

**U.S.A. NOTE**  
 IT IS THE RESPONSIBILITY OF THE LANDSCAPE CONTRACTOR TO BE FAMILIAR WITH ALL GRADE DIFFERENCES, LOCATION OF WALLS, STRUCTURES, AND UTILITIES. THE IRRIGATION CONTRACTOR SHALL EXERCISE EXTREME CARE AND BE RESPONSIBLE FOR ANY DAMAGE IN EXCAVATING AND WORKING NEAR UTILITIES. THE LANDSCAPE CONTRACTOR SHALL COORDINATE ALL WORK WITH THE OTHER SUB-CONTRACTORS FOR THE LOCATION OF UTILITIES AND THE INSTALLATION OF PIPE SLEEVES THROUGH WALLS, UNDER ROADWAYS, AND NEAR STRUCTURES. PRIOR TO CONSTRUCTION, CONTACT ALL APPLICABLE AGENCIES AND U.S.A. AT 1-800-642-2444 OR 1-800-221-2600 TO FIELD LOCATE ALL EXISTING UTILITIES.

THESE DRAWINGS COMPLY WITH THE CRITERIA OF THE ORDINANCE. ORDINANCE REQUIREMENTS HAVE BEEN APPLIED FOR THE EFFICIENT USE OF WATER IN THE IRRIGATION DESIGN PLAN AND THE LANDSCAPE DESIGN PLAN.

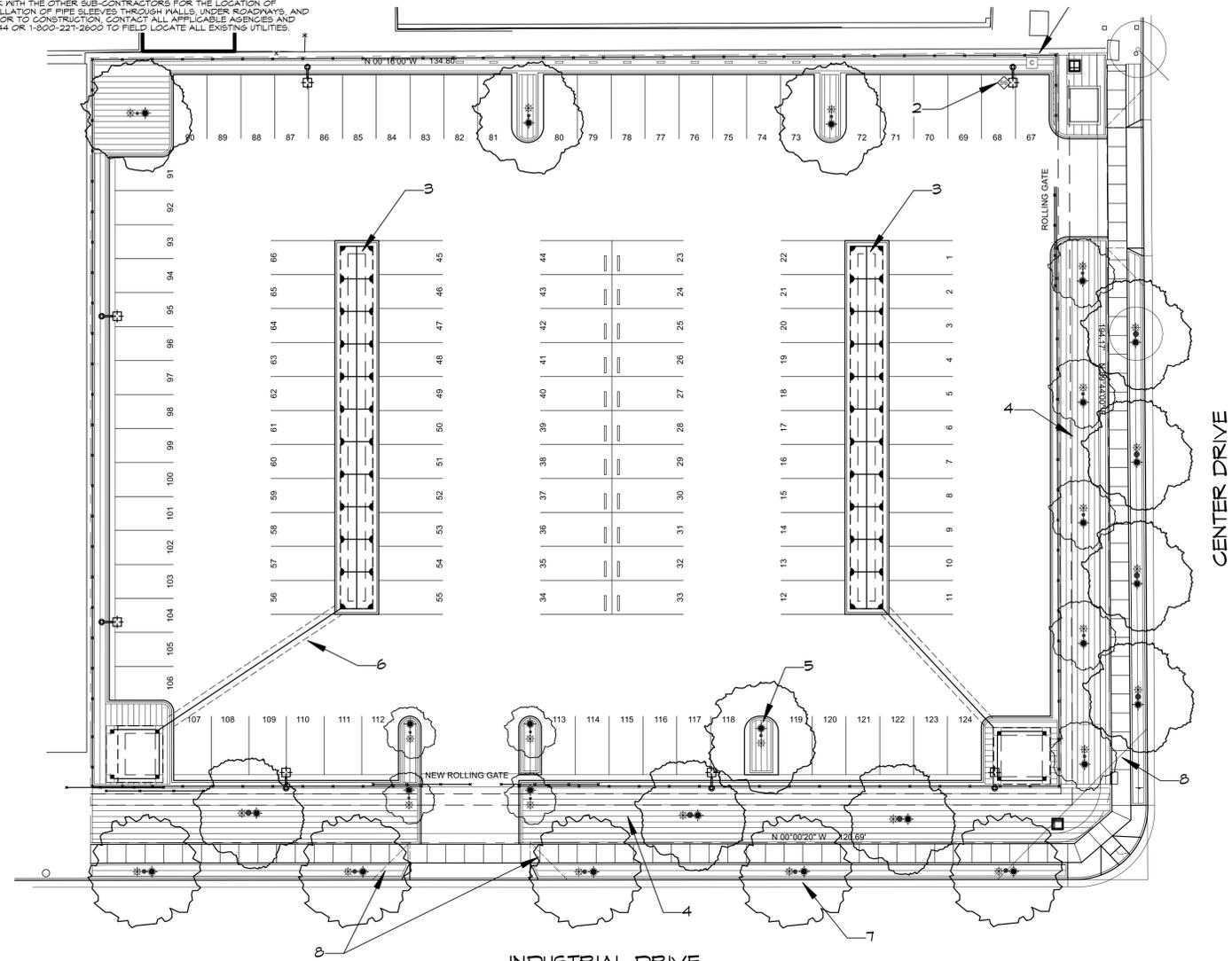


**PRELIMINARY IRRIGATION IRRIGATION PLAN**

**3300 INDUSTRIAL DRIVE**  
**3300 INDUSTRIAL DRIVE**  
**SANTA ROSA, CA**

DATE: 8/4/23  
 MLA JOB #: 2023-06  
 SCALE: 1" = 20'  
 DRAWN: DM

SHEET L1 OF 4



**PRELIMINARY IRRIGATION PLAN**  
 Scale: 1" = 20'-0"

IRRIGATION LEGEND					
SYMBOL	EQUIPMENT	MANUFACTURER	MODEL	REMARKS	
	Root Watering System	Hunter	R2MB-18-25-CV	FR05-00	
	Stream Bubbler 6" Pop-up	Hunter	FR05-06-CV-R-FR330-M5BN-25Q	FR05-06-FR330-CV	
	MP Rotator Stream Spray	Hunter	MP1000-40	FR05-12-CV	
	MP Rotator Stream Spray	Hunter	MP800SR-40	FR05-12-CV	
	Landscape Dripline	Rain Bird	XFS-06-12		Install in parallel rows at 10' oc
	Poly to PVC Header				See Detail G-L3
	Automatic Line Flush Valve	Hunter	AFV-T		Install in 6" Valve Box @ end of circuit
	Air Relief Valve	Hunter	AVR-G75		Install in 6" Valve Box @ high points of circuit
	Drip Zone Control Valve	Hunter	IGZ-101-25		
	Control Valve	Hunter	ICV-1015-AS-ADJ		
	Master Valve	Hunter	ICV-1015		
	Isolation Valve - Ball Valve	KBI	CPVC CTS		
	1" Reduced Pressure Backflow Preventer	Watts	LF00RM2-PC-GT 1		Required
	Flow Sensor	GST	ELF-T10-N01		
	Pressure Reducing Valve	generic	FR-3/4		
	Backflow Preventer Enclosure	Le Muer	BF 18" X 30" X 30"		Install Per Manufacturer's Specs
	Irrigation Controller/Pedestal Mount	Hunter	FGC-1200		Pedestal Mount, provide connection to power supply
	Solar Sync Weather Sensor	Hunter	WS-SEN		Roof mount with clear view of sky
	Mainline	PVC		0	0
	Lateral	PVC	Sch 40	0	0
	Irrigation Sleeves		PVC Schedule 40		Size by pipe load; 2" PVC minimum
	Valve Station and Sequence				
	Valve Size				
	Gallons Per Minute				

**IRRIGATION NOTES**

- ALL SPRINKLER HEADS SHALL BE SET PERPENDICULAR TO FINISH GRADE OF THE AREA TO BE IRRIGATED UNLESS OTHERWISE NOTED ON THE PLANS.
- THE SPRINKLER SYSTEM DESIGN IS BASED ON THE MINIMUM STATIC PRESSURE OF 35 PSI AT THE VALVES AND THE MAXIMUM FLOW DEMAND SHOWN ON THE IRRIGATION DRAWINGS AT THE POINT OF CONNECTION. THE IRRIGATION CONTRACTOR SHALL VERIFY WATER PRESSURE PRIOR TO CONSTRUCTION OF THE IRRIGATION SYSTEM. IF THE WATER PRESSURE SHOWN ON THE DRAWINGS DIFFERS FROM THE ACTUAL PRESSURE READING AT THE IRRIGATION POINT OF CONNECTION, THE CONTRACTOR SHALL NOTIFY THE LANDSCAPE ARCHITECT IMMEDIATELY. IN THE EVENT PRESSURE DIFFERENCES ARE NOT REPORTED PRIOR TO THE START OF CONSTRUCTION, THE IRRIGATION CONTRACTOR SHALL ASSUME FULL RESPONSIBILITY FOR ANY REVISIONS NECESSARY.
- THE LOCATION OF THE CONTROLLER TO BE VERIFIED BY OWNER. LANDSCAPE CONTRACTOR SHALL BE RESPONSIBLE FOR CONNECTING ALL PROPOSED STATIONS TO THE CONTROLLER. CONTROLLER TO BE CONFIGURED TO OPERATE AT STATIONS. CONTROLLER SHALL BE HUNTER G-600-N WITH ICM-600 EXPANSION MODULE.
- ALL CONSTRUCTION IS TO BE PER THE LATEST EDITION OF THE UNIFORM BUILDING CODE.
- THIS DESIGN IS DIAGRAMMATIC. ALL PIPING, VALVES, ROOT BARRIERS, ETC. SHOWN WITHIN PAVED AREAS ARE FOR DESIGN CLARIFICATION ONLY. INSTALL PIPING AND VALVES IN PLANTING AREAS WHERE POSSIBLE, AND LOCATE ELECTRIC CONTROL AND QUICK COUPLING VALVES IN GROUND COVER/SHRUB AREAS, 6" TO 12" AWAY FROM HARDSCAPE OR TURF AREA FOR EASY ACCESS.
- THE IRRIGATION CONTRACTOR SHALL FLUSH AND ADJUST ALL SPRINKLER HEADS FOR OPTIMUM PERFORMANCE AND TO PREVENT OVER SPRAY ONTO WALKS, ROADWAYS, AND/OR BUILDINGS. THIS SHALL INCLUDE SELECTING THE BEST DEGREE OF ARC TO FIT THE EXISTING SITE CONDITIONS AND THROTTLING THE FLOW CONTROL AT EACH VALVE TO OBTAIN THE OPTIMUM OPERATING PRESSURE FOR EACH SYSTEM.
- IT IS THE RESPONSIBILITY OF THE IRRIGATION CONTRACTOR TO FAMILIARIZE THEMSELVES WITH ALL GRADE DIFFERENCES, LOCATION OF WALLS, STRUCTURES, AND UTILITIES. THE IRRIGATION CONTRACTOR SHALL EXERCISE EXTREME CARE, AND BE RESPONSIBLE FOR ANY DAMAGE IN EXCAVATING AND WORKING NEAR UTILITIES. CONTRACTOR SHALL COORDINATE ALL WORK WITH THE GENERAL CONTRACTOR AND OTHER SUB-CONTRACTORS FOR THE LOCATION OF UTILITIES AND THE INSTALLATION OF PIPE SLEEVES THROUGH WALLS, UNDER ROADWAYS, AND NEAR STRUCTURES. PRIOR TO CONSTRUCTION, CONTACT ALL APPLICABLE AGENCIES AND U.S.A. AT 1-800-642-2444 TO FIELD LOCATE ALL EXISTING UTILITIES.
- FIELD ADJUSTMENTS MAY BE REQUIRED TO PROVIDE OPTIMUM OPERATING EFFICIENCY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CONTACTING THE LANDSCAPE ARCHITECT TO REVIEW FIELD ADJUSTMENTS PRIOR TO INSTALLATION. IN THE EVENT THAT NO CONTACT IS MADE WITH THE LANDSCAPE ARCHITECT, THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY REVISIONS.
- SLEEVE ALL IRRIGATION PIPE AND CONTROL WIRES UNDER STREETS AND CONCRETE WALKWAYS WITH THE PROPER SIZE CLASS 200 PVC PIPE TO DEPTH AS SPECIFIED.
- FOR ADDITIONAL INFORMATION, SEE PROJECT DETAILS AND SPECIFICATIONS.
- ALL WORK SHALL CONFORM TO ALL APPLICABLE CITY OF SANTA ROSA CONSTRUCTION STANDARDS.
- NO GALVANIZED IRON PIPE OR FITTINGS SHALL BE ALLOWED.
- A BALL VALVE IN A SEPARATE ROUND VALVE BOX IS TO BE INSTALLED IMMEDIATELY UPSTREAM FROM EACH REMOTE CONTROL VALVE OR GROUP OF VALVES. VALVE SHALL BE SIZED TO MAINLINE SUPPLY AT THE RC VALVE. SEE DETAIL.
- INSTALL 3" WIDE DETECTABLE TAPE (43" DTP, AS MANUFACTURED BY T. CHRISTY). TAPE SHALL BE INSTALLED 6" ABOVE THE IRRIGATION MAIN.
- INSTALL ALL LANDSCAPE DRIPLINE BENEATH MULCH. INSTALL ALL TUBING 3" BELOW GRADE, PARALLEL AT SPACING INDICATED. USE LANDSCAPE STAPLES IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS TO SECURE TUBING TO GROUND.
- A SIGNED CERTIFICATE OF COMPLETION IS REQUIRED PRIOR TO FINAL ACCEPTANCE BY THE CITY OF SANTA ROSA. IF THE INSTALLATION OF THE LANDSCAPE DOES MEET OR SUBSTANTIALLY COMPLY WITH THE APPROVED LANDSCAPE CONSTRUCTION DOCUMENTS, THE CERTIFICATE OF COMPLETION WILL NOT BE SIGNED OR APPROVED BY THE LANDSCAPE ARCHITECT OF RECORD.

**IRRIGATION KEYNOTES**

- CONTROLLER LOCATION: PEDESTAL MOUNT; SUBJECT TO OWNER APPROVAL.
- SOLAR SYNC SENSOR, MOUNT ON LIGHT POLE WITH CLEAR ACCESS TO SKY.
- OVERHEAD SPRAY IRRIGATION AT BIORETENTION AREAS, TYP.
- INSTALL DRIPLINE 3" BELOW GRADE IN ALL PLANTING AREAS AT 24" OC TYPICAL; ALL DRIPLINE SHALL BE INSTALLED PARALLEL GENERALLY FOLLOWING CONTOURS.
- TREE BUBBLERS, TWO PER TREE, TYPICAL. ONE ABOVE GRADE STREAM BUBBLER AND ONE SUB-SURFACE BUBBLER.
- TYPICAL IRRIGATION SLEEVE BENEATH PAVEMENT; SIZE SLEEVE TO CONTAIN PIPE AND WIRE PER DETAIL; MINIMUM SIZE NO LESS THAN 3" DIAMETER.
- TREE AREA IS CALCULATED AT A NETTED DIAMETER OF 6 FT, OR EQUIVALENT AREA. THE SAME AREA IS REMOVED FROM THE HYDROZONE BELOW THE TREE AND THE HIGHER WATER USE IS APPLIED IN THE ETWU CALCULATION.
- STANDARD VISION TRIANGLE.

**MAMA AND ETWU CALCULATIONS**

1) Maximum Applied Water Allowance (MAMA)

MAMA = (ETo) (0.62) (0.95 X LA) + (0.45 X SLA)

Where:  
 ETo = Annual Net Reference Evapotranspiration (inches)  
 0.45 = ET Adjustment Factor (Commercial)  
 0.95 = ET Adjustment Factor (Residential)  
 LA = Landscaped Area (square feet)  
 0.62 = Conversion factor (10 gallons per square foot)  
 SLA = Portion of the landscape area identified as Special Landscape Area (square feet)  
 0.45 = the additional ET adjustment factor for Special Landscape Area (1.0 - 0.55 = 0.45) (Commercial)  
 0.95 = the additional ET adjustment factor for Special Landscape Area (1.0 - 0.45 = 0.95) (Residential)

Commercial (C) or Residential (R) C

A) Net Evapotranspiration Calculation  
 Local Reference ETo 46.51  
 25.36"/yr (Annual Rainfall) X .25 = 6.34 (Effective Rainfall)  
 Net Evapotranspiration Calculation = Annual ETo - Effective Rainfall = 40.17

B) Adjusted Landscape Area Calculation  
 12,850 sf (Landscape Area) X 0.45 Adjustment Factor = 5,786.30 sf  
 0.00 sf (Special Landscape Area) X 0.95 Adjustment Factor = 0.00 sf  
 Sum of Adjusted Landscape Area = 5,786.30 sf

**MAMA = 40.17 X .62 X 5,786 sf = 144,110 gal/yr**

2) Estimated Total Water Use (ETWU)

A) Net Evapotranspiration Calculation  
 Net Evapotranspiration Calculation = Annual ETo - Effective Rainfall = 40.17 sf

B) Adjusted Landscape Area Calculation  
 0.00 sf Very Low Water Use X .1 = 0.00 sf  
 12,661 sf Low Water Use X .3 = 3,798.30 sf  
 0.00 sf Moderate Water Use X .6 = 0.00 sf  
 0.00 sf High Water Use X .8 = 0.00 sf  
 Sum of Adjusted Landscape Area = 3,798.30 sf

**ETWU = 40.17 X .62 X 3,798 sf / 0.81 = 110,249 gal/yr**

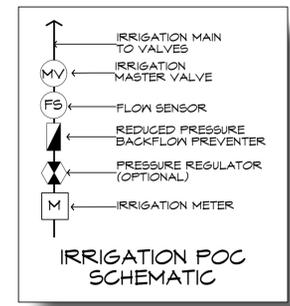
Irrigation Efficiency Factor 12,850.44 sf  
 Square Footage of Landscape on Drip 0.00 sf  
 Square Footage of Landscape on Spray 12,850.44 sf  
 Total Square Footage of Landscape 12,850.44 sf  
 Adjusted Irrigation Efficiency Factor 0.81  
 Bioretention Spray Heads 2512.34 sf X 1.8  
 Dripline - In-Surface Dripline 4634.20 sf X 6.3  
 Tree Bubbler Watering Syst 106.85 sf X 11.25

**DETAIL HYDROZONE TABLE**

Name	Method	Water Use	Water Use Value	Hydrozone Area in SF	% of Landscape
Bioretention	Spray Heads	Low	0.3	2,512.40 sf	19.5%
Dripline	Sub-Surface Dripline	Low	0.3	13,634.22 sf	105.0%
Tree Bubbler	Root Watering System	Moderate	0.6	181.91 sf	1.5%
Tree Bubbler	Root Watering System	Low	0.3	805.91 sf	4.0%
				12,850.44	100%

**SUMMARY HYDROZONE TABLE**

Plant Type	Water Use By Area	% of Landscape
Very Low	0.00	0%
Low	12,660.53	98%
Moderate	181.91	2%
High	0.00	0%
Total	12,850.44	100%

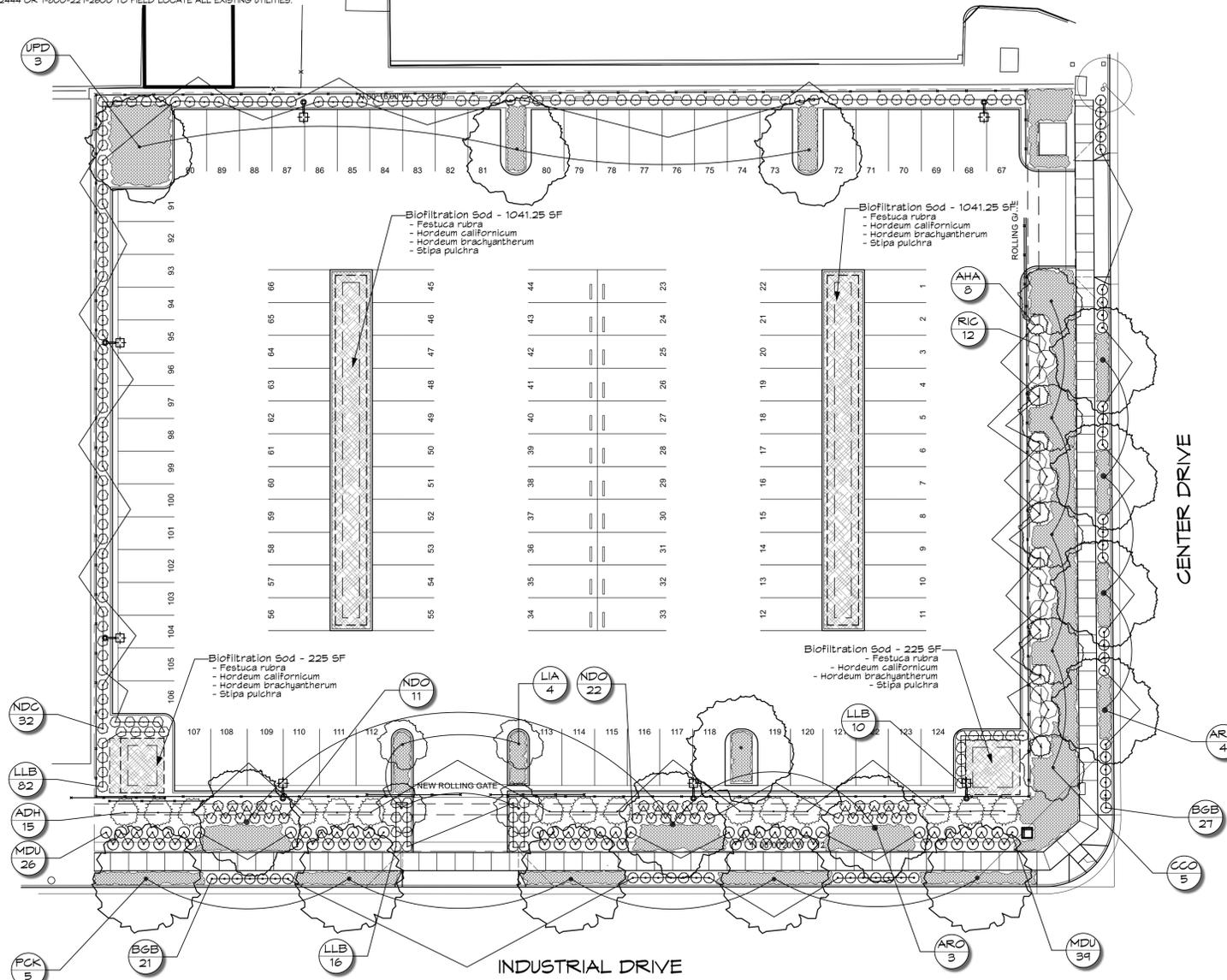


**CITY OF SANTA ROSA**  
**PLANNING AND ECONOMIC DEVELOPMENT**  
**AUGUST 23, 2023**  
**RECEIVED**

REV NO.	DATE	DESCRIPTION

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**PRELIMINARY PLANTING PLAN**  
 Scale: 1" = 20'-0"

PLANT LEGEND						
SYMBOL	SIZE	BOTANICAL NAME	COMMON NAME	WATER USE PER 1000'S IV	QUANTITY	COMMENTS
<b>Trees</b>						
ARO	#24	Acer rubrum 'October Glory'	October Glory Red Maple	.6	7	City Designated Street Tree
CCO	#24	Cercis canadensis 'Oklahoma'	Oklahoma Redbud	.3	5	
LIA	#24	Lagerstroemia indica 'Fauvel' 'Arapaho'	Arapaho Grape Myrtle	.3	4	
PGK	#24	Pistacia chinensis 'Keith Davey'	Chinese pistache	.3	5	City Designated Street Tree
UPD	#24	Ulmus parvifolia 'Drake'	Drake's Chinese Elm	.3	4	
<b>Shrubs</b>						
AHA	#5	Arctostaphylos densiflora 'Harmony'	Harmony Manzanita	.3	8	
ADH	#5	Arctostaphylos densiflora 'Howard McMin'	Vine Hill Manzanita	.3	15	
NDO	#5	Nandina domestica	Heavenly Bamboo	.3	33	
NDC	#1	Nandina domestica 'Compacta'	Dwarf Heavenly Bamboo	.3	32	
RIC	#5	Rhaphtolepis indica 'Clara'	Clara Indian Hawthorn	.3	12	
<b>Groundcover</b>						
	#1	Cotoneaster dammeri 'Coral Beauty'	Coral Beauty Coral Beauty	0.3	13	6' OC, Triangular Spacing
<b>Ornamental Grass</b>						
LLB	#1	Lomandra longifolia 'Breeze'	Breeze™ Dwarf Mat Rush	.3	108	
MDU	#1	Muhlenbergia dubia	Pine Muhly	.3	65	
<b>Bioretention Areas</b>						
		Sod	Biofiltration Sod	0.3	2533 sft	Delta Bluegrass
<b>Other</b>						
		Mulch: Fir Bark 1-1/2" Minus	Medium Walk-On Bark			3" Depth, All Landscape Areas
See Detail		Linear Root Barrier	Root Solutions, or Equal			24" Depth, Continuous

**PLANTING NOTES**

- ALL GROUND COVER TO BE SPACED IN A TRIANGULAR PATTERN. CONTRACTOR RESPONSIBLE FOR COMPLETE COVERAGE.
- SUPPLY ASRIFORM 21 GRAM TABLETS AS FOLLOWS: 5-15 GAL., 3-5 GAL., 1-1 GAL.
- DIG PLANTING PITS 2 TIMES THE DIAMETER AND EQUAL THE HEIGHT OF ROOTBALL.
- BACKFILL PITS WITH 2/3 EXISTING SOIL, 1/3 ORGANIC AMENDMENT.
- ALL PLANTS TO BE SPOTTED IN THE FIELD BY LANDSCAPE ARCHITECT PRIOR TO PLANTING.
- WHEN LANDSCAPING IN EXISTING PLANTED AREAS, CONTRACTOR SHALL TAKE CARE NOT TO DAMAGE OR DESTROY ANY EXISTING PLANT MATERIAL OR IRRIGATION. EXISTING PLANT MATERIAL AND IRRIGATION THAT IS DAMAGED SHALL BE REPLACED WITH LIKE, SIZE, QUALITY, ETC. BY THE CONTRACTOR AT HIS EXPENSE.
- SPECIAL ATTENTION IS TO BE PAID TO THE PLANTING AREAS SURROUNDING THE BUILDINGS. COMPACTED SOIL IS TO BE SUFFICIENTLY EXCAVATED TO ALLOW FOR PROPER ROOT GROWTH AND DRAINAGE OF ALL AREAS. CHECK SOIL FOR PROPER DRAINAGE PRIOR TO PLANTING. AUGER THROUGH COMPACTED SOIL WHERE NECESSARY. DO NOT PLANT IN THE DRAINAGE SWALES.
- ALL CONSTRUCTION IS TO BE PER ALL APPLICABLE AND PREVAILING CITY OF SANTA ROSA CONSTRUCTION STANDARDS.
- A SIGNED CERTIFICATE OF COMPLETION IS REQUIRED PRIOR TO FINAL ACCEPTANCE BY THE CITY OF SANTA ROSA. IF THE INSTALLATION OF THE LANDSCAPE DOES MEET OR SUBSTANTIALLY COMPLY WITH THE APPROVED LANDSCAPE CONSTRUCTION DOCUMENTS, THE CERTIFICATE OF COMPLETION WILL NOT BE SIGNED OR APPROVED BY THE LANDSCAPE ARCHITECT OF RECORD.

**SOIL ANALYSIS REPORT**  
 (REQUIRED BY CITY OF SANTA ROSA):

IN ORDER TO REDUCE RUNOFF AND ENCOURAGE HEALTHY PLANT GROWTH, A SOIL ANALYSIS REPORT SHALL BE COMPLETED BY THE PROJECT APPLICANT, OR THEIR DESIGNEE, AS FOLLOWS:

- SUBMIT SOIL SAMPLES TO A LABORATORY FOR ANALYSIS AND RECOMMENDATIONS.
  - SOIL SAMPLING SHALL BE CONDUCTED IN ACCORDANCE WITH LABORATORY PROTOCOL, INCLUDING PROTOCOLS REGARDING ADEQUATE SAMPLING DEPTH FOR THE INTENDED PLANTS.
- THE SOIL ANALYSIS SHALL INCLUDE:
  - SOIL TEXTURE;
  - INFILTRATION RATE DETERMINED BY LABORATORY TEST OR SOIL TEXTURE INFILTRATION RATE TABLE;
  - pH;
  - TOTAL SOLUBLE SALTS;
  - SODIUM;
  - PERCENT ORGANIC MATTER; AND
  - RECOMMENDATIONS.
- IN PROJECTS WITH MULTIPLE LANDSCAPE INSTALLATIONS (I.E. PRODUCTION HOME DEVELOPMENTS) A SOIL SAMPLING RATE OF 1 IN 1 LOTS OR APPROXIMATELY 15% WILL SATISFY THIS REQUIREMENT. LARGE LANDSCAPE PROJECTS SHALL SAMPLE AT A RATE EQUIVALENT TO 1 IN 1 LOTS.
- THE SOIL ANALYSIS REPORT SHALL BE MADE AVAILABLE, IN A TIMELY MANNER, TO THE PROFESSIONALS PREPARING THE LANDSCAPE DESIGN PLANS AND IRRIGATION DESIGN PLANS TO MAKE ANY NECESSARY ADJUSTMENTS TO THE DESIGN PLANS.
- IF A GRADING PERMIT IS REQUIRED, THE SOIL ANALYSIS REPORT SHALL BE SUBMITTED TO THE CITY WITH THE CERTIFICATE OF COMPLETION. IF A GRADING PERMIT IS NOT REQUIRED, THE SOIL ANALYSIS REPORT SHALL BE SUBMITTED TO THE CITY WITH THE LANDSCAPE DOCUMENTATION PACKAGE.
- THE PROJECT APPLICANT, OR HIS/HER DESIGNEE, SHALL SUBMIT DOCUMENTATION VERIFYING IMPLEMENTATION OF SOIL ANALYSIS REPORT RECOMMENDATIONS TO THE CITY WITH CERTIFICATE OF COMPLETION.

**CITY REQUIRED NOTES**

- UPON COMPLETION OF INSTALLATION, CONTRACTOR SHALL SUBMIT TO THE ENGINEERING DEVELOPMENT SERVICES INSPECTOR A COMPLETED AND SIGNED "CERTIFICATE OF COMPLETION" STATING THE PROJECT HAS BEEN INSTALLED AS DESIGNED.
- THE CERTIFICATE OF COMPLETION SHALL BE ACCOMPANIED BY AN IRRIGATION AUDIT, IRRIGATION SCHEDULE AND A MAINTENANCE SCHEDULE, AS DESCRIBED IN THE CITY ORDINANCE.
- A FINAL CITY INSPECTION SHALL BE PERFORMED. THE INSTALLATION CONTRACTOR SHALL ATTEND THIS INSPECTION AND MAKE ALL REQUIRED REPAIRS AND ADJUSTMENTS TO ACHIEVE APPROVAL AND COMPLETION FROM THE CITY. TO SCHEDULE AN INSPECTION, CONTACT ENGINEERING DEVELOPMENT SERVICES AT (707) 543-4611.
- A MINIMUM OF 8" OF NON-MECHANICALLY COMPACTED SOIL SHALL BE AVAILABLE FOR WATER ABSORPTION AND ROOT GROWTH IN PLANTED AREAS.
- INCORPORATE COMPOST OR NATURAL FERTILIZER INTO THE SOIL TO A MINIMUM DEPTH OF 8" AT A MINIMUM RATE OF 8 CUBIC YARDS PER 1000 SQUARE FEET OR PER SPECIFIC AMENDMENT RECOMMENDATIONS FROM A SOILS LABORATORY REPORT.
- A MINIMUM 3" LAYER OF MULCH SHALL BE APPLIED ON ALL EXPOSED SOIL SURFACES OF PLANTING AREAS EXCEPT IN TURF AREAS, CREEPING OR ROOTING GROUNDCOVERS OR DIRECT SEEDING APPLICATIONS.

**CITY REQUIREMENT OF DOCUMENT OF COMPLIANCE**  
 (ITEMS TO BE INCLUDED WITH CERTIFICATE OF COMPLETION)

- PROJECT APPLICANT MUST SUBMIT DOCUMENTATION VERIFYING IMPLEMENTATION OF SOIL ANALYSIS REPORT RECOMMENDATIONS TO THE CITY WITH CERTIFICATE OF COMPLETION.
- THE CERTIFICATE OF COMPLETION MUST BE ACCOMPANIED BY AN IRRIGATION AUDIT THAT CONTAINS THE FOLLOWING:
  - OPERATING PRESSURE OF THE IRRIGATION SYSTEM
  - DISTRIBUTION UNIFORMITY OF OVERHEAD IRRIGATION
  - PRECIPITATION RATE OF OVERHEAD IRRIGATION
  - REPORT OF ANY OVERSPRAY OR BROKEN IRRIGATION EQUIPMENT
  - IRRIGATION SCHEDULE INCLUDING:
    - PLANT ESTABLISHMENT IRRIGATION SCHEDULE
    - REGULAR IRRIGATION SCHEDULE BY MONTH (SEE ORDINANCE FOR DETAILS)
    - VERIFICATION THAT A DIAGRAM OF THE IRRIGATION PLAN SHOWING HYDROZONES IS KEPT WITH THE IRRIGATION CONTROLLER FOR SUBSEQUENT MANAGEMENT PURPOSES.
- ALL LANDSCAPE IRRIGATION AUDITS MUST BE CONDUCTED BY A CITY CERTIFIED LANDSCAPE IRRIGATION AUDITOR OR A THIRD PARTY CERTIFIED LANDSCAPE IRRIGATION AUDITOR.
  - AN IRRIGATION MAINTENANCE SCHEDULE TIMELINE MUST BE ATTACHED TO THE CERTIFICATE OF COMPLETION (SEE ORDINANCE FOR DETAILS)
- IRRIGATION AUDIT: AN IN-DEPTH EVALUATION OF THE PERFORMANCE OF AN IRRIGATION SYSTEM CONDUCTED BY A CERTIFIED LANDSCAPE IRRIGATION AUDITOR (SEE ORDINANCE FOR DETAILS). THE AUDIT MUST BE CONDUCTED IN A MANNER CONSISTENT WITH THE IRRIGATION ASSOCIATION'S LANDSCAPE IRRIGATION AUDITOR CERTIFICATION PROGRAM OR OTHER U.S. EPA "WATERSENSE" LABELED AUDITING PROGRAM.

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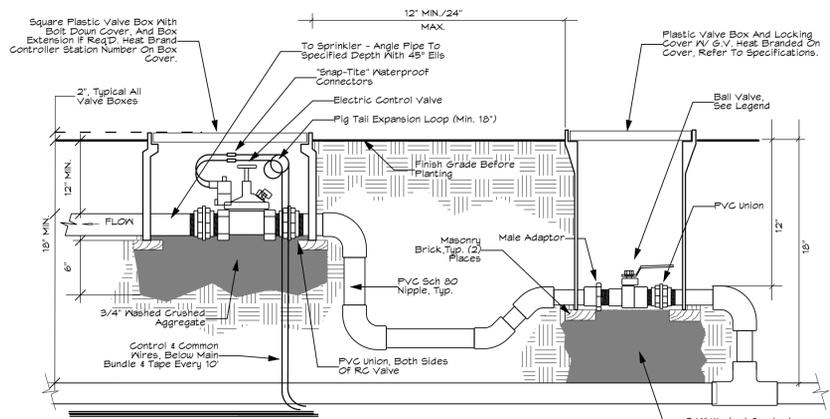
**MACNAIR**  
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 don@macnairlandscape.com

**PRELIMINARY PLANTING PLAN**

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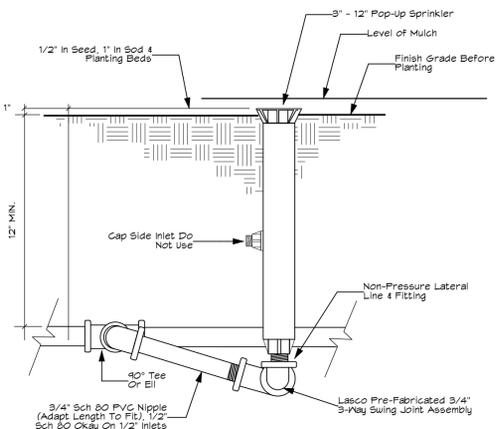
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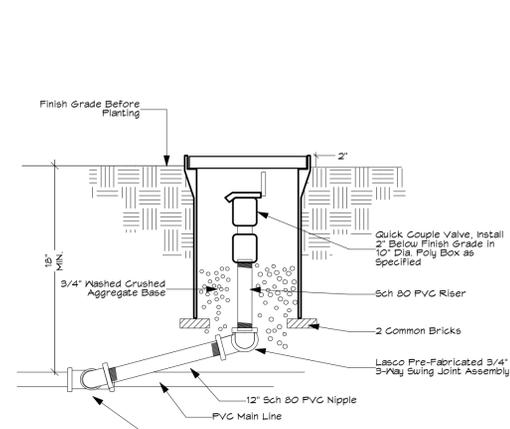
- NOTES:
- 1) INSTALL CONTROL VALVES A MINIMUM OF 18" FROM STRUCTURES OR HARDSCAPING.
  - 2) INSTALL VALVES IN PLANT BEDS WHEREVER POSSIBLE.
  - 3) PLACE VALVE BOX AT RIGHT ANGLES TO STRUCTURES OR HARDSCAPING.
  - 4) INSTALL VALVE BOX SO THAT TOP OF BOX IS FLUSH WITH ADJACENT HARDSCAPING.
  - 5) PLACE AGGREGATE PRIOR TO INSTALLATION OF VALVE BOX.
  - 6) INSTALL VALVE BOXES SO THAT TOP OF BOX IS FLUSH WITH ADJACENT HARDSCAPING.
  - 7) INSTALL ONE BALL VALVE IN BOX IMMEDIATELY UPSTREAM FROM EACH REMOTE CONTROL VALVE.

**A** ELECTRIC CONTROL VALVE WITH SHUT OFF  
L3 NTS



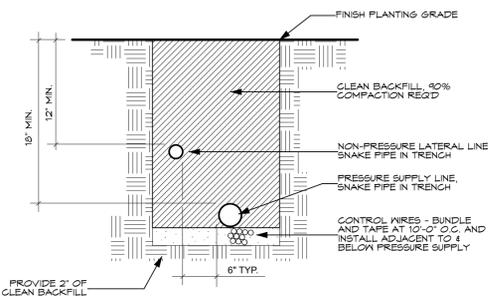
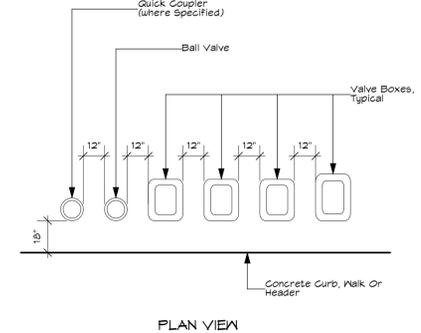
- NOTES:
- 1) LOCATE HEAD 6" FROM ALL EDGES IN LAWN AREAS. LOCATE HEAD 12" FROM ALL EDGES IN SHRUB AREAS.
  - 2) LOCATE STREAM SPRAY AND BUBBLERS HEADS 6" FROM ALL EDGES.
  - 3) USE TEFLON PASTE ON ALL MALE THREADS.

**B** POP-UP SPRINKLER DETAIL  
L3 INCLUDES 4", 6" AND 12" NTS



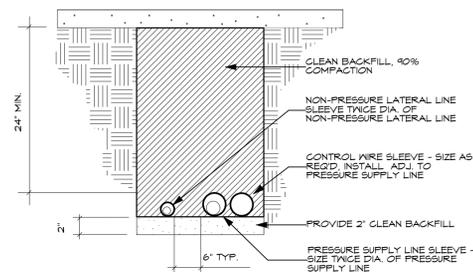
- NOTES:
- 1) CENTER VALVE BOX OVER VALVE ASSEMBLY.
  - 2) LOCATE VALVE BOXES IN GROUND COVER/SHRUB AREAS WHEN POSSIBLE.
  - 3) SET VALVE BOXES PARALLEL TO EACH OTHER AND PERPENDICULAR TO EDGE.

**C** QUICK COUPLER DETAIL  
L3 NTS



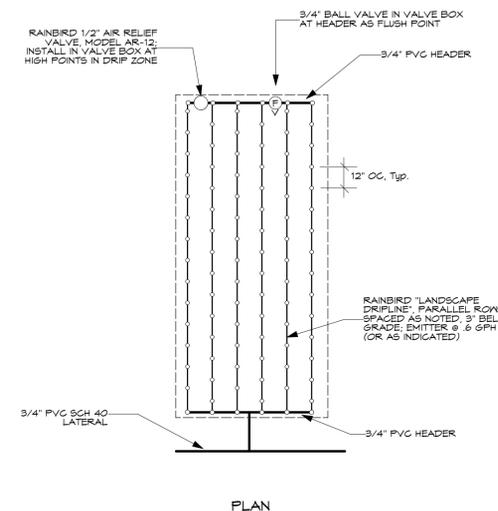
- NOTE:
- 1) PISTAL AND LOOP CONTROL WIRE AT ALL CHANGES IN DIRECTION.
  - 2) PROVIDE 18" EXPANSION LOOP AT ALL 90° ANGLES, AND EVERY 100' OF STRAIGHT CURVE RUN.

**E** PIPE INSTALLATION  
L3 IN PLANTED AREA NTS

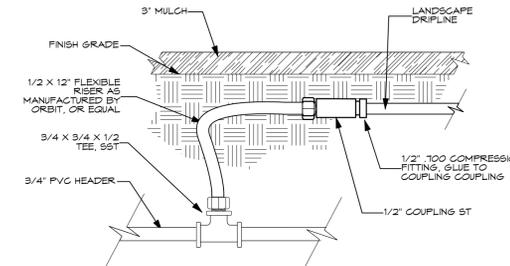


- NOTES:
- 1) ALL SLEEVES TO BE SCH 40 PVC.
  - 2) EXTEND ALL SLEEVES 12" BEYOND EDGE OF HARDSCAPING AT BOTH ENDS.

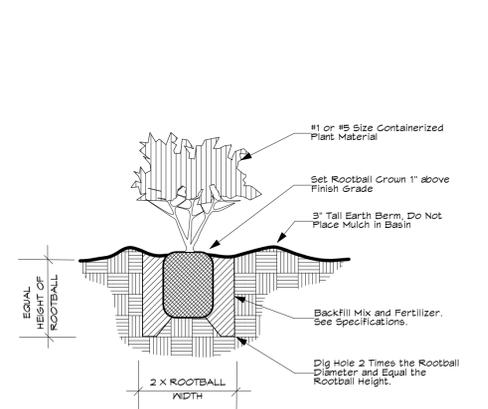
**F** PIPE INSTALLATION  
L3 UNDER PAVING NTS



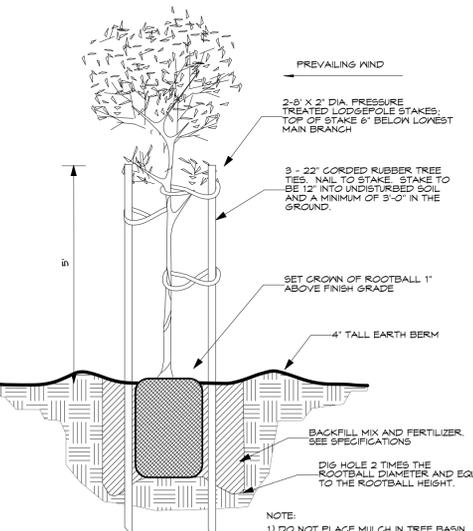
**G** DRIP CIRCUIT LAYOUT  
L3 NTS



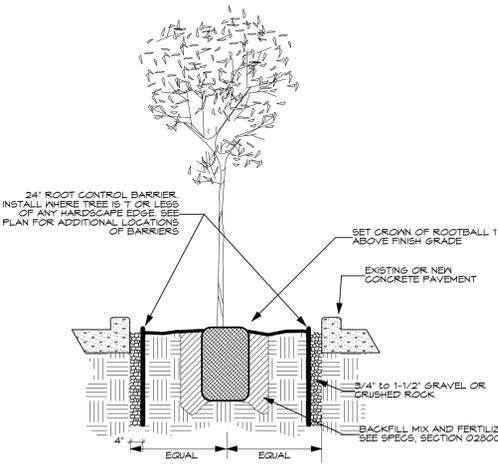
**H** POLY TO PVC COMPRESSION  
L3 FITTING DETAIL NTS



**I** SHRUB PLANTING DETAIL  
L3 NTS



**J** TREE PLANTING DETAIL  
L3 NTS



- NOTE:
- 1) DO NOT PLACE MULCH IN TREE BASIN.
  - 2) PLANTING HOLE TO BE TESTED FOR DRAINAGE PRIOR TO PLANTING. IF HOLES DO NOT DRAIN WITHIN 4 HOURS CONTACT LANDSCAPE ARCHITECT.
  - 3) INSTALL ROOT BARRIER ON ALL FOUR SIDES OF PLANTER.

**K** TREE WELL WITH  
L3 ROOT BARRIER NTS

REV NO.	DATE	DESCRIPTION

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REGISTERED LANDSCAPE ARCHITECT  
DONALD G. MACNAIR  
NO. 2800  
EX. 88125  
STATE OF CALIFORNIA

MACNAIR  
LANDSCAPE ARCHITECTURE  
POST OFFICE BOX 251  
KENWOOD, CALIFORNIA 95452  
TEL 907.833.2288  
FAX 907.833.2288  
don@macnairlandscape.com

LANDSCAPE DETAILS

3300 INDUSTRIAL DRIVE  
3300 INDUSTRIAL DRIVE  
SANTA ROSA, CA

DATE: 8/4/23  
MLA JOB #: 2023-06  
SCALE: 1" = 20"  
DRAWN: DM

23-06 3300 Industrial Dr. Bldg. 061723.wxd

**SECTION 2 SITE WORK  
DIVISION 02750**

**UNDERGROUND IRRIGATION SYSTEM**

**PART 1 GENERAL**

**1.01 SCOPE**

A. Work Included: perform all work necessary and required for the construction of the project as indicated. Such work includes but is not limited to the following:

- Furnish and install complete irrigation system.
- Trenching and backfilling.
- Sleeves for irrigation piping and remote control valve wiring under pavements and walls as noted.

B. Related Work in Other Sections: The following items of associated work are included in other sections of these specifications:

- Landscape, Section 02800
- By Others: The following items of work will be performed by others and are not included in the contract.
  - Electrical stub-out for irrigation controller.
  - Irrigation water meter.
  - Water stub-outs for irrigation system.

3. **INSPECTION OF CONDITIONS:** Examine related work and surfaces before starting work of this section. Report to the landscape architect in writing, conditions which will prevent the proper provision of this work. Beginning the work of this section without reporting unsuitable conditions to the landscape architect constitutes acceptance of conditions by the contractor. Any required removal, repair, or replacement of this work caused by unsuitable conditions to be done at no additional cost to the owner.

**1.03 CODES, RULES AND SAFETY ORDERS**

A. All work and materials to be in full accordance with the latest rules and regulations of safety orders of Division of Industrial Safety; the Uniform Plumbing Code published by the Western Plumbing Officials' Association; and other applicable laws or regulations, including the prevailing local plumbing code. Nothing in these drawings or specifications is to be construed to permit work not conforming to these codes. Should the construction documents, or instructions, be at variance with the aforementioned rules and regulations, notify the landscape architect and get instructions before proceeding with the work affected.

B. Furnish and maintain all warning signs, shoring, barricades, red lanterns, etc., as required by the Safety Orders of the Division of Industrial Safety and local ordinances.

C. Contact U.S.A. for location of underground utilities.

**1.04 STANDARDS: American Society of Testing and Materials (ASTM).**

1.05 PERMITS AND FEES: Obtain all permits and pay required fees to any governmental agency having jurisdiction over the work. Arrange inspections required by local agencies and ordinances during the course of construction as required.

1.06 APPROVAL: Wherever the terms "approve", "approval", or "approved" are used in the specifications, they mean approval of landscape architect in writing.

1.07 WORK SCHEDULE: Submit a proposed work schedule to landscape architect at least 5 days prior to start of work under this Section. After approval, no modification shall be made to this schedule without written authorization by the landscape architect.

1.08 OBSERVATION SCHEDULE: Schedule a job start meeting with the landscape architect at least 5 days before beginning work under this Section. All requests for observation must be made 72 hours in advance.

A. Job start meeting

The purpose of this conference is to review questions the contractor may have regarding the work, administrative procedures during construction and project work schedule.

B. Irrigation installation and hydrostatic tests

Observation of installation and hydrostatic test results to be made by the landscape architect prior to backfilling of trenches.

C. Pre-maintenance

When all work has been completed a pre-maintenance walk-through will be conducted. If approved, the 90 calendar day maintenance period will begin.

D. Final Observation

Final Observation will be after the 90 calendar day maintenance period and all required work is completed. Please give 1 week notice to the observation meeting.

**1.09 SUBSTITUTIONS**

A. Specific reference to manufacturer's names and products specified in this Section are used as standards, but this implies no right to substitute other material or methods without written approval of the landscape architect.

B. Installation of any approved substitution is contractor's responsibility. Any changes required for installation of any approved substitution must be made to the satisfaction of the landscape architect and without additional cost to the owner.

**1.10 PROTECTION OF EXISTING CONDITIONS**

A. Contractor shall acquire themselves with all site conditions. Should utilities or other work not shown on the plans be found during excavations, contractor shall promptly notify landscape architect for instructions as to further action. Failure to do so will make contractor liable for any and all damage thereto arising from their operations subsequent to discovery of such utilities not shown on plans.

1.11 COORDINATION: Coordinate and cooperate with other contractors to enable the work to proceed as rapidly and efficiently as possible.

1.12 PRODUCT HANDLING: Protect work and materials under this Section from damage during construction and storage. Protect polyvinyl chloride (PVC) pipe and fittings from direct sunlight. Beds on which PVC is stored must be full length of pipe. Do not use any pipe or fitting that has been damaged or dented.

1.13 SAMPLES: Landscape architect reserves the right to take and analyze samples of materials for conformity to specifications at any time. Contractor shall furnish samples upon request by the landscape architect. Rejected material shall be removed from the site immediately and replaced at the contractor's expense. Cost of testing materials not meeting specifications shall be paid by contractor.

1.14 HYDROSTATIC TESTS

A. Make hydrostatic tests when welded PVC joints have cured at least 24 hours. Apply continuous static water pressure of 100 psi as follows:

- All piping on the pressure side of control valves shall be tested for two hours.
- At completion of hydrostatic test, mainline shall be opened at farthest most point from the location of the pump to verify continuity of the mainline.

B. Leaks resulting from tests shall be repaired and tests repeated until system passes tests.

1.15 "AS-BUILT" IRRIGATION DRAWINGS: Contractor shall furnish Record Drawings of the complete irrigation system. Procedure from the landscape architect full sized sheets of Contract Drawings. Construction drawings shall be on the construction site at all times while the irrigation system is being installed. Actual location of valves and all irrigation and drainage piping shall be shown on the prints by dimensions from easily identified permanent features, such as buildings, curbs, fences, walks or property lines. Drawings shall show approved substitutions, if any, of material including manufacturer's name and catalog number. The drawings shall be at scale and all indications shall be neat. All information noted on the print shall be transferred to the prints by contractor and all indications shall be recorded in a neat, orderly way. The record drawings shall be turned over to the landscape architect at or before the Final Acceptance of the project.

**1.16 CONTROLLER CHARTS**

- As-built drawings shall be approved by the landscape architect before charts are prepared.
- Provide one controller chart for each controller supplied.
- The chart shall show the area controlled by automatic controller and shall be the maximum size controller door will allow.
- The chart is to be reduced drawing of the actual as-built system. However, in the event the controller sequence is not legible when the drawing is reduced, it shall be enlarged to a size that will be readable when reduced.

5. Chart shall be black line print and a different color shall be used to show area of coverage for each station.

- The chart shall be mounted using Velcro, or an approved equal.
- When completed and approved, the chart shall be hermetically sealed between two pieces of plastic, each piece being a minimum 20 mils. thick.
- These charts shall be completed and approved prior to final inspection of the irrigation system.

**1.17 MATERIALS TO BE FURNISHED**

A. Prior to final inspection the contractor shall furnish the following materials to the owner:

- Two wrenches for disassembling and adjusting each type of sprinkler head supplied.
- Two keys for each automatic controller.
- Four keys for loose key hose bibs and/or hose bibs.
- Twelve 12 inch pop-up sprinkler bodies.

1.18 CLEAN-UP: Keep all areas of work clean, neat and orderly at all times. Keep paved areas clean during installation. Clean up and remove all debris from the entire work area prior to Final Acceptance to satisfaction of landscape architect.

1.19 FINAL ACCEPTANCE: Work under this Section will be accepted by landscape architect upon satisfactory completion of all work. Upon Final Acceptance, owner will assume responsibility for maintenance of the work. Said assumption does not relieve contractor of obligations under Warranty.

1.20 WARRANTY: In addition to manufacturer's warranties or warranties, all work shall be warranted for one year from the date of Final Acceptance against defects in material, equipment and workmanship by contractor. Warranty shall also cover repair of damage to any part of the premises resulting from leaks or other defects in materials, equipment and workmanship to the satisfaction of the owner.

**PART 2 MATERIALS**

2.01 GENERAL: Materials throughout the system shall be new and in perfect condition. At least 14 days prior to beginning work, submit for approval 2 copies of manufacturer's catalog cuts, specifications, and operating instructions of the complete list of materials and assemblies to be installed. Quantities of materials and equipment need not be included. No deviations from the specifications shall be allowed. The decision of the landscape architect shall be final in the determination of the quality of materials and equipment.

2.02 WATER METERS: Shall be provided by others.

**2.03 PIPE**

A. Mainline piping on pressure side of irrigation control valves:

- 1" size and greater to be Polyvinyl Chloride (P.V.C.) 1120-1220, Class 315 and shall conform to ASTM D 2241-73 and D 2672-73.
- 2" up to and including 1-1/2" size to be Polyvinyl Chloride (P.V.C.) 1120-1220, Schedule 40 and shall conform to ASTM D 1785-73.
- Galvanized Steel, Standard wall, Schedule 40, capable of working pressure up to 600 psi shall run from the point of connection to back flow prevention device.
- Piping from the point of connection to the back flow prevention device shall be as approved by local code.

B. Lateral line piping on non-pressure side of irrigation control valves:

- 1" size and greater to be Polyvinyl Chloride (P.V.C.) 1120-1220, Class 315 and shall conform to ASTM D 2241-73 and D 2672-73.
- 2" up to and including 1-1/2" size to be Polyvinyl Chloride (P.V.C.) 1120-1220, Schedule 40 and shall conform to ASTM D 1785-73.

**2.04 FITTINGS**

A. PVC Fittings: Schedule 40, Polyvinyl Chloride, high impact weight, as manufactured by Sloane, Lasco, medium or approved equal.

B. Fittings for Galvanized Steel Pipe: Schedule 40, standard weight as manufactured by Grinnell, or approved equal.

C. Connections between main and valves shall be PVC Schedule 80 nipples and fittings.

**2.05 SLEEVE MATERIALS**

A. For Control Wires: PVC 1120-1220, Class 200 pipe or heavy wall galvanized steel conduit.

B. For Water Lines: PVC 1120-1220, Class 200 pipe or heavy wall galvanized steel conduit.

**2.06 IRRIGATION CONTROLLERS**

A. Controller to be as shown on plans and is to be installed as per detail and manufacturer's specifications.

**2.07 IRRIGATION CONTROL VALVES**

A. Remote Control Valves: Valves to be as shown on plans and installed per details and manufacturer's specifications.

**2.08 CONTROL WIRE**

A. Wire: Solid copper wire, U.L. approved for direct burial in ground. Minimum gauge: #14. Common ground wire shall be white.

B. Splicing Materials: Wire connectors shall be Penrite or snap connectors.

C. All wires shall be labeled with the valve number at the controller and valve.

D. 120 wiring shall be as required by local code and installed by an electrician. It shall not be on a switched circuit.

E. Common wire shall be white. Control wires shall be other than white. Use a different color control wire for each controller.

**2.09 VALVE BOXES**

A. Remote Control Valves: To be Brooks, Green or approved equal, one per valve.

B. Gate Valves and Control Wire Stub-out Locations: To be Brooks, Green or approved equal, one per valve and local location.

**2.10 QUICK-COUPLING VALVES**

A. Quick coupling valves to be as per plans and details.

B. Furnish 2 valve keys fitted with hose valve assembly.

C. All valve boxes shall be purple in color or clearly labeled by the manufacturer to designate reclaimed water.

**2.11 LANDSCAPE DRIP-LINE:** Tubing as shown in legend and drawings.

A. Install in parallel and consistent rows at spacing indicated in all specified areas.

B. Backfill at all trenches, regardless of the type of pipe covered, shall be compacted to minimum 95% density under pavements, 85% under planted areas.

**2.12 SPRINKLER HEADS**

A. Heads as shown in legend and drawings.

**2.13 BACK-FLOW PREVENTION ASSEMBLIES**

A. Back-flow prevention device as shown in legend and drawings.

**PART 3 EXECUTION**

**3.01 LAYOUT**

A. Layout work as accurately as possible to drawings. Drawings are diagrammatic to the extent that swing joints, offsets and all fittings are not shown.

B. Full and complete coverage is required. Contractor shall make any necessary minor adjustments to layout required to achieve full coverage of irrigated areas at no additional cost to owner.

**PART 1 GENERAL**

**1.01 SCOPE**

A. Work Included: Perform all work necessary and required for the construction of the project as indicated. Such work includes but is not limited to the following:

- Site preparation including weed and rubble removal.
- Laboratory soil analysis.
- Furnishing and spreading topsoil.
- Finish grading of planted areas.
- Soil amendment.
- Planting.

B. Related Work: The following items of associated work are included in other sections of these specifications.

**1.02 REQUIREMENTS OF REGULATORY AGENCIES**

A. Perform work in accordance with all applicable laws, codes, and regulations required by authorities having jurisdiction over such work and provide for all inspections and permits required by federal, state, and local authorities in furnishing, transporting and installing materials.

B. Certificates of inspection required by law for transportation shall accompany the invoice for each shipment of plants. File copies of certificates with landscape architect at place of acceptance of material. Inspections of federal and state governments at place of growth does not preclude rejection of plants at project site.

**1.03 SELECTION, TAGGING AND ORDERING OF PLANT MATERIAL**

A. Submit documentation to landscape architect at least 7 days prior to start of work under this section that all plant material has been ordered. Arrange procedure for observation with landscape architect at time of submission.

B. Plants shall be subject to observation and approval by landscape architect at place of growth or upon delivery for conformity to specifications. Such approval shall not impair the right of observation and rejection during progress of the work. Submission of plant material at place of growth to landscape architect. Written request shall state the place of growth and the quantity and variety of plants to be observed. Landscape architect reserves the right to refuse observation at this time if, in his judgment, a sufficient number of plants are not available for observation or not in the landscape architect's contract.

C. Substitution of plant material will not be permitted unless authorized in writing by landscape architect. If proof is submitted that any plant specified is not obtainable, a proposal will be considered for use of the nearest equivalent size or variety with corresponding adjustment of contract price.

C. Dig trenches wide enough to allow a minimum of 6 in. between parallel pipe lines. Trenches shall be of sufficient depth to provide minimum cover from finish grade as follows:

- Over PVC pipe on pressure side of irrigation control valve, control wires, quick coupling valves: 18 inches.
- Over pipe on non-pressure side of irrigation control valve: 12 inches.

**3.03 BACK FLOW PREVENTION DEVICE INSTALLATION**

A. Install according to local code and manufacturer's instructions.

B. Install with union on discharge side for servicing, or with flanges, as required.

**3.04 SLEEVING**

A. Where pipes or wires must be installed under paving place them in sleeves with a 2 1/4" minimum depth and sufficient size to accommodate irrigation lines and/or wires.

B. Lack of pipe chase coordination does not relieve the contractor from installing the pipes and control wire shown on the drawing. In the event pipe chases were not installed prior to paving the contractor shall bore under the paving to accommodate pipes and wires.

C. All control wire shall be in Schedule 40 conduit from trench to controller. When valves are grouped together allow 12" between valve boxes, each valve in a separate box, (not to be placed in drainage swales, but kept in ground cover areas.)

**3.05 PIPE LINE ASSEMBLY**

A. Install pipe in accordance with manufacturer's instructions.

B. Solvent weld all PVC pipe and fittings using solvents (including primer) and methods as recommended by the manufacturer, except where screw connections are required. Clean pipe and fittings of dirt and moisture before assembly. PVC pipe may be assembled on ground surface beside trench. Snake pipe from side to side of trench bottom to allow for expansion and contraction. Make all connections using PVC pipe and metal valves or pipe with threaded fittings using PVC male adapters.

C. Use Teflon tape on all threaded fittings.

D. Thrust blocks shall be installed where the irrigation main changes direction as at alleys and tees and where the irrigation main terminates. Pressure tests shall not be made for a period of 36-48 hours following the completion of pouring of the thrust blocks. Concrete thrust blocks for supply mains shall be sized and placed in strict accordance with the pipe manufacturer's specifications and shall be of an adequate size and so placed as to take all thrust created by the maximum internal water pressure.

**3.06 IRRIGATION CONTROL VALVES:**

A. Install control valves in valve boxes where shown and group together where practical. Place no closer than 18 in. to walk edges, buildings and walls and other valves. Valve boxes shall be placed in relation to finish grade as follows:

- 1" above grade when no mulch is used
- 1/2" below grade when mulch is used
- 1 1/2" with soil lawn
- 2" with plant beds

B. The contractor shall paint on the cover of each valve box in 2" white stenciled letters with the valve number as designated on the plan.

**3.07 SPRINKLER HEADS**

A. Install heads as per details.

B. Nozzles may be changed to control precipitation rate and G.P.M. with approval from the landscape architect.

**3.08 QUICK COUPLING VALVES:** Quick coupling valves to be installed as per detail.

**3.09 AUTOMATIC CONTROLLER**

A. Install per local code and manufacturer's instructions.

B. Grounding of irrigation controller shall be as per manufacturer's recommendations and as per local code.

**3.10 CONTROL WIRING**

A. Install control wires with sprinkler mains and laterals in common trenches wherever possible. Lay to the side of pipe line. Provide locked slack at valves of 18" and snake wires in trench to allow for contraction of wires. Tie wires in bundles at 10 ft. intervals. Provide expansion loop at all 90 degree angles, and every 100' of straight wire run.

B. Control wire splices at remote control valves to be crimped and sealed with specified splicing materials. Line splices will be allowed only on runs of more than 500 ft. All line splices to be in separate valve box.

C. Install one continuous ground wire and one extra wire to all valves.

**3.11 CLOSING OF PIPE AND FLUSHING OF LINES**

A. Thoroughly flush out all water lines before installing heads, valves and other hydrants.

B. Test as specified.

**3.12 PRESSURE TESTS**

A. The contractor shall partially backfill, leaving all fittings exposed before testing.

B. Cap all valve openings and test the mainline pipe at full line working pressure and visually check all fittings.

**3.13 BACKFILL AND COMPACTING**

A. After system is operating and required tests and inspections have been made, backfill excavations and trenches with clean soil, free of rubbish. All pipe shall have a bedding of 2" under and 4" over of select, rock free backfill.

B. Backfill at all trenches, regardless of the type of pipe covered, shall be compacted to minimum 95% density under pavements, 85% under planted areas.

C. Compact trenches in areas to be planted by thoroughly flooding the backfill. Jetting process may be used in those areas.

D. Dress off all areas to finish grades.

E. Any setting more than 1" which may occur during the guarantee period shall be brought to finish grade by the contractor at his expense.

**END OF SECTION 02750**

**SECTION 02800 LANDSCAPING**

**PART 1 GENERAL**

**1.01 SCOPE**

A. Work Included: Perform all work necessary and required for the construction of the project as indicated. Such work includes but is not limited to the following:

- Site preparation including weed and rubble removal.
- Laboratory soil analysis.
- Furnishing and spreading topsoil.
- Finish grading of planted areas.
- Soil amendment.
- Planting.

B. Related Work: The following items of associated work are included in other sections of these specifications.

**1.02 REQUIREMENTS OF REGULATORY AGENCIES**

A. Perform work in accordance with all applicable laws, codes, and regulations required by authorities having jurisdiction over such work and provide for all inspections and permits required by federal, state, and local authorities in furnishing, transporting and installing materials.

B. Certificates of inspection required by law for transportation shall accompany the invoice for each shipment of plants. File copies of certificates with landscape architect at place of acceptance of material. Inspections of federal and state governments at place of growth does not preclude rejection of plants at project site.

**1.03 SELECTION, TAGGING AND ORDERING OF PLANT MATERIAL**

A. Submit documentation to landscape architect at least 7 days prior to start of work under this section that all plant material has been ordered. Arrange procedure for observation with landscape architect at time of submission.

B. Plants shall be subject to observation and approval by landscape architect at place of growth or upon delivery for conformity to specifications. Such approval shall not impair the right of observation and rejection during progress of the work. Submission of plant material at place of growth to landscape architect. Written request shall state the place of growth and the quantity and variety of plants to be observed. Landscape architect reserves the right to refuse observation at this time if, in his judgment, a sufficient number of plants is available for observation or not in the landscape architect's contract.

C. Substitution of plant material will not be permitted unless authorized in writing by landscape architect. If proof is submitted that any plant specified is not obtainable, a proposal will be considered for use of the nearest equivalent size or variety with corresponding adjustment of contract price.

D. Contractor shall not be held responsible for failures due to neglect by owner, vandalism, or acts of god, etc., during Warranty Period. Report such conditions to landscape architect in writing.

E. Plant Quantity: Plant materials shall be furnished in size, quantities, species and at the spacing indicated or as noted on the plans. Ground cover material shall be provided in quantity adequate to fill the entire ground cover area at the spacing shown.

F. Plant Spacing: No planting, except for ground covers, espaliers and vines shall be placed closer than two feet to pavement, structures or other landscape edges. Ground covers adjacent to pavement, structures or landscape edges shall be no closer than 75% of their spacing. No plants that exceed a height of 6 feet shall be placed closer than 30% of the radius of the sprinkler tower as specified by the sprinkler manufacturer at the optimum operating pressure unless approved by the landscape architect.

G. Approval: Wherever the terms "approve", "approval", or "approved" are used herein, they mean approval of landscape architect in writing.

**2.02 LANDSCAPE AREA PLANTING SOILS**

A. Soil to be tested by testing agency as per specifications.

B. All landscape area planting soils shall be equal or coarser in texture to the original on-site topsoil. All landscape area soils shall be free from stones larger than 1 in. in size, sub-soil, refuse, plants or roots, clods, weeds, sticks, or other extraneous material. All landscape area soils shall be tested by an approved soils laboratory for horticultural suitability and verified to be capable of sustaining healthy plant life. Landscape area planting soils may be obtained through stockpiling of existing topsoil or imported soil of equal texture and quality as determined by approved soil laboratory analysis.

**2.03 PROTECTION OF EXISTING PLANTS TO REMAIN**

A. Do not store materials or equipment, permit burning, or operate or park equipment within designated plant protection zones as specified on the plans.

B. Notify landscape architect in any case where contractor feels grading or other construction called for by Contract Documents may damage existing plants to remain. Do not proceed with such work until directed by landscape architect.

C. If existing plants are damaged during construction, contractor shall replace such plants of the same species and size as those damaged at no cost to owner. Determination of extent of damage and value of damaged plant shall rest solely with landscape architect.

**1.10 GRADING**

A. Prior to planting grading will be brought to within 10" +/- foot of finish grade with soil suitable for planting by the landscape contractor. It is the responsibility of the landscape contractor to verify that no conflict exists with the grading plan. Fine finish grading will be done by the landscape contractor.

B. Finish grade in ground cover areas shall be 2 inches below surrounding concrete or asphalt. In lawn areas, sodded areas shall be 2 inches and seeded areas shall be 1 inch below sidewalks, header boards, or mow strips and examined by the landscape architect, owner, or his representative.

1.11 CLEAN-UP: Keep all areas of work clean, neat and orderly at all times. Keep paved areas clean during planting and maintenance operations. Clean up and remove all deleterious materials and debris from the entire work area prior to Final Acceptance to the satisfaction of landscape architect. The landscape contractor shall bear final responsibility for proper surface drainage of planted areas. Any prior work done by another party or obstructions on the site which the contractor feels preclude establishing proper drainage shall be brought to the attention of the landscape architect, owner or his representative for correction or the relief of responsibility.