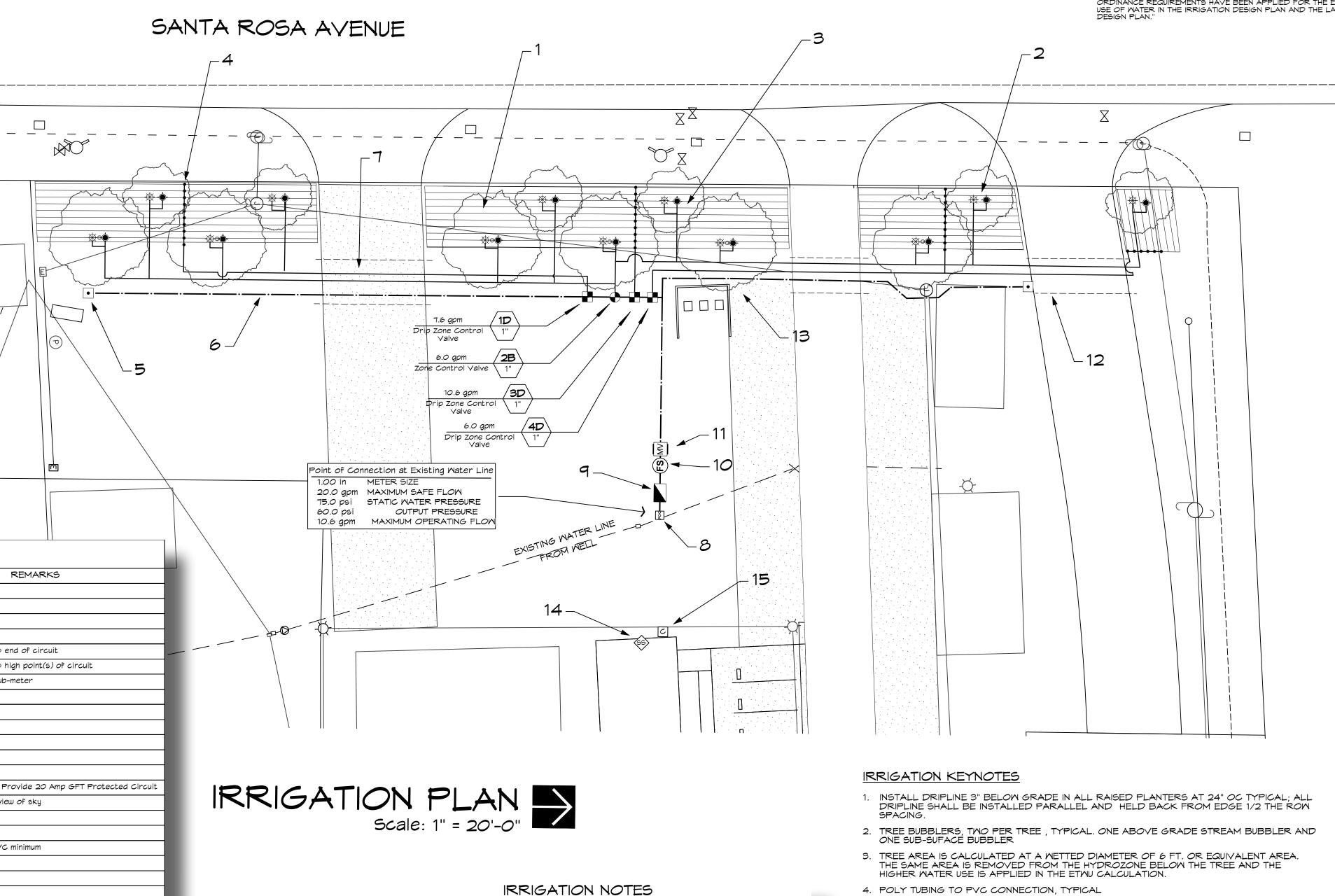
U.S.A NOTE U.S.A NOTE IT IS THE RESPONSIBILITY OF THE LANDSCAPE CONTRACTOR TO BE FAMILIAR WITH ALL GRADE DIFFERENCES, LOCATION OF WALLS, STRUCTURES, AND UTILITIES. THE IRRIGATION CONTRACTOR SHALL EXERCISE EXTREME CARE, AND BE RESPONSIBLE FOR ANY DAMAGE IN EXCAVATING AND WORKING NEAR UTILITIES. THE LANDSCAPE 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 1-800-227-2600 TO FIELD LOCATE ALL EXISTING UTILITIES.

| | $\bigcirc \bigcirc$ | | | | | | |
|---|--|--|---------------------------|------|------------|--|--------------|
| | | | | | | | |
| | | | | | | | |
| SYMBOL | EQUIPMENT ROOT WATERING SYSTEM | MANUFACTUREF HUNTER | RIGATION J | DDEL | ENL | / | |
| | STREAM BUBBLER: 6" POP-UP | HUNTER | PROS-06-CV-R-PRS30-MSE | | | 30-CV | |
| | Landscape Dripline | Rainbird | XF5-06-12 | | | Top of slope | |
| SEE DETAIL | Poly to PVC Header Automatic Line Flush Valve | Hunter | | | | See Detail G/L | |
| SEE DETAIL | Air Relief Valve | Hunter | AVR-015 | | | Install in 6" Val | |
| SEE DETAIL | Continuous Acting Air Vent | Netafim | 65ARIS1 | | | Install upstream | n from su |
| MV | Drip Zone Control Valve Master Valve | Hunter Hunter | ICZ-101-25 | | | | |
| $\overline{\bullet}$ | Zone Control Valve | Hunter | ICV-101G-AS-ADJ | | | | |
| FS | Flow Sensor | CST | ELF-T10-NO1 | | | | |
| • | Rainbird 1" Quick Coupling Valve Reduced Pressure Backflow Preventer | Rainbird Febco | 44-NP 860-QT-1 | | | For non-potable | e water |
| C | Irrigation Controller - 6 Station | Hunter | IC-600-M | | | Wall Mount at e | ye level; |
| | Solar Sync Weather Sensor | Hunter | MSS-SEN | | | Roof mount wit | - |
| | Mainline | PVC | Sch 40 | | | | |
| | Lateral | PVC | Sch 40 PVC Schedule 40 | | | Size by pipe los | ad· 2" PV |
| | | | | | | | uu, 2 T Y |
| | Valve Station and Sequence | | | | | | |
| | Valve Size | | | | | | |
| - | Gallons Per Minute | | | | - | | - |
| • | 1AMA AND ETMU C | | | | | DET | <u>Δ </u> |
| - | er Allowance (MAWA) | | | | | | |
| | [(0.55 X LA) + (0.45 X SLA)] | | | | Name | Method | 1 |
| 5 = ET Adjustmen | erence Evapotranspiration (Inches) t Factor (Commercial) | | | | 1D 2B | Sub-Surface Driplin Root Watering Syste | m |
| 5 = ET Adjustmen = Landscaped Are 2 = Conversion fa | t Factor (Residential) 2a (square feet) ctor (to gallons per square foot) | | | | 3D 4D | Sub-Surface Driplin Sub-Surface Driplin | |
| = Portion of the | landscape area identified as Special Landscape / ET adjustment factor for Special Landscape Are ET adjustment factor for Special Landscape Are | Area (square feet) a (1.0 - 0.55 = 0.45) (Co a (1.0 - 0.55 = 0.45) (Co | mmercial) | | | | |
| | C) or Residential (R) C | a (1.0 - 0.49 - 0.99) (inc. | | | | SUMM | 1AR |
| | Evapotranspiration Calculation | | | | | Plant Type | |
| | Local Reference ETO 46.51 25.36"/yr X .25 = | 6.34 | | | | Very Low | |
| | (Annual Rainfall) | (Effective Rainfall) ctive Rainfall = | 40.17 | | | Low Moderate | |
| | sted Landscape Area Calculation | | | | | High To | otal |
| (| 5,257 sf X 0.45 Landscape Area) Adjustment Fac | = tor | 2,365.76 sf | | | | |
| (Spe | 0.00 sf X 0.55 cial Landscape Area) Adjustment Fac | = tor | 0.00 sf | | | PRECI | PITA |
| | Sum of Adjusted Lar | | 2,365.76 sf | | | | |
| MANA= imated Total Wate | 40.17 X .62 X 2,36 | 6 sf = | 58,920 gal/yr | | | Valve ID | Hyd |
| | Evapotranspiration Calculation | = | 40.17 sf | | | 1D 2B | |
| | Evapotranspiration Calculation = Annual ETo - Effe | ctive Rainfall | | | | 3D 4D | |
| B) Adju | sted Landscape Area Calculation 0.00 sf X.01 | | 0.00 sf | | | | |
| Ve | ery Low Mater Use | | | | | | |
| | Low Water Use | | 1,577.17 sf | | | | |
| Ma | 0 sf X.06 Oderate Water Use | | 0.00 sf | | | | |
| | 0.00 sf X .8 High Water Use | | 0.00 sf | | | | |
| | High Water Use Sum of Adjusted Lar | idscape Area = | 1,577.17 sf | | | | |
| ETMU = | 40.17 X .62 X 1,577 sf | / 0.81 | = 49,100 gal/yr | | | | |
| e 4.1 | Irrigation Efficiency Factor are Footage of Landscape on Drip 5,257.25 sf | | | | | | |
| Squa | re Footage of Landscape on Drip 5,251.25 st re Footage of Landscape on Spray 0.00 sf otal Square Footage of Landscape 5,257.25 sf | | | | | | |
| | Ijusted Irrigation Efficiency Factor 0.81 | | | | | | |



HYDROZONE TABLE

| Mater Use | Mater ∪se ∨alue | Hydrozone Area in SF | % of Landscape |
|-----------|-----------------|-------------------------|-------------------|
| Low | 0.3 | 1,609.48 sf | 30.6% |
| Low | 0.3 | 339.26 sf | 6.5% |
| Low | 0.3 | 2,051.07 sf | 39.0% |
| Low | 0.3 | 1,257.44 sf | 23.9% |
| | | 5,257 sf | 100% |

Y HYDROZONE TABLE

| Water Use By Area | % of Landscape |
|-------------------|----------------|
| 0.00 | 0% |
| 5,257.25 | 100% |
| 0.00 | 0% |
| 0.00 | 0% |
| 5,257.25 | 100% |

TION RATES BY VALVE

| ydrozone Area | Flow in GPM | Precipitation Rate in Inches Per Hour |
|---------------|-------------|---|
| 1609.48 | 7.6 GPM | 0.46 |
| 339.26 | 6.0 GPM | 1.70 |
| 2051.07 | 10.6 GPM | 0.50 |
| 1257.44 | 6.0 GPM | 0.46 |
| | | |

1. ALL SPRINKLER HEADS SHALL BE SET PERPENDICULAR TO FINISH GRADE OF THE AREA TO BE IRRIGATED UNLESS OTHERWISE NOTED ON THE PLANS.

2. 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.

3. 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 5 STATIONS. CONTROLLER SHALL BE HUNTER IC-600-M. 4. ALL CONSTRUCTION IS TO BE PER THE LATEST EDITION OF THE UNIFORM BUILDING CODE.

5. 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.

6. 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.

7. IT IS THE RESPONSIBILITY OF THE IRRIGATION CONTRACTOR TO FAMILIARIZE THEMSELF 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.

8. 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.

9. SLEEVE ALL IRRIGATION PIPE AND CONTROL WIRES UNDER STREETS AND CONCRETE WALKWAYS WITH THE PROPER SIZE CLASS 200 PVC PIPE TO DEPTH AS SPECIFIED.

10. FOR ADDITIONAL INFORMATION, SEE PROJECT DETAILS AND SPECIFICATIONS.

11. ALL WORK SHALL CONFORM TO ALL APPLICABLE SONOMA COUNTY CONSTRUCTION STANDARDS.

12. NO GALVANIZED IRON PIPE OR FITTINGS SHALL BE ALLOWED. 13. A BALL VALVE IN A SEPARATE ROUND VALVE BOX IS TO BE INSTALLED IMMEDIATELY UPSTREAM FROM EACH

REMOTE CONTROL VALVE OR GHROUP OF VALVES. VALVE SHALL BE SIZED TO MAINLINE SUPPLY AT THE RC VALVE. SEE DETAIL. 14. INSTALL 3" WIDE DETECTABLE TAPE (#3" DTP, AS MANUFACTURED BY T. CHRISTY). TAPE SHALL BE INSTALLED 6"

ABOVE THE IRRIGATION MAIN. 15. 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. 16. A SIGNED CERTIFICATE OF COMPLETION IS REQUIRED PRIOR TO FINAL ACCEPTANCE BY THE COUNTY OF SONOMA.

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.

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."

- 5. QUICK COUPLER, TYPICAL
- 6. IRRIGATION MAIN
- 7. IRRIGATION LATERAL
- 8. POINT OF CONNECTION AT EXISTING PRIVATE WELL SYSTEM; REFER TO SCHEMATIC POC LAYOUT, THIS SHEET
- 9. 1" REDUCED PRESSURE BACKFLOW PREVENTER
- 10.1" FLOW SENSOR
- 11. 1" MASTER VALVE
- 12. TYPICAL IRRIGATION SLEEVE BENEATH PAVEMENT; SIZE SLEEVE TO CONTAIN PIPE AND WIRE PER DETAIL; MINIMUM SIZE NO LESS THAN 3" DIAMETER 13. IRRIGATION LAYOUT IS DIAGRAMMATIC. INSTALL ALL MAIN LINE, LATERALS AND
- CONTROL WIRE IN LANDSCAPE AREAS. DO NOT INSTALL IN PUBLIC RIGHT OF WAY. WHEN LAYOUT REQUIRES INSTALLATION UNDER PAVING, USE IRRIGATION SLEEVES PER DETAIL SHEET L-3.
- 14. SOLAR SYNC SENSOR, ROOF MOUNT WITH CLEAR ACCESS TO SKY



| REV NO. | DATE | DESCRIPTION |
|---------|---------|-----------------------------|
| 1 | 4/10/23 | Revise Irrigation & Plantir |
| | | |
| | | |

MACNAIR L A N D S C A P E A R C H I T E C T U R E POST OFFICE BOX 251 KENWOOD, CALIFORNIA 95452 TEL (707) 833-2288 RLA #2800 don@macnairlandscapes.com

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OF MACNAIR LANDSCAPE ARCHITECTURE. MACNAIR LANDSCAPE ARCHITECTURE IS NOT RESPONSIBLE FOR THE ACCURACY OF ANY PLANS OR SURVEYS NOT DIRECTLY PREPARED BY THEM. SITE DIMENSIONS, GRADES, WATER

PRESSURES AND GENERAL CONDITIONS SHALL BE VERIFIED PRIOR TO BEGINNING OF ANY WORK ON SITE. WRITTEN DIMENSIONS SHALL TAKE PRECEDENCE OVER SCALED

DIMENSIONS.

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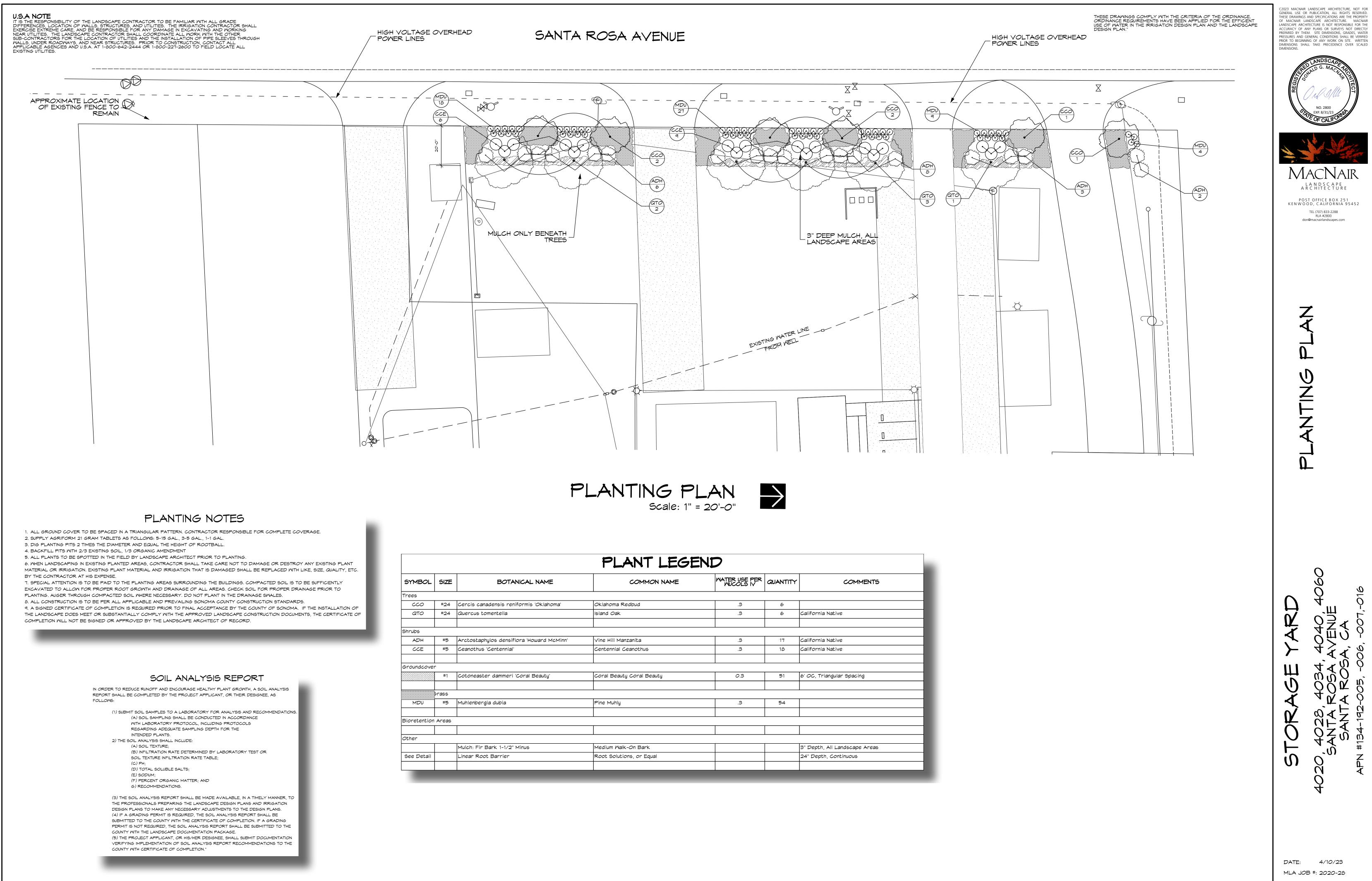
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4/10/23 DATE: MLA JOB #: 2020-28 SCALE: 1" = 20' DRAMN: DM

SHEET L1 OF 4



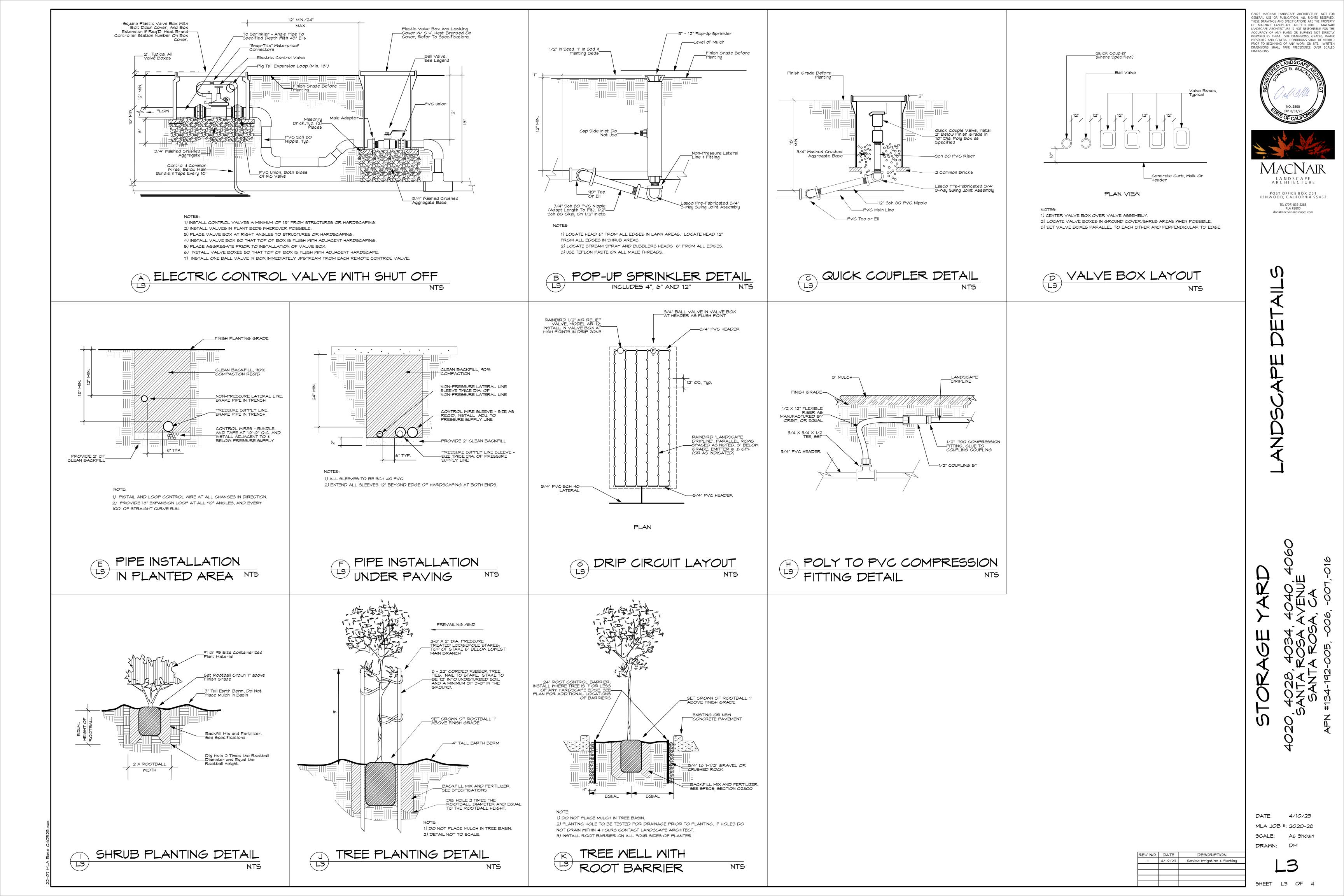


| SIZE | BOTANICAL NAME | COMMON NAME | WATER USE PER WUCOLS IV | QUANTITY | COMMENTS |
|--------------|---|---------------------------|----------------------------|----------|-------------------------------|
| | | | | | 1 |
| # <u>2</u> 4 | Cercis canadensis reniformis 'Oklahoma' | Oklahoma Redbud | .3 | 6 | |
| # <u>2</u> 4 | Quercus tomentella | Island Oak | .3 | 6 | California Native |
| | | | | | |
| | | | | | |
| #5 | Arctostaphylos densiflora 'Howard McMinn' | ∨ine Hill Manzanita | .3 | 17 | California Native |
| #5 | Ceanothus 'Centennial' | Centennial Ceanothus | .3 | 18 | California Native |
| | | | | | |
| | | | | | |
| #1 | Cotoneaster dammeri 'Coral Beauty' | Coral Beauty Coral Beauty | 0.3 | 51 | 6' OC, Triangular Spacing |
| | | | | | |
| ass | | | | | |
| #5 | Muhlenbergia dubia | Pine Muhly | .3 | 54 | |
| | | | | | |
| reas | | | | | |
| | | | | | |
| | | | | | r |
| | Mulch: Fir Bark 1-1/2" Minus | Medium Walk-On Bark | | | 3" Depth, All Landscape Areas |
| | Linear Root Barrier | Root Solutions, or Equal | | | 24" Depth, Continuous |

SCALE: 1" = 20' DRAMN: DM

| EV NO. | DATE | DESCRIPTION |
|--------|---------|-------------------------------|
| 1 | 4/10/23 | Revised Irrigation & Planting |
| | | |
| | | |

SHEET L2 OF 4



DIVISION 2 SITE WORK SECTION 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: 1. Furnish and install complete irrigation system.

Trenching and backfilling. 3. 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:

1. Landscaping, Section 02800

C. By Others: The following items of work will be performed by others and are not included in the contract.

1. Electrical stub-out for irrigation controller.

2. Irrigation water meter Water stub-out(s) for irrigation system.

1.02 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

instructions before proceeding with the work affected.

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 presiding 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

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

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 with out 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

(ASTM).

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 for this 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 acquaint themself 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 polyviny 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 contractors 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:

1. All piping on the pressure side of control valves shall be tested for two 2. 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. Procure from the landscape architect full sized sepias 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 or 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

1. As-built drawings shall be approved by the landscape architect before charts are prepared.

2. Provide one controller chart for each controller supplied. 3. The chart shall show the area controlled by automatic controller and shall be the maximum size controller door will allow. 4. 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 5. Chart shall be black line print and a different color shall be used to show area of coverage for each station 6. 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 8. 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 3. Four keys for loose key hose bibs and/or hose bibs.

4. 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 guarantees 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

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

1. 2" 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.

Mainline piping on pressure side of irrigation control valves:

3. 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. 4. Piping from the point of connection to the back flow prevention device shall be as approved by local code.

Lateral line piping on non-pressure side of irrigation control

1. 2" 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

2.07 IRRIGATION CONTROL VALVES

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

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

2.08 CONTROL WIRE

electrician. It shall not be on a switched circuit.

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 Pentite or snap connectors C. All wires shall be labeled with the valve number at the controller and

D. 120 wiring shall be as required by local code and installed by an

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

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

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

- Install 3" below grade.
- 2.12 SPRINKLER HEADS
- 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

valve.

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

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.

1.01 SCOPE A. Work Included: Perform all work necessary and required for the observation meeting. construction of the project as indicated. Such work includes but is not 1.15 MAINTENANCE limited to the following:

1. Site preparation including weed and rubble removal. 2. Laboratory soil analysis. 3. Furnishing and spreading topsoil. 4. Finish grading of planted areas. 5. Soil amendment. 6. Planting.

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

1. Section 02750: Underground Irrigation System.

| 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:

12 inches

required.

3.04 SLEEVING

irrigation lines and/or wires

swales, but kept in ground cover areas.)

C. Use Teflon tape on all threaded fittings.

3.06 IRRIGATION CONTROL VALVES:

relation to finish grade as follows:

2. 1/2" with seeded lawn

3. 1 1/2" with sod lawr

4. 2" with plant beds

convenient access.)

a minimum of 3".

box must not rest on the piping.)

3.07 SPRINKLER HEADS

with approval from the landscape architect.

3.09 AUTOMATIC CONTROLLER

recommendations and as per local code.

3.10 CONTROL WIRING

A. Install heads as per details.

installed as per detail.

valve box.

and other hydrants.

B. Test as specified

before testing.

rock free backfill.

planted areas.

SECTION 02800

LANDSCAPING

PART 1 GENERAL

3.12 PRESSURE TESTS

pressure and visually check all fittings.

D. Dress off all areas to finish grades.

END OF SECTION 02750

3.13 BACKFILL AND COMPACTING

1. 1" above grade when no mulch is used

between PVC pipe and metal valves or pipe with threaded fittings

pipe manufacturer's specifications and shall be of an adequate size

rest on any part of valve and valves must not be buried too deep for

B. Grounding of Irrigation controller shall be as per manufacturer's

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

B. Cap all valve openings and test the mainline pipe at full line working

rubbish. All pipe shall have a bedding of 2" under and 4" over of select,

and so placed as to take all thrust created by the maximum internal

3.05 PIPE LINE ASSEMBLY

using PVC male adapters.

water pressure.

1. Over PVC pipe on pressure side of irrigation control valve, control wires and guick coupling valves: 18 inches. 2. Over pipe on non-pressure side of irrigation control valve:

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

A. Where pipes or wires must be installed under paving place them in sleeves with a 24" minimum depth and sufficient size to accommodate

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

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 dir 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

D. Thrust blocks shall be installed where the irrigation main changes direction as at ells 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

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

B. The contractor shall paint on the cover of each valve box in 2" white stenciled letters with the value number as designated on the plan. C. Clearance between the highest part of the valve and the bottom of the valve box lid shall be 2" minimum and 4" maximum. (Lid must not

D. Clearance between the top of the piping and the bottom of the valve box and/or the valve box knock outs, shall be a minimum of 2". (The

E. Clearance between the valve and the sides of the valve box shall be

B. Nozzles may be changed to control precipitation rate and G.P.M.

3.08 QUICK COUPLING VALVES: Quick coupling valves to be

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

A. Install control wires with sprinkler mains and laterals in common trenches wherever possible. Lay to the side of pipe line. Provide looped 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 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

C. Install one continuous ground wire and one extra wire to all valves. 3.11 CLOSING OF PIPE AND FLUSHING OF LINES

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

A. After system is operating and required tests and inspections have been made, backfill excavations and trenches with clean soil, free of

B. Backfill for all trenches, regardless of the type of pipe covered, shall

be compacted to minimum 95% density under pavements, 85% under

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

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

C. Use Teflon tape on all threaded fittings.

D. Thrust blocks shall be installed where the irrigation main changes direction as at ells 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 B Related Work: The following items of associated work are included in other sections of these specifications.

1. Section 02750: Underground Irrigation System.

C. By Others: The following items of work will be performed by others and are not included in the contract.

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 after acceptance of material. nspections 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. Submit written request for observation 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.

1.04 COORDINATION: Contractor shall coordinate and cooperate with other contractors to enable the work to proceed as rapidly and efficiently as possible

1.05 INSPECTION OF SITE: Contractor shall visit site and inspect conditions as they exist prior to submitting bid. Site dimensions, water pressure and general conditions shall be verified prior to beginning of any

1.06 INTENT OF DRAWINGS AND SPECIFICATIONS: It is the intent of the drawings and specifications to provide planting with plants in vigorous growth, ready for owner's use. Any items not specifically shown in the Irawings or called for in the specifications, but normally required to conforn with such intent, are to be considered as part of the work. Written dimensions take precedence over scale dimensions.

1 07 APPROVAL: Wherever the terms "approve", "approval" or "approved" are used herein, they mean approval of landscape architect in

1.08 PRODUCT HANDLING

A. Furnish standard products in manufacturer's standard containers bearing original labels showing quantity, analysis and name of manufacturer.

B. Store products with protection from weather or other conditions which would damage or impair the effectiveness of the product.

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

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

C. If existing plants are damaged during construction, contractor shall replace such plants of the same species and size as those damaged at no ation of extent of damage and value of damage 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

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.

CLEAN-UP: Keep all areas of work clean, neat and orderly at all times. Keep all 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 precludes establishing proper drainage shall be brought to the attention of the landscape architect, owner or his representative for correction or the relief of responsibility.

1.12 SAMPLES, TESTS AND SUBMITTALS: Landscape architect reserves the right to take and analyze samples of materials for conformity to specifications at any time. Contractor shall furnish samples and/or manufacturer's specification sheets for any construction material or item upon request by the landscape architect. Rejected materials shall be immediately removed from the site at contractor's expense. The cost of

testing materials not meeting specifications shall be paid by the contractor. 1.13 PROJECT SCHEDULE: Contractor shall submit for approval a complete work schedule indicating tentative dates for inspections. This schedule is to be submitted prior to the job start meeting.

1.14 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 3. Planting - Fine Grading and Soil Preparation The fine grading and soil preparation of all planting areas must be observed

prior to installation of plant material. C. Plant Material Landscape architect shall observe plant material for quality prior to planting. Plants shall be subject to observation and approval at place of growth or upon delivery for quality, size and variety; such approval shall not impair the right of inspection and condition of ball and roots, latent defects or injuries. Rejected plants shall be removed immediately from site.

D. Plant Layout Layout plants (in containers) in locations shown on drawings. Landscape architect will check location of plants in the field and adjust to exact position before planting begins. Landscape architect reserves the right to refuse inspection if, in his opinion, an insufficient quantity of plants is available for lavout check.

E. 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. F. Final Observation Final Observation will be after the 90 calendar day maintenance period and all required work is completed. Please give 1 week notice for this

A. All landscape areas shall be substantially weed free at beginning of maintenance period and at final acceptance

B. Begin maintenance after each plant and each portion of lawn or ground

cover is installed and continue until Final Acceptance.

landscape architect and shall be for 90 calendar days.

C. Maintenance Period shall begin upon inspection and approval by

2.07 ROOT BARRIERS

A. "Root Solutions" control planter, or equal. Install according to local code and manufacturer's instructions. Use in all areas where tree is

C. Tree Ties: Corded rubber tree ties, 18" without wire.

stakes through the rootball). Use 2 stakes per tree.

within 7 feet of any walkway, wall, building or other structural edge. Linear type barrier shall be used in all cases. Linear barriers shall be installed a minimum of 7 feet to either side of tree's relative position to sidewalk or structural edge.

B. All root barriers to be 24" deep, interlocking linear panels. C. All root barriers shall be installed 4" from the back of curb or other hardscape edge with 4" of 3/4" gravel drain rock 24" deep on the root barrier

side away from the tree. 2.08 WATER: Furnished by owner. Transport as required.

2.09 MULCH: Fir bark 1" to 2", free of sticks, dirt, dust and other debris, as approved, to a depth of 3" to be placed in all landscaped areas except where flats have been planted or annual beds and drainage swales Fir bark, 1/2" minus, free of sticks, dirt, dust and other debris, as approved. to a depth of 1" to be placed in all landscaped areas where flats have been planted or in annual beds. Shredded bark mulch shall be used in conjunction with jute netting on all slopes greater than 6:1.

2.10 PRE-EMERGENT WEED CONTROL: All herbicides used to control weeds shall comply with all governmental regulations and shall be appropriate to weed species. Contact the local county agricultural agent or pest control advisor for proper herbicide recommendations. Follow manufacturers instructions carefully

PART 3 EXECUTION

D. Maintenance of new planting shall consist of watering, cultivating,

saucer, and furnishing and applying such sprays and fertilizers as are

necessary to keep the plants free of insects and disease and in thriving

for duration of maintenance period Maintenance includes temporary

become damaged or injured, treat or replace as directed by landscape

1.16 FINAL ACCEPTANCE: Work under this Section will be accepted

by landscape architect upon satisfactory completion of all work, including

maintenance, but exclusive of replacement of plant materials under the

Warranty Period. Upon Final Acceptance, the owner will assume

A. Contractor shall warrant that all plant material except annual color

planted under this contract will be healthy and in flourishing condition of

B. Any delay in completion of planting operations which extends the planting

period shall extend the Maintenance and Warranty Periods correspondingly

permit, all dead plants and all plants not in vigorous, thriving condition, as

Period. Plants shall be free of dead or dying branches and branch tips, and

closely match adjacent specimens of the same species and shall be subject

owner, vandalism, or acts of god, etc., during Warranty Period. Report such

shall bear foliage of a normal density, size and color. Replacements shall

D. Contractor shall not be held responsible for failures due to neglect by

A. Plant Quality: Plants shall be fresh, well established, vigorous, of norma

be healthy and extend to the bottom and sides of the container, and rooting

shall be extensive enough to hold the rood ball together during planting, but

not so dense as to discourage root establishment into surrounding soils.

distorted growth. No trees will be accepted that will not stand on their own

inspected prior to planting and may be rejected if noted quality standards

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

C. Plant Spacing: No planting, except for ground covers, espaliers and vines

Roots shall not show any signs of restriction due to kinked, circular, or

trunks after the nursery stakes have been removed. All plants will be

B. Plant Quantity: Plant materials shall be furnished in size, quantities

shall be placed closer than two feet to pavement, structures or other

30% of the radius of the sprinkler throw as specified by the sprinkler

2.02 LANDSCAPE AREA PLANTING SOILS

D. Soil Fertility: Adequate amounts of nitr

landscape specifications

healthy plant life.

to a depth of 12 inches.

site or the topsoil is wet.

percent by weight

horticultural suitability.

of landscape architect.

residuals.

entranced

2.05 SOIL AMENDMENTS

2.06 STAKING MATERIALS

2.04 COMMERCIAL FERTILIZER

B. Post Planting/Surface Application Fertilizer:

inorganic fertilizer amendments prior to planting.

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

andscape edges. Ground covers adjacent to pavement, structures or

landscape edges shall be no closer to these than 75% of their spacing. No

manufacturer at the optimum operating pressure unless approved by the

B. All landscape area planting soils shall be equal or coarser in texture to

larger than 1 in. in size, sub-soil, refuse, plants or roots, clods, weeds,

the original on-site topsoil. All landscape area soils shall be free from stones

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 equa

texture and quality as determined by approved soil laboratory analysis.

C. Soil Chemistry: All planting soils shall meet the following soil chemistry

Reaction - pH of saturated paste = 5.5 to 7.5

Sodium Adsorption Ratio (SAR) = <6.0

Chloride = <5.0 milliequivalents per liter

Boron (Parts Per Million in extract) = <1.0

Sodium = <5.0 millieguivalents per liter

calcium, and magnesium shall be available to support healthy plant growth.

Soil shall be analyzed for fertility and any deficiencies shall be treated with

E. Lime Treated Soil: If lime is used for soil compaction in landscape areas,

all lime treated soil shall be removed to a depth equal or more to the depth

2.03 PREPARATION OF LANDSCAPE AREA PLANTING SOILS

A. Prior to any work in planting areas all construction debris shall be

B. Structural fill and/or compacted engineered fill and/or any other soil

and 2.2-C, shall be excavated and removed to a depth of 12 inches in

landscape planting areas by the landscape contractor. Replacement

deemed unsuitable for horticultural use as defined by Sections 2.2-A, 2.2-B

planting soil shall be equal or coarser to the on-site soil in texture. This may

be obtained through stockpiling of existing topsoil or imported soil of equa

quality as determined by approved soil laboratory analysis. It shall be free

from stones larger than 1 in. in size, sub-soil, refuse, plants or roots, clods,

weeds, sticks, or other extraneous material. It shall be capable of sustaining

C All landscape area soils shall be ripped in two directions to a depth of 12

accomplished by small backhoe or manually to thoroughly cultivate the soil

evenly over the site. Minimum depth of friable soil shall be 12 inches deep in

D. Landscape area planting soil, imported or otherwise, shall be spread

all landscape planting areas and finish surface shall be within one inch of

finish grade. Import topsoil shall be supplied by the landscape contractor to

meet this requirement and shall meet all specifications as defined Sections

compacted to 85%± relative compaction. Never apply the topsoil when the

2.2-A, 2.2-B and 2.2-C. Imported landscape area planting soils shall be

A. Pre-plant fertilizer for soil incorporation shall consist of the following

6% Nitrogen 20% Phosphoric Acid

20% Potash

16% Nitrogen

8% Potash

8% Phosphoric Acid

C. Fertilizer requirement is subject to change based on soil testing for

Organic Amendment: Shall be nitrolized and derived from fir wood

Chemical Amendments: As required by soil analysis with approval

Physical Properties: 1/2" minus fir bark, nitrolized fortified or

Contractor shall use staking materials necessary to meet

requirements of specifications, subject to approval of landscape architect.

Tree Stakes: 2" x 2" X 8' lodgepole pine pressure treated stakes

Construction heart grade. (Do not drive

inches. In areas not accessible by large equipment, ripping shall be

of the treated soil. Soil shall be replaced with import soil as described in the

Salinity (Electrical conductivity in mmho/cm) = <4.0

plants that would obstruct the sprinkler coverage shall be placed closer than

habit of growth free of disease insects insect eggs and larvae Roots shall

C. Replace, without cost to owner, and as soon as weather conditions

determined by landscape architect during and at the end of Warranty

1.17 WARRANTY PERIOD AND REPLACEMENTS

active growth one year from date of Final Acceptance.

architect at no additional cost to owner.

responsibility for maintenance of the work.

to all requirements of this specification.

conditions to landscape architect in writing.

PART 2 MATERIALS

2.01 PLANTS

are not met.

areas at the spacing shown.

landscape architect.

parameters.

weeding, fertilizing, mulching, re-staking, tightening and repairing of guys,

resetting plants to proper grades or upright position, restoration of the plant

F Protect planting areas and plants at all times against damage of all kinds

protection fences barriers and signs as required for protection. If any plants

3.01 HANDLING OF PLANT MATERIAL

A. Canned stock shall be removed carefully after cans have been cut on two sides. Do not use spade to cut cans. Do not lift or handle container plants by tops, stems, or trunks at any time.

3.02 PREPARATION OF SUB-GRADE AND/OR EXISTING SOILS A. Prior to any work in planting areas by landscape contractor, the general

contractor shall clear all construction debris from planting areas. B. Soil shall be ripped in two directions to a depth of 12". In areas not

backhoe or manually. 3.03 SPREADING OF TOPSOIL

A After sub-grade has been prepared, the landscape contractor shall be

responsible for furnishing and installing topsoil to within (1) inches of finish grade.

B. Topsoil should be spread evenly over the site. Minimum depth of friable to be 12 inches within five feet of all structures and 24 inches deep in all other areas. If this condition does not exist on the site, the balance of topsoi shall be imported by the landscape contractor to meet this requirement. Import soil shall be compacted to 85% relative compaction. Never apply the topsoil when the site or the topsoil is wet.

3.04 AMENDMENT OF SOIL

A. Apply amendments to all planting and lawn areas at the following rates per 1,000 sq.ft. at zero to eight inches depth:

> 20 pounds pre-plant fertilizer Additional amendments as determined from soil test

B. Incorporate thoroughly with top 8 in. soil layer and remove stones over 1 in. in diameter, roots, clods, weeds, and other extraneous material. Bring amended soil to finish grades and elevations shown on Contract Documents. Do not work soils under frozen or muddy conditions

3.05 SURFACE DRAINAGE OF PLANTED AREAS: Landscape Contractor shall bear final responsibility for proper surface drainage of planted areas. Any discrepancy in the drawings or specifications, obstructions on the site, or prior work done by another party, which contractor feels precludes establishing proper drainage shall be bought to the attention of landscape architect in writing for correction or relief of said responsibility.

3.06 EXCAVATION OF PLANTING AREAS A. Excavate container grown tree, shrub, and vine pits to the following dimensions:

1. Two times as large in diameter as the original growing container (Rhododendron and azaleas 3 times the diameter) The depth should be equal to the root ball height.

Scarify all sides of planting hole. Auger through structural fill, compacted soil or hardpan if encountered or as directed by landscape architect

3.07 DRAINAGE, DETRIMENTAL SOIL AND OBSTRUCTIONS A. Notify landscape architect in writing of all soil or drainage conditions

contractor considers detrimental to growth of plant material. State condition and submit proposal and cost estimate for correcting condition. 3.08 PLANTING OPERATIONS

A. Protect plants at all times from sun or drying winds. Plants that cannot be planted immediately on delivery shall be kept in the shade, well protected, and shall be kept well watered.

> 2/3 Existing Soil 1/3 Organic Amendments

C. Prior to planting test hole for drainage by filling with water, if hole does not drain within four hours, do not plant. Contact landscape architect.

B. Planting Soil (excluding trees):

D. Use planting soil to backfill plant pits. Crown of root ball shall be 1" above finished grade. Set plant plumb and brace rigidly in position until planting soil has been tamped solidly around the ball and roots. When plant pits have been backfilled approximately 2/3 full, water thoroughly, saturating rootball, before installing remainder of the planting soil to top of pit, eliminating all air pockets.

E. Smooth planting areas to conform to specified grades after full settlement has occurred.

F. Form saucer with 4 in. high berm around tree and shrub pits 12 inches wider that the root ball diameter.

G. Water all plants immediately after planting.

3.09 STAKING

plumb after staking.

or equal.

material.

Avoid air pockets.

approved equal.

friable condition

from leaves of plant materials.

3.11 BIOSWALE SOD

3.12 SOD BED PREPARATION

A. Roll amended soil with 200 lb. water ballast roller.

C. Attach tree straps as per details.

3.11 GROUND COVER PLANTING

1000 sq.ft. Water bed thoroughly after fertilizer application. Wash all fertilizer

accessible by large equipment, ripping shall be accomplished by small

8 cubic yards organic amendment as specified.

A. Staking shall be completed immediately after planting. Plants shall stand

B. Locate stakes in position relative to the prevailing wind as shown on

D. Need for auxiliary stake shall be determined in the field by the landscape architect and shall only be used when trees are exceptionally spindly. If necessary, place auxiliary stake adjacent to tree leader and tie with polyethylene nursery tape at 10 inch intervals. Auxiliary stake to be bamboo

3.10 PRUNING: Prune plants only at the time of planting and according to standard horticultural practices to preserve the natural

character of the plant. Trees shall be pruned at the direction of the landscape architect in accordance with current I.S.A. Standards. Remove all dead wood, suckers and broken or badly bruised branches. Use only clean sharp tools. Do not prune to compensate for root loss. Landscape contractor is responsible for replacement of all improperly pruned plant

A. Plant ground cover plant at optimum depth for proper growth. Do not bury deeper than the original soil level which was established in the nursery can.

B. Apply post plant or surface application fertilizer at the rate of 5 lbs per

A. To be "Biofiltration Sod" as produced by Delta Bluegrass Company, or

B. Sod immediately thereafter, provided the sod bed has remained in a

3.13 SODDING OPERATIONS

A. Sod must be delivered to site within 24 hours of cutting. Lay sod so that adjacent strips butt tightly with no spaces between strips. Lay sod on slopes and mounds with strips parallel to contours. Stagger joints and do not overlap seams. Sodded areas shall be flush with adjoining seeded areas.

B. Tamp and roll sod thoroughly to make contact with sod bed. C. Apply post planting fertilizer at a rate of 5 lbs. per 1000 s.f.

D. Water sod thoroughly.

E. No portion of the sod lawn will be allowed to dry out until the sod is well

F. Supplemental Temporary Irrigation: Contractor shall be responsible for temporary supplemental irrigation of all bio-retention areas through the sod establishment period. Method of irrigation application is discretionary and may include hand watering or installation of a temporary, above grade overhead spray circuit. Any replacement of sod necessary for loss or damage to sod due to lack of water shall be the responsibility of the contractor at contractor's expense.

PART 4 TREE PRESERVATION

4.01 CONSTRUCTION IMPACT: The impact of construction within the project area will be minimal when appropriate protection measures are implemented. The following specifications have been developed to minimize impact on the area.

A. The landscape architect shall be called to inspect and verify staked location of trenches within the project zone. No trenching, pruning or tree removal shall take place without the approval of the landscape architect.

B. The smallest possible equipment shall be used for all construction work to minimize damage to the existing trees.

C. If the installation of storm drains or irrigation lines is to occur within the drip line of any major tree, a professional arborist shall be called upon to inspect the tree and determine whether head pruning will be necessary to balance the projected loss of roots.

D. Following completion of grading, all soil shall be brought back to original grade. No additional soil shall be allowed to remain at the base of any shrub or tree, and grade shall not be changed to allow collection of surface drainage at the base of any shrub or tree.

E. Minimal disturbance to the natural setting is to occur during trenching and installation of pipe lines. The mainlines are to be set 18" below grade. F. Trenches shall be the minimum width possible to accommodate the

specified diameter of pipe. G. Existing foliage shall be preserved wherever possible. When it becomes necessary to remove any limbs from remaining trees the following

quidelines shall be followed: No branches shall be damaged or broken Prior to installation of lines it shall be determined what foliage

needs to be removed and pruning shall be done using a sharp saw. 3. Limbs shall be removed back to the nearest lateral branch or trunk, using a flush cut 4. All cuts shall be painted with a commercial asphaltic compound designed specifically for covering pruning wounds.

H. No roots over 2" in diameter shall be torn or damaged. When it becomes necessary to remove any major roots over 2" in diameter, a sharp saw shall be used and the wound treated as described in G-4 above.

I. Following the installation of the pipelines all soil from the trenches shall be brought back to the original grade. No soil shall be allowed to remain at the base of any tree or shrub, and grade shall not be changed to allow collection of surface drainage at the base of any tree or shrub.

J. All pruning and plant debris associated with the installation shall be removed from the site and disposed in an appropriate manner.

4.02 IMPACT OF GRADING :Protection of all existing trees within the construction zone is to be given the highest priority. As described in the following section, the trees within the project area will be protected by a temporary construction fence during all construction phases, including rough and final grading. Grade changes will be prevented around the base of these trees by this fence, and the impact of grading will be negligible as it will occur outside the drip line of all trees.

4.03 MEASURES TO PROTECT VEGETATION FROM CONSTRUCTION ACTIVITIES: A minimum six foot cyclone fence shall be erected aRound the drip line of all trees located within the project area prior to the beginning of any construction activities, including grading. General Contractor shall direct all equipment, subcontractors and personnel to remain outside the fenced area. Warning signs shall be posted on the fence indicating a protected area. As shown on the irrigation plan the cyclone fence will be placed around all existing trees to be saved. The purpose of this fence is to discourage the parking of vehicles under the trees and prevent grading or storage of material too close to the tree trunks.

END OF SECTION 02800

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RLA #2800

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4/10/23 DATE: MLA JOB #: 2020-28 SCALE: N/A

DRAWN: DM



L4 *O*F

DESCRIPTION 4/10/23 Revise Irrigation & Planting

REV NO. DATE