS" SHALL BE SUBMITTED TO THE OWNER'S AUTHORIZED REPRESENTATIVE FOR APPROVAL PRIOR TO THE MAKING OF THE IRRIGATION CONTROLLER CHARTS.
5. THE CONTRACTOR SHALL DIMENSION FROM TWO (2) PERMANENT POINTS OF REFERENCE, BUILDING CORNERS, SIDEWALK, OR ROAD INTERSECTIONS, ETC., THE LOCATION OF THE FOLLOWING ITEMS:
a. CONNECTION TO EXISTING WATER LINES.
b. CONNECTION TO EXISTING ELECTRICAL POWER.
c. GATE VALVES.
d. ROUTING OF SPRINKLER PRESSURE LINES.
e. SPRINKLER CONTROL VALVES.
f. ROUTING OF CONTROL WIRING.
g. QUICK COUPLING VALVES.
h. BACKFLOW PREVENTER.
i. OTHER RELATED EQUIPMENT.

6. ON OR BEFORE THE DATE OF THE FINAL WALKTHROUGH, THE CONTRACTOR SHALL DELIVER THE CORRECTED AND COMPLETED SEPIA MYLAR "AS-BUILTS" TO THE OWNER'S AUTHORIZED REPRESENTATIVE. DELIVERY OF THE SEPIA "AS-BUILTS" WILL NOT RELIEVE THE CONTRACTOR OF THE RESPONSIBILITY OF FURNISHING REQUIRED INFORMATION THAT MAY BE OMITTED FROM THE "AS-BUILTS."

C. IRRIGATION CONTROLLER CHARTS
1. "AS-BUILT" DRAWINGS SHALL BE APPROVED BY THE OWNER'S AUTHORIZED REPRESENTATIVE BEFORE IRRIGATION CONTROLLER CHARTS ARE PREPARED.
2. PROVIDE ONE IRRIGATION CONTROLLER CHART FOR EACH IRRIGATION CONTROLLER SUPPLIED.
3. EACH IRRIGATION CONTROLLER CHART SHALL SHOW THE AREA CONTROLLED BY THAT IRRIGATION CONTROLLER AND SHALL BE THE MAXIMUM SIZE OF WHICH THE IRRIGATION CONTROLLER DOOR WILL ALLOW.
4. THE IRRIGATION CONTROLLER CHART IS TO BE A REDUCED DRAWING OF THE ACTUAL INSTALLED IRRIGATION SYSTEM. IN THE EVENT THAT THE IRRIGATION CONTROLLER CHART IS NOT LEGIBLE WHEN THE CHART IS REDUCED, IT MAY BE ENLARGED TO A SIZE THAT WILL BE READABLE WHEN REDUCED.
5. THE IRRIGATION CONTROLLER CHART SHALL BE A 11" X 17" XEROX BOND REDUCTION WITH EACH VALVE STATION REPRESENTED BY A DIFFERENT COLOR.
6. WHEN COMPLETED, HERMETICALLY SEAL THE IRRIGATION CONTROLLER CHART BETWEEN TWO PIECES OF 3 MIL PLASTIC WITH A 1/8" EDGE OVERLAP.
7. IRRIGATION CONTROLLER CHARTS SHALL BE COMPLETED AND APPROVED BY THE OWNER'S AUTHORIZED REPRESENTATIVE PRIOR TO THE FINAL WALK-THROUGH.

D. OPERATION AND MAINTENANCE MANUALS
1. PREPARE AND DELIVER TO THE OWNER'S AUTHORIZED REPRESENTATIVE WITHIN 10 CALENDAR DAYS PRIOR TO COMPLETION OF IRRIGATION INSTALLATION, TWO (2) - 3 RING HARD COVER BINDERS EACH CONTAINING THE FOLLOWING INFORMATION:
a. INDEX SHEETS STATING THE CONTRACTOR'S ADDRESS AND TELEPHONE NUMBER AND A LIST OF EQUIPMENT WITH THE NAME AND ADDRESSES OF LOCAL MANUFACTURER'S REPRESENTATIVES.
b. CATALOG AND PART SHEETS ON EVERY MATERIAL AND EQUIPMENT INSTALLED UNDER THIS CONTRACT.
c. GUARANTEE STATEMENT.
d. COMPLETE OPERATING AND MAINTENANCE INSTRUCTION ON ALL MAJOR EQUIPMENT.
2. IN ADDITION TO THE ABOVE MENTIONED MAINTENANCE MANUAL, PROVIDE THE OWNER WITH ON-SITE INSTRUCTIONS FOR MAJOR EQUIPMENT AND SHOW EVIDENCE IN WRITING TO THE OWNER'S AUTHORIZED REPRESENTATIVE AT THE CONCLUSION OF THE PROJECT THAT THIS SERVICE WAS RENDERED.

E. EQUIPMENT TO BE FURNISHED
1. SUPPLY AS A PART OF THIS CONTRACT THE FOLLOWING TOOLS:
a. TWO (2) SETS OF SPECIAL TOOLS REQUIRED FOR REMOVING, DISASSEMBLING AND ADJUSTING EACH TYPE OF SPRINKLER AND VALVE

SUPPLIED ON THE PROJECT.
b. TWO (2) FIVE-FOOT VALVE KEYS FOR OPERATION OF GATE VALVES.
c. TWO (2) KEYS FOR EACH AUTOMATIC CONTROLLER AND IRRIGATION CONTROLLER ENCLOSURE.
d. ONE (1) QUICK COUPLER KEY AND MATCHING HOSE SWIVEL FOR EVERY FIVE (5), OR FRACTION THEREOF, OF EACH TYPE OF QUICK COUPLING VALVE INSTALLED.
2. THE ABOVE MENTIONED EQUIPMENT SHALL BE TURNED OVER TO THE OWNER AT THE CONCLUSION OF THE PROJECT. BEFORE THE FINAL WALK-THROUGH SHALL BE PERFORMED, EVIDENCE THAT THE OWNER HAS RECEIVED THIS MATERIAL MUST BE SHOWN TO THE OWNER'S AUTHORIZED REPRESENTATIVE.

1.6 PRODUCT DELIVERY, STORAGE AND HANDLING
A. HANDLING OF PVC PIPE AND FITTINGS
1. THE CONTRACTOR IS CAUTIONED TO EXERCISE CARE IN HANDLING, LOADING, UNLOADING, AND STORING OF PVC PIPE AND FITTINGS. ALL PVC PIPE SHALL BE TRANSPORTED IN A VEHICLE WHICH ALLOWS THE LENGTH OF PIPE TO LIE FLAT SO AS NOT TO SUBJECT IT TO UNDUE BENDING OR CONCENTRATED EXTERNAL LOAD AT ANY POINT. ANY SECTION OF PIPE THAT HAS BEEN DENTED OR DAMAGED WILL BE DISCARDED AND, IF INSTALLED, SHALL BE REPLACED WITH NEW PIPING AT NO COST TO THE OWNER.

1.7 SUBSTITUTIONS
A. IF THE CONTRACTOR WISHES TO SUBSTITUTE ANY EQUIPMENT OR MATERIALS LISTED ON THE DRAWINGS AND SPECIFICATIONS, HE MAY DO SO BY PROVIDING THE FOLLOWING INFORMATION TO THE OWNER'S AUTHORIZED REPRESENTATIVE FOR APPROVAL:
1. PROVIDE A STATEMENT INDICATING THE REASON FOR MAKING THE SUBSTITUTION. USE A SEPARATE SHEET OF PAPER FOR EACH ITEM TO BE SUBSTITUTED.
2. PROVIDE DESCRIPTIVE CATALOG LITERATURE, PERFORMANCE CHARTS AND FLOW CHARTS FOR EACH ITEM TO BE SUBSTITUTED.
3. PROVIDE THE AMOUNT OF COST SAVINGS IF THE SUBSTITUTED ITEM IS APPROVED.
B. THE OWNER'S AUTHORIZED REPRESENTATIVE SHALL HAVE THE SOLE RESPONSIBILITY IN ACCEPTING OR REJECTING ANY SUBSTITUTED ITEM AS AN APPROVED EQUAL TO THOSE EQUIPMENT AND MATERIALS LISTED ON THE DRAWINGS AND SPECIFICATIONS.

1.8 PRIOR TO START OF THE LANDSCAPE MAINTENANCE PERIOD
A. THE CONTRACTOR SHALL SUBMIT PROOF OF WARRANTY TO THE OWNER'S AUTHORIZED REPRESENTATIVE PRIOR TO THE START OF THE LANDSCAPE MAINTENANCE PERIOD. ALL COMPUTERIZED IRRIGATION CONTROL SYSTEM MATERIALS EXCEPT INTERCONNECT CONDUCTORS SHALL HAVE A FIVE-YEAR WARRANTY. IT IS THE CONTRACTOR'S RESPONSIBILITY TO OBTAIN THE NECESSARY WARRANTY INSPECTIONS FROM THE EQUIPMENT SUPPLIER. NO INSTALLATIONS WILL BE ACCEPTED WITHOUT PROOF OF WARRANTY.

1.9 GUARANTEE
A. THE GUARANTEE FOR THE IRRIGATION SYSTEM SHALL BE MADE IN ACCORDANCE WITH THE ATTACHED FORM.
B. A COPY OF THE GUARANTEE FORM SHALL BE INCLUDED IN THE OPERATIONS AND MAINTENANCE MANUAL.
C. THE GUARANTEE FORM SHALL BE RE-TYPED ONTO THE CONTRACTOR'S LETTERHEAD AND CONTAIN THE FOLLOWING INFORMATION:

1.10 GUARANTEE FOR SPRINKLER IRRIGATION SYSTEM
A. WE HEREBY GUARANTEE THAT THE SPRINKLER IRRIGATION SYSTEM WE HAVE FURNISHED AND INSTALLED IS FREE FROM DEFECTS IN MATERIALS AND WORKMANSHIP, AND THE WORK HAS BEEN COMPLETED IN ACCORDANCE WITH THE DRAWINGS AND SPECIFICATIONS, ORDINARY WEAR AND TEAR AND UNUSUAL ABUSE, OR NEGLECT EXCEPTED. WE AGREE TO REPAIR OR REPLACE ANY DEFECTS IN MATERIAL OR WORKMANSHIP WHICH MAY DEVELOP DURING THE PERIOD OF ONE YEAR FROM DATE OF FINAL ACCEPTANCE AND ALSO TO REPAIR OR REPLACE ANY DAMAGE RESULTING FROM THE REPAIRING OR REPLACING OF SUCH DEFECTS AT NO ADDITIONAL COST TO THE OWNER. WE SHALL MAKE SUCH REPAIRS OR REPLACEMENTS WITHIN A REASONABLE TIME, AS DETERMINED

BY THE OWNER, AFTER RECEIPT OF WRITTEN NOTICE. IN THE EVENT OF OUR FAILURE TO MAKE SUCH REPAIRS OR REPLACEMENTS WITHIN A REASONABLE TIME AFTER RECEIPT OF WRITTEN NOTICE FROM THE OWNER, WE AUTHORIZE THE OWNER TO PROCEED TO HAVE SAID REPAIRS OR REPLACEMENTS MADE AT OUR EXPENSE AND WE WILL PAY THE COSTS AND CHARGES THEREFORE UPON DEMAND.

PROJECT:
LOCATION:
SIGNED:
ADDRESS:
PHONE:
DATE OF ACCEPTANCE:

1.11 RULES AND REGULATIONS
A. WORK AND MATERIALS SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE NATIONAL ELECTRIC CODE, THE UNIFORM PLUMBING CODE AS PUBLISHED BY THE WESTERN PLUMBING OFFICIALS ASSOCIATION, AND APPLICABLE LAWS AND REGULATIONS OF THE GOVERNING AUTHORITIES.

1.12 PROTECTION OF WORK AND MATERIALS
A. THE CONTRACTOR SHALL PROTECT HIS WORK AND WORK OF OTHERS FOR THE DURATION OF THE CONTRACT. HE SHALL PROTECT PIPES AND FITTINGS FROM DIRECT SUNLIGHT, AND AVOID UNDUE BENDING AND ANY CONCENTRATED EXTERNAL LOADING. PIPE OR FITTINGS THAT HAVE BEEN DAMAGED SHALL NOT BE USED.
B. THE CONTRACTOR SHALL EXERCISE EXTREME CARE IN EXCAVATING AND WORKING NEAR EXISTING UTILITIES. DAMAGE TO UTILITIES WHICH ARE CAUSED BY CONTRACTOR'S OPERATION SHALL BE THE CONTRACTOR'S RESPONSIBILITY.
C. THE CONTRACTOR SHALL TAKE NECESSARY PRECAUTIONS TO PROTECT SITE CONDITIONS AND PLANT MATERIAL THAT IS TO REMAIN. SHOULD DAMAGE TO INCURRED, CONTRACTOR SHALL REPAIR DAMAGE TO ITS ORIGINAL CONDITION OR FURNISH AND INSTALL EQUAL REPLACEMENTS.
D. ALL EXISTING IRRIGATION SYSTEMS SHALL BE KEPT IN OPERATION AT ALL TIMES. IF THE EXISTING SYSTEM IS DAMAGED BY CONTRACTOR, HE SHALL BE RESPONSIBLE FOR IMMEDIATE REPAIR OF SUCH DAMAGE. AFTER EACH REPAIR, ALL HEADS OF THE REPAIRED SYSTEM SHALL BE REMOVED SO THAT THE LINES CAN BE CLEARED OF ALL DIRT AND FOREIGN MATTER.

1.13 CORRECTION OF WORK
A. ANY AND ALL DISCREPANCIES OF UNSATISFACTORY WORK SHALL BE CORRECTED BY THE CONTRACTOR AT NO ADDITIONAL EXPENSE TO THE OWNER. THE CORRECTION OF WORK SHALL BE FINISHED WITH A REASONABLE PERIOD MUTUALLY AGREED UPON BETWEEN THE OWNER AND CONTRACTOR.

**PART 2 - PRODUCTS
2.1 GENERAL**
A. USE ONLY NEW MATERIALS OF BRANDS AND TYPES NOTED ON THE DRAWINGS OR SPECIFICATIONS.

2.2 PVC PRESSURE MAIN LINE PIPE AND FITTINGS
A. CLASS 315 PIPE SHALL BE MADE FROM AN NSF APPROVED TYPE I, GRADE I, PVC COMPOUND CONFORMING TO ASTM COMPOUND SPECIFICATION D1784. ALL PIPE MUST MEET REQUIREMENTS AS SET FORTH IN ASTM D2241 (SOLVENT-WELD CLASS PIPE), WITH AN APPROPRIATE STANDARD DIMENSION (S.D.R.).
B. SCHEDULE 40 PIPE SHALL BE MADE FROM NSF APPROVED TYPE I, GRADE I PVC COMPOUND CONFORMING TO ASTM COMPOUND SPECIFICATION D1784. ALL PIPE MUST MEET REQUIREMENTS AS SET FORTH IN ASTM D1785

(SOLVENT-WELD SCHEDULE PIPE).
C. PVC SOLVENT-WELD FITTINGS SHALL BE SCHEDULE 40, 1-2, II-1 NSF APPROVED CONFORMING TO ASTM TEST PROCEDURE D2466.
D. SOLVENT CEMENT AND PRIMER FOR PVC SOLVENT-WELD PIPE AND FITTINGS SHALL BE OF TYPE AND INSTALLATION METHODS PRESCRIBED BY THE MANUFACTURER.
E. ALL PVC PIPE MUST BEAR THE FOLLOWING MARKINGS:
1. MANUFACTURER'S NAME.
2. NOMINAL PIPE SIZE.
3. SCHEDULE OR CLASS.
4. PRESSURE RATING IN PSI.
5. NSF (NATIONAL SANITATION FOUNDATION) APPROVAL.
6. DATE OF EXTRUSION.
7. ALL FITTINGS SHALL BEAR THE MANUFACTURER'S NAME OR TRADEMARK, MATERIAL DESIGNATION, SIZE, APPLICABLE IPS SCHEDULE AND NSF SEAL OF APPROVAL.

2.3 PVC NON-PRESSURE LATERAL LINE PIPING
A. NON-PRESSURE BURIED LATERAL LINE PIPING SHALL BE PVC CLASS 200 WITH SOLVENT-WELDED JOINTS.
B. NON-PRESSURE LATERAL LINE PIPING INSTALLED UNDER PAVED AREAS SHALL BE INSTALLED IN A PVC SCHEDULE 40 SLEEVE.
C. PIPE SHALL BE MADE FROM NSF APPROVED, TYPE I, GRADE II PVC COMPOUND CONFORMING TO ASTM COMPOUND SPECIFICATION D1784. ALL PIPE MUST MEET REQUIREMENTS SET FORTH IN ASTM D2241 (SOLVENT-WELD CLASS PIPE) WITH AN APPROPRIATE STANDARD DIMENSION RATIO, EXCEPT AS NOTED IN PARAGRAPHS A, B, C AND D OF SECTION 2.2. ALL REQUIREMENTS FOR NON-PRESSURE LATERAL LINE PIPE AND FITTINGS SHALL BE THE SAME AS FOR SOLVENT-WELD PRESSURE MAIN LINE PIPE AND FITTINGS AS SET FORTH IN THIS SPECIFICATION.

2.4 BRASS PIPE AND FITTINGS
A. WHERE INDICATED ON THE DRAWINGS, USE RED BRASS SCREWED PIPE CONFORMING TO FEDERAL SPECIFICATION #WWW-P-351.
B. FITTINGS SHALL BE RED BRASS CONFORMING TO FEDERAL SPECIFICATION #WWW-P-460.

2.5 BALL VALVES
A. BALL VALVES 2" AND SMALLER SHALL BE 125 LB. SWP PLASTIC BALL VALVE WITH BLOW-OUT PROOF AND FULL PORT.
B. BALL VALVES 2" AND SMALLER SHALL HAVE THREADED ENDS. REFER TO LEGEND FOR TYPE.
C. ALL BALL VALVES SHALL BE INSTALLED PER IRRIGATION INSTALLATION DETAILS.

2.6 QUICK COUPLING VALVES
A. QUICK COUPLING VALVES SHALL HAVE A BRASS ONE OR TWO PIECE BODY DESIGNED FOR A WORKING PRESSURE OF 150 PSI, OPERABLE WITH QUICK COUPLER. REFER TO LEGEND FOR TYPE. KEY SIZE AND TYPE SHALL BE AS INDICATED ON THE DRAWINGS.

2.7 BACKFLOW PREVENTION UNITS
A. BACKFLOW PREVENTION UNITS SHALL BE OF SIZE AND TYPE INDICATED ON THE DRAWINGS. INSTALL BACKFLOW PREVENTION UNITS IN ACCORDANCE WITH THE DRAWINGS.
B. WYE STRAINERS AT BACKFLOW PREVENTION UNITS SHALL HAVE A BRONZED SCREWED BODY WITH 60 MESH STAINLESS STEEL SCREEN AND SHALL BE SIMILAR TO THE FEBCO #650A, OR APPROVED EQUAL.
C. ALL PRESSURE MAINLINE PIPING BETWEEN THE POINT OF CONNECTION AND THE BACKFLOW PREVENTER SHALL BE INSTALLED AS REQUIRED BY LOCAL CODE. THE CONTRACTOR SHALL VERIFY WITH THE LOCAL GOVERNING BODY AS TO MATERIAL TYPE AND INSTALLATION PROCEDURES PRIOR TO START OF CONSTRUCTION. SUBMIT SHOP DRAWING FOR APPROVAL.

STAFF APPRVL	REVISIONS				EXP. DATE	CITY ENG. DATE	PUBLIC IMPROVEMENTS APPROVED FOR CONSTRUCTION
	NO.	REVISION	DATE	R.C.E.			
							CITY OF SANTA ROSA
							BY DAVID M. GUHIN CITY ENGINEER CITY OF SANTA ROSA, CA
							R.C.E. 65663
							DATE
							CITY OF SANTA ROSA FILE NO. _____



PLANS PREPARED BY:  C2 Collaborative

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Landscape Design
Landscape Construction
Landscape Maintenance
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ROUND BARN VILLAGE
SANTA ROSA, CALIFORNIA

NOT FOR CONSTRUCTION

CTV124-P: 1st Agency Submittal (11-06-2018)

SCALE NONE
JOB No. CTV124-P
IRRIGATION SPECIFICATIONS
LI-6.01
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2.8 CHECK VALVES

- A. SWING CHECK VALVES 2" AND SMALLER SHALL BE 200 POUND WOG BRONZE CONSTRUCTION WITH REPLACEABLE COMPOSITION, NEOPRENE OR RUBBER DISC AND SHALL MEET OR EXCEED FEDERAL SPECIFICATION WW-V- 51D, CLASS A, TYPE IV.
- B. CHECK VALVES SHALL BE OF HEAVY DUTY VIRGIN PVC CONSTRUCTION WITH FIP THREADED INLETS AND OUTLETS. INTERNAL PARTS SHALL BE STAINLESS STEEL AND NEOPRENE. CHECK VALVES SHALL BE FIELD ADJUSTABLE AGAINST DRAW-OUT FROM 5 TO 40 FEET OF HEAD. CHECK VALVES SHALL BE SIMILAR TO THE KING BROS. INDUSTRIES "CV" SERIES, OR EQUAL.

2.9 CONTROL WIRE

- A. CONNECTIONS BETWEEN THE AUTOMATIC CONTROLLERS AND THE ELECTRIC CONTROL VALVES SHALL BE MADE WITH DIRECT BURIAL COPPER WIRE AWG-U.F. 600 VOLT. CONTROL WIRES SHALL BE #14 GAUGE AND A DIFFERENT WIRE COLOR FOR EACH AUTOMATIC CONTROLLER. COMMON WIRES SHALL BE #14 GAUGE AND WHITE IN COLOR WITH A DIFFERENT COLOR STRIPE FOR EACH AUTOMATIC CONTROLLER. INSTALL WIRES IN ACCORDANCE WITH VALVE MANUFACTURER'S SPECIFICATIONS AND WIRE CHARTS. IN NO CASE SHALL WIRE SIZE BE LESS THAN #14 GAUGE. WIRE COLOR SHALL BE CONTINUOUS OVER ITS ENTIRE LENGTH.
- B. WIRING SHALL OCCUPY THE SAME TRENCH AND SHALL BE INSTALLED ALONG THE SAME ROUTE AS PRESSURE SUPPLY OR LATERAL LINES WHEREVER POSSIBLE.
- C. WHERE MORE THAN ONE (1) WIRE IS PLACED IN A TRENCH, THE WIRING SHALL BE TAPED TOGETHER AT INTERVALS OF 10 FEET.
- D. AN EXPANSION CURL SHALL BE PROVIDED WITHIN THREE (3) FEET OF EACH WIRE CONNECTION. EXPANSION CURL SHALL BE OF SUFFICIENT LENGTH AT EACH SPLICE CONNECTION AT EACH ELECTRIC CONTROL, SO THAT IN CASE OF REPAIR, THE VALVE BONNET MAY BE BROUGHT TO THE SURFACE WITHOUT DISCONNECTING THE CONTROL WIRES. CONTROL WIRES SHALL BE LAID LOOSELY IN THE TRENCH WITHOUT STRESS OR STRETCHING OF THE CONTROL WIRE CONDUCTORS.
- E. ALL SPLICES SHALL BE MADE WITH EITHER 3M DBY/R CONNECTOR OR RAIN BIRD SNAP-TITE WIRE CONNECTOR, OR APPROVED EQUAL. USE ONE SPLICE PER CONNECTOR SEALING PACK.

- A. FIELD WIRE SPLICES BETWEEN THE AUTOMATIC CONTROLLER AND THE ELECTRICAL CONTROL VALVES SHALL NOT BE ALLOWED WITHOUT PRIOR APPROVAL OF THE OWNER'S AUTHORIZED REPRESENTATIVE.
- B. WHEN CONTROL WIRING IS TRENCHED SEPARATELY FROM MAINLINE TRENCHES A CONTINUOUS WARNING TAPE SHALL BE INSTALLED WITH THE WIRING. WARNING TAPE: INERT PLASTIC FILM HIGHLY RESISTANT TO ALKALIS, ACIDS, OR OTHER DESTRUCTIVE CHEMICAL COMPONENTS LIKELY TO BE ENCOUNTERED IN SOILS. THREE INCHES WIDE, COLORED YELLOW, AND IMPRINTED WITH "CAUTION: BURIED ELECTRIC LINE BELOW."
- C. PROVIDE A 36-INCH EXCESS LENGTH OF WIRE IN AN 8-INCH DIAMETER LOOP AT EACH 90 DEGREE CHANGE OF DIRECTION, AT BOTH ENDS OF SLEEVES, AND AT 100-FOOT INTERVALS ALONG CONTINUOUS RUNS OF WIRING. DO NOT TIE WIRING LOOP.
- D. INSTALL COMMON GROUND WIRE AND ONE CONTROL WIRE FOR EACH REMOTE CONTROL VALVE. MULTIPLE VALVES ON A SINGLE CONTROL WIRE ARE NOT PERMITTED. INSTALL ONE COMMON WIRE FOR EACH CONTROLLER. MULTIPLE CONTROLLERS WITH ONE COMMON WIRE WILL NOT BE PERMITTED.
- E. CONTRACTOR SHALL ROUTE TWO ADDITIONAL 'CONTROL' WIRES AND ONE ADDITIONAL 'COMMON' WIRE ALONG ENTIRE MAINLINE ROUTE AND ALONG EACH AND EVERY LEG OF MAINLINE ROUTE. ROUTE WIRES INTO EACH AND EVERY RCV VALVE BOX. WHERE VALVE BOXES ARE GROUPED INTO A MANIFOLD, ROUTE WIRES INTO FIRST VALVE BOX ON MANIFOLD ONLY.

2.10 AUTOMATIC IRRIGATION CONTROLLERS

- A. AUTOMATIC IRRIGATION CONTROLLERS SHALL BE OF THE SIZE AND TYPE AS THAT INDICATED ON THE DRAWINGS.
- B. FINAL LOCATION OF AUTOMATIC IRRIGATION CONTROLLERS SHALL BE APPROVED BY THE OWNER'S AUTHORIZED REPRESENTATIVE.
- C. UNLESS OTHERWISE NOTED ON THE DRAWINGS, THE 120 VOLT ELECTRICAL POWER TO THE AUTOMATIC IRRIGATION CONTROLLER

SHALL BE FURNISHED BY OTHERS. THE FINAL ELECTRICAL HOOK-UP SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. THE AUTOMATIC IRRIGATION CONTROLLER SHALL BE INCLUDED AS A PART OF THE IRRIGATION CONTROLLER ENCLOSURE ASSEMBLY.

2.11 ELECTRICAL CONTROL VALVES

- A. ALL ELECTRIC CONTROL VALVES SHALL BE THE SAME MANUFACTURER AS THE AUTOMATIC CONTROLLERS UNLESS NOTED OTHERWISE ON THE DRAWINGS.
- B. ALL ELECTRIC CONTROL VALVES SHALL HAVE A MANUAL FLOW ADJUSTMENT.
- C. PROVIDE AND INSTALL ONE (1) CONTROL VALVE BOX FOR EACH ELECTRIC CONTROL VALVE.

2.12 VALVE BOXES

- A. USE A 10" DIAMETER SPECIFICATION ROUND VALVE BOX FOR GATE VALVES, BALL VALVES, CONTROL WIRE SPLICES, AND QUICK COUPLING VALVES AS MANUFACTURED BY RAIN BIRD, MODEL #VB-RND WITH GREEN OR BLACK COVER. EXTENSION SLEEVES SHALL BE 6" MINIMUM PVC PIPING MATERIAL.
- B. USE A RECTANGULAR SPECIFICATION GRADE VALVE BOX FOR ELECTRICAL CONTROL VALVES, MASTER VALVES, FLOW SENSORS, AND CONTROL WIRE PULL BOXES, AS MANUFACTURED BY RAIN BIRD, MODEL #VB-STD WITH A GREEN OR BLACK COVER.
- C. USE A JUMBO RECTANGULAR SPECIFICATION GRADE VALVE BOX FOR DRIP ZONE ASSEMBLY CONTROL VALVES, AS MANUFACTURED BY RAIN BIRD, MODEL #VB-JMB WITH A GREEN OR BLACK COVER.
- D. VALVE BOXES SHALL BE A MINIMUM OF ONE (1) FOOT APART WHEN ARRANGED IN A GROUP OR SIDE BY SIDE, OR UNLESS NOTED OTHERWISE IN THE DRAWINGS.

2.13 SPRINKLER HEADS

- A. ALL SPRINKLER HEADS SHALL BE OF THE SAME SIZE, TYPE, AND DELIVER THE SAME RATE OF PRECIPITATION WITH THE DIAMETER (OR RADIUS) OF THROW, PRESSURE, AND DISCHARGE AS SHOWN ON THE DRAWINGS AND IN THIS SPECIFICATION.
- B. SPRAY HEADS SHALL HAVE A SCREW ADJUSTMENT.
- C. RISER UNITS SHALL BE FABRICATED IN ACCORDANCE WITH THE DRAWINGS.
- D. RISER NIPPLES FOR ALL SPRINKLER HEADS SHALL BE THE SAME SIZE AS THE RISER OPENING IN THE SPRINKLER BODY.
- E. ALL SPRINKLER HEADS OF THE SAME TYPE SHALL BE FROM THE SAME MANUFACTURER.

2.14 IDENTIFICATION TAGS

- A. IDENTIFICATION TAGS FOR ELECTRICAL CONTROL VALVES, AND OTHER EQUIPMENT ASSEMBLIES AS DESIGNATED ON DRAWINGS, SHALL BE MANUFACTURED FROM POLYURETHANE BEHR DESOPAN. USE CHRISTY'S STANDARD TAG HOT STAMPED WITH BLACK LETTERS ON YELLOW BACKGROUND FOR POTABLE WATER SYSTEMS. USE CHRISTY'S STANDARD TAG HOT STAMPED WITH BLACK LETTERS ON PURPLE BACKGROUND FOR RECYCLED WATER SYSTEMS. THE TAGS SHALL BE NUMBERED TO MATCH STATION IDENTIFICATION AS INDICATED ON DRAWINGS. PROVIDE ONE (1) TAG FOR EACH ELECTRIC CONTROL VALVE.
- B. SPECIAL ORDER TAGS FROM T. CHRISTY ENTERPRISES, (714)771-4142.

2.15 SLEEVING

- A. INSTALL SEPARATE SLEEVE BENEATH PAVED AREAS TO ROUTE EACH RUN OF IRRIGATION PIPE OR WIRING BUNDLE.
- B. SLEEVING MATERIAL BENEATH PEDESTRIAN PAVEMENTS - ASTM D3034 PVC GRAVITY SEWER PIPE.
- C. SLEEVING BENEATH STREETS AND DRIVES - ASTM D3034 PVC GRAVITY SEWER PIPE.
- D. SLEEVING DIAMETER - EQUAL TO TWICE THAT OF THE PIPE OR WIRING BUNDLE. MINIMUM SLEEVING DIAMETER SHALL BE 2 INCHES.
- E. MARKING STAKES - 2" X 2" X 24" WOOD STAKES.

2.16 OTHER COMPONENTS

- A. TOOLS AND SPARE PARTS
 - 1. PROVIDE OPERATING KEYS, SERVICING TOOLS, TEST EQUIPMENT, OTHER ITEMS, AND SPARE PARTS AS INDICATED IN OTHER AREAS OF THIS SPECIFICATION.
- B. OTHER MATERIALS
 - 1. PROVIDE OTHER MATERIALS OR EQUIPMENT NOT INDICATED ON THE DRAWINGS OR REFERENCED IN THIS SPECIFICATION, AS NECESSARY, TO COMPLETE THE INSTALLATION OF THE IRRIGATION SYSTEM.

PART 3 - EXECUTION

3.1 GENERAL

- A. ALL SCALED DIMENSIONS ARE APPROXIMATE. THE CONTRACTOR SHALL CHECK AND VERIFY ALL SIZE DIMENSIONS AND RECEIVE THE OWNER'S AUTHORIZED REPRESENTATIVE'S APPROVAL PRIOR TO PROCEEDING WITH ANY WORK UNDER THIS SPECIFICATION. CONTRACTOR SHALL LOCATE WITH 2" X 2" WOOD STAKES WITH IDENTIFYING MARKINGS FOR ALL PROPOSED LOCATIONS OF ELECTRICAL CONTROL VALVE BOXES, GATE VALVE BOXES AND QUICK COUPLER BOXES FOR APPROVAL BY THE OWNER'S AUTHORIZED REPRESENTATIVE. AFTER LOCATING ALL THESE ITEMS CONTACT THE OWNER'S AUTHORIZED REPRESENTATIVE FOR REVIEW AND APPROVAL. MINOR ADJUSTMENTS TO THE STAKE LOCATIONS MAY BE REQUESTED OF THE CONTRACTOR BY THE OWNER'S AUTHORIZED REPRESENTATIVE AT THAT TIME.
- B. EXERCISE EXTREME CARE IN EXCAVATING AND WORKING NEAR EXISTING UTILITIES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DAMAGES TO THESE UTILITIES WHICH ARE CAUSED BY HIS OPERATIONS. CHECK EXISTING UTILITY DRAWINGS FOR EXISTING UTILITY LOCATIONS.
- C. COORDINATE INSTALLATION OF SPRINKLER IRRIGATION MATERIALS INCLUDING PIPE, SO THAT THERE SHALL BE NO INTERFERENCE WITH UTILITIES, CONSTRUCTION ELEMENTS, OR THE PLANTING OF TREES, SHRUBS, AND GROUND COVERS.
- D. THE CONTRACTOR SHALL CAREFULLY CHECK ALL FINISH GRADES TO SATISFY HIMSELF THAT HE MAY SAFELY PROCEED BEFORE STARTING WORK ON THE IRRIGATION SYSTEM.
- E. REPORT IRREGULARITIES TO OWNER'S AUTHORIZED REPRESENTATIVE PRIOR TO BEGINNING WORK. BEGINNING OF WORK IMPLIES ACCEPTANCE OF EXISTING CONDITIONS.

3.2 SITE PREPARATION

- A. PHYSICAL LAYOUT
 - 1. PRIOR TO INSTALLATION, THE CONTRACTOR SHALL STAKE OUT ALL PRESSURE AND NON-PRESSURE SUPPLY LINES AND THE LOCATION OF ALL SPRINKLER HEADS.
 - 2. ALL LAYOUT SHALL BE APPROVED BY THE OWNER'S AUTHORIZED REPRESENTATIVE PRIOR TO INSTALLATION.
- B. WATER SUPPLY POINT-OF-CONNECTIONS
 - 1. WATER SUPPLY POINTS OF CONNECTION ARE AS INDICATED ON THE DRAWINGS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MINOR CHANGES CAUSED BY ACTUAL SITE CONDITIONS.
 - 2. THE SPRINKLER IRRIGATION SYSTEM SHALL BE CONNECTED TO WATER SUPPLY POINTS OF CONNECTION AS INDICATED ON THE DRAWINGS.
- C. ELECTRICAL SUPPLY POINT-OF-CONNECTIONS
 - 1. ELECTRICAL SUPPLY POINT-OF-CONNECTIONS FOR THE AUTOMATIC IRRIGATION CONTROLLERS ARE AS INDICATED ON THE DRAWINGS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MINOR CHANGES CAUSED BY ACTUAL SITE CONDITIONS.
 - 2. CONNECTIONS SHALL BE MADE AT APPROXIMATE LOCATIONS AS INDICATED ON THE DRAWINGS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MINOR CHANGES CAUSED BY ACTUAL SITE CONDITIONS.

3.3 INSTALLATION

- A. TRENCHING
 - 1. DIG TRENCHES STRAIGHT AND SUPPORT PIPE CONTINUOUSLY ON BOTTOM OF TRENCH. LAY PIPE TO AN EVEN GRADE. TRENCHING EXCAVATION SHALL FOLLOW THE LAYOUT AS INDICATED ON THE DRAWINGS.
 - 2. PROVIDE A MINIMUM SOIL COVER OF 18 INCHES FOR ALL PRESSURE SUPPLY LINES.
 - 3. PROVIDE A MINIMUM SOIL COVER OF 12 INCHES FOR ALL NON-PRESSURE LINES.
 - 4. PROVIDE A MINIMUM SOIL COVER OF 18 INCHES FOR ALL CONTROL WIRE.
 - 5. WHERE PIPING IS INDICATED UNDER PAVED AREAS, BUT RUNNING PARALLEL AND ADJACENT TO PLANTING AREAS, INSTALL THE PIPING IN THE PLANTED AREAS. IRRIGATION HEAD SPACING AS INDICATED ON THE DRAWINGS SHALL NOT BE EXCEEDED.
- B. BACKFILLING
 - 1. THE TRENCHES SHALL NOT BE BACKFILLED UNTIL ALL REQUIRED TESTS

ARE PERFORMED. TRENCHES SHALL BE CAREFULLY BACKFILLED WITH THE EXCAVATED MATERIALS APPROVED FOR BACKFILLING, CONSISTING OF EARTH, LOAM, SANDY CLAY, SAND, OR OTHER APPROVED MATERIALS, FREE FROM LARGE CLOUDS OF EARTH OR STONES. BACKFILL SHALL BE MECHANICALLY COMPACTED LANDSCAPED AREAS TO A DRY DENSITY EQUAL TO ADJACENT UNDISTURBED SOIL IN PLANTING AREAS. BACKFILL SHALL CONFORM TO ADJACENT GRADES WITHOUT DIPS, SUNKEN AREAS, HUMPS OR OTHER SURFACE IRREGULARITIES.

- 2. A FINE GRANULAR MATERIAL BACKFILL SHALL BE INITIALLY PLACED OVER ALL LINES. NO FOREIGN MATTER LARGER THAN ONE-HALF INCH IN SIZE WILL BE PERMITTED IN THE INITIAL BACKFILL.
- 3. FLOODING OF TRENCHES WILL BE PERMITTED ONLY WITH THE APPROVAL OF THE OWNER'S AUTHORIZED REPRESENTATIVE.
- 4. IF SETTLEMENT OCCURS AND SUBSEQUENT ADJUSTMENTS IN PIPE, VALVES, SPRINKLER HEADS, PLANTING, OR OTHER CONSTRUCTION ELEMENTS ARE NECESSARY, THE CONTRACTOR SHALL MAKE ALL REQUIRED ADJUSTMENTS WITHOUT COST TO THE OWNER.

C. TRENCHING AND BACKFILLING UNDER PAVING

- 1. TRENCHES LOCATED UNDER AREAS WHERE ASPHALTIC CONCRETE OR CONCRETE PAVING OCCUR, SHALL BE BACKFILLED WITH SAND (A LAYER SIX (6) INCHES BELOW THE PIPE AND THREE (3) INCHES ABOVE THE PIPE) AND COMPACTED IN LAYERS TO 95% COMPACTION, USING MANUAL OR MECHANICAL TAMPING DEVICES. TRENCHES FOR PIPING SHALL BE COMPACTED TO EQUAL THE COMPACTION OF THE EXISTING ADJACENT UNDISTURBED SOIL AND SHALL BE LEFT IN A FIRM UNYIELDING CONDITION. ALL TRENCHES SHALL BE LEFT FLUSH WITH ADJOINING FINISH GRADE. THE CONTRACTOR SHALL SET IN PLACE, CAP AND PRESSURE TEST ALL PIPING UNDER PAVING PRIOR TO THE PAVING WORK. GENERALLY PIPING UNDER EXISTING WALKS IS DONE BY JACKING, BORING OR HYDRAULIC DRIVING, BUT WHERE ANY CUTTING OR BREAKING OF CONCRETE IS NECESSARY, IT SHALL BE DONE AND REPLACED BY THE CONTRACTOR AT NO COST TO THE OWNER. PERMISSION TO CUT OR BREAK CONCRETE SHALL BE OBTAINED FROM THE OWNER'S AUTHORIZED REPRESENTATIVE. NO HYDRAULIC DRIVING WILL BE PERMITTED UNDER CONCRETE PAVING.
- 3. PROVIDE A MINIMUM SOIL COVER OF 18 INCHES BETWEEN THE TOP OF THE PIPE AND THE BOTTOM OF THE AGGREGATE BASE FOR ALL PRESSURE AND NON-PRESSURE PIPING INSTALLED UNDER ASPHALTIC CONCRETE PAVING.
- 4. THE CONTRACTOR SHALL MAKE ALL REQUIRED ADJUSTMENTS WITHOUT COST TO THE OWNER.

D. ASSEMBLIES

- 1. ROUTING OF IRRIGATION LINES AS INDICATED ON THE DRAWINGS IS DIAGRAMMATIC ONLY. INSTALL LINES AND VARIOUS ASSEMBLIES IN SUCH A MANNER AS TO CONFORM WITH THE DRAWINGS.
- 2. INSTALL NO MULTIPLE ASSEMBLIES IN PLASTIC LINES. PROVIDE EACH ASSEMBLY WITH ITS OWN OUTLET.
- 3. INSTALL ALL ASSEMBLIES SPECIFIED HEREIN IN ACCORDANCE WITH THEIR RESPECTIVE DETAILS. IN ABSENCE OF DRAWINGS OR SPECIFICATIONS PERTAINING TO SPECIFIC ITEMS REQUIRED TO COMPLETE THIS WORK, PERFORM SUCH WORK IN ACCORDANCE WITH BEST STANDARD PRACTICE WITH PRIOR APPROVAL OF THE OWNER'S AUTHORIZED REPRESENTATIVE.

- 4. PVC PIPE AND FITTINGS SHALL BE THOROUGHLY CLEANED OF DIRT, DUST AND MOISTURE BEFORE INSTALLATION. INSTALLATION AND SOLVENT WELDING METHODS SHALL BE AS RECOMMENDED BY THE PIPE AND FITTING MANUFACTURER.
- 5. ON PVC TO METAL CONNECTIONS WORK THE METAL CONNECTIONS FIRST. TEFLON TAPE OR APPROVED EQUAL, SHALL BE USED ON ALL THREADED PVC TO PVC AND THREADED PVC TO METAL JOINTS. APPLY A LIGHT WRENCH PRESSURE ONLY. WHERE THREADED PVC CONNECTIONS ARE REQUIRED, USE THREADED PVC ADAPTERS INTO WHICH THE PIPE MAY BE SOLVENT WELDED.

E. ASSEMBLING PIPE AND FITTINGS:

- 1. INSPECT ALL PIPE AND FITTINGS BEFORE INSTALLATION.
- 2. KEEP PIPE FREE FROM DIRT AND PIPE SCALE. CUT PIPE ENDS SQUARE AND DEBUR. CLEAN PIPE ENDS OF LOOSE PIPE SHAVINGS.
- 3. KEEP ENDS OF ASSEMBLED PIPE CAPPED. REMOVE CAPS ONLY WHEN NECESSARY TO CONTINUE ASSEMBLY.
- 4. INSTALL PIPE WITH ALL MARKINGS UP FOR VISUAL INSPECTION AND VERIFICATION.
- 5. ALL LINES SHALL HAVE A MINIMUM CLEARANCE OF SIX (6) INCHES FROM EACH OTHER AND FROM LINES OF OTHER TRADES. PARALLEL LINES SHALL NOT BE INSTALLED DIRECTLY OVER ONE ANOTHER.
- 6. MAINTAIN 10 FOOT MINIMUM HORIZONTAL SEPARATION FROM ALL POTABLE WATER PIPING. WHERE RECLAIMED AND POTABLE WATER PRESSURE MAIN LINE PIPING CROSS, THE RECLAIMED WATER PIPING SHALL BE INSTALLED BELOW THE POTABLE WATER PIPING IN SCHEDULE 40 PVC WHICH EXTENDS A MINIMUM OF FIVE (5) FEET ON EITHER SIDE OF THE POTABLE WATER PIPING. PROVIDE A MINIMUM VERTICAL CLEARANCE OF SIX (6) INCHES. USE ONLY STRAP-TYPE FRICTION WRENCHES FOR THREADED PLASTIC PIPE.
- 8. SNAKE PIPE FROM SIDE TO SIDE WITHIN THE TRENCH.

F. LINE CLEARANCE

- 1. ALL LINES SHALL HAVE A MINIMUM CLEARANCE OF SIX (6) INCHES FROM EACH OTHER AND FROM LINES OF OTHER TRADES. PARALLEL LINES SHALL NOT BE INSTALLED DIRECTLY OVER ONE ANOTHER.

G. IRRIGATION CONTROLLER INSTALLATION

- 1. INSTALL THE IRRIGATION CONTROLLER PER THE MANUFACTURER'S INSTRUCTIONS. REMOTE CONTROL VALVES SHALL BE CONNECTED TO THE IRRIGATION CONTROLLER IN NUMERICAL SEQUENCE AS INDICATED ON THE DRAWINGS.

H. ELECTRIC CONTROL VALVE INSTALLATION

- 1. INSTALL ELECTRIC CONTROL VALVES AS INDICATED ON THE DRAWINGS. WHEN GROUPED TOGETHER, ALLOW AT LEAST TWELVE INCHES BETWEEN ELECTRIC CONTROL VALVES. INSTALL EACH ELECTRIC CONTROL VALVE IN A SEPARATE VALVE BOX. EACH ELECTRIC CONTROL VALVE NUMBER SHALL BE HEAT-BRANDED ON VALVE BOX TOP WITH 2" TALL LETTERS.
- 2. THE OWNER'S AUTHORIZED REPRESENTATIVE SHALL APPROVE ELECTRIC CONTROL VALVE AND QUICK COUPLING VALVE BOX LOCATIONS PRIOR TO FINAL INSTALLATION.

I. VALVE BOX INSTALLATION

- 1. INSTALL VALVE BOXES AS INDICATED ON THE DRAWINGS. WHEN GROUPED TOGETHER, ALLOW AT LEAST TWELVE INCHES BETWEEN VALVE BOXES.
- 2. HEAT BRAND VALVE BOX IDENTIFICATION AS INDICATED ON DRAWINGS. HEAT BRANDING UNIT AVAILABLE FROM HYDRO-SCAPE PRODUCTS, INC., PHONE NUMBER (714) 639-1850.

J. SYSTEM FLUSHING

- 1. AFTER ALL PIPE LINES AND RISERS ARE IN PLACE AND CONNECTED AND ALL NECESSARY DIVERSION WORK HAS BEEN COMPLETED, AND PRIOR TO INSTALLATION OF SPRINKLER HEADS, THE CONTROL VALVES SHALL BE OPENED AND A FULL HEAD OF WATER USED TO FLUSH OUT THE SYSTEM. SPRINKLER HEADS SHALL BE INSTALLED ONLY AFTER FLUSHING OF THE SYSTEM HAS BEEN PERFORMED.

K. SPRINKLER HEAD INSTALLATION

- 1. INSTALL THE SPRINKLER HEADS AS INDICATED ON THE DRAWINGS.
- 2. SPACING OF SPRINKLER HEADS SHALL NOT EXCEED THE MAXIMUM SPACING AS INDICATED ON THE DRAWINGS. IN NO CASE SHALL THE SPACING EXCEED THE MAXIMUM RECOMMENDED BY THE MANUFACTURER.
- 3. INSTALL CHECK VALVES ON SPRINKLER HEADS THAT DRAIN WATER AFTER THE CONTROL VALVE IS TURNED OFF. "LOW HEAD" DRAINAGE WILL NOT BE ALLOWED ON SPRINKLER HEADS.

L. SLEEVING

- 1. EXTEND SLEEVE ENDS A MINIMUM OF 12 INCHES BEYOND THE EDGE OF THE PAVED SURFACE. COVER PIPE ENDS AND MARK WITH STAKES. ROUTE WIRE THROUGH AND TIE AT EACH END TO STAKES

3.4 TEMPORARY REPAIRS

- A. THE OWNER RESERVES THE RIGHT TO MAKE TEMPORARY REPAIRS AS NECESSARY TO KEEP THE IRRIGATION SYSTEM IN OPERATING CONDITION. THE EXERCISE OF THIS RIGHT BY THE OWNER SHALL NOT RELIEVE THE CONTRACTOR OF HIS RESPONSIBILITIES UNDER THE TERMS OF THE GUARANTEE AS HEREIN.

3.5 EXISTING TREES

- A. WHERE IT IS NECESSARY TO EXCAVATE ADJACENT EXISTING TREES, THE CONTRACTOR SHALL USE ALL POSSIBLE CARE TO AVOID INJURY TO TREES AND THEIR ROOTS. EXCAVATION IN AREAS WHERE TWO (2) INCH AND LARGER ROOTS OCCUR SHALL BE DONE BY HAND. ALL ROOTS TWO (2) INCHES AND LARGER IN DIAMETER, EXCEPT DIRECTLY IN THE PATH OF PIPE OR CONDUIT, SHALL BE TUNNELED UNDER AND SHALL BE HEAVILY WRAPPED WITH BURLAP, TO PREVENT SCARRING OR EXCESSIVE DRYING. WHERE A DITCHING MACHINE IS RUN CLOSE TO TREES HAVING ROOTS SMALLER THAN TWO (2) INCHES IN DIAMETER, THE WALL OF THE TRENCH ADJACENT TO THE TREE SHALL BE HAND TRIMMED. ROOTS ONE (1) INCH AND LARGER IN DIAMETER SHALL BE PAINTED WITH TWO COATS OF AN APPROVED TREE SEAL. TRENCHES ADJACENT TO EXISTING TREES SHOULD BE CLOSED WITHIN 24 HOURS. WHERE THIS IS NOT POSSIBLE, THE SIDE OF THE TRENCH ADJACENT TO THE EXISTING TREE SHALL BE KEPT SHADED WITH BURLAP OR CANVAS.

STAFF APPRVL	REVISIONS				EXP. DATE	CITY ENG. DATE	PUBLIC IMPROVEMENTS APPROVED FOR CONSTRUCTION
	NO.	REVISION	DATE	R.C.E.			
							CITY OF SANTA ROSA
							BY DAVID M. GUJIN R.C.E. 65663 CITY ENGINEER CITY OF SANTA ROSA, CA
							DATE _____
							CITY OF SANTA ROSA FILE NO. _____



DATE: _____

NAME: **DAVID M. GUJIN**

LICENSE NO. _____

C2 Collaborative



PLANS PREPARED BY:



ROUND BARN VILLAGE
SANTA ROSA, CALIFORNIA

NOT FOR CONSTRUCTION

CIV124-P: 1st Agency Submittal (11-06-2018)

SCALE: NONE

JOB No. CTV124-P

IRRIGATION SPECIFICATIONS

LI-6.02

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