

GENERAL

A. QUALIFICATIONS OF LANDSCAPE CONTRACTOR

- A. QUALIFICATIONS OF LANDSCAPE CONTRACTOR
1. ALL LANDSCAPE WORK SHOWN ON THESE PLANS SHALL BE PERFORMED BY A SINGLE FIRM SPECIALIZING IN LANDSCAPE PLANTING.
2. A LIST OF SUCCESSFULLY COMPLETED PROJECTS OF THIS TYPE, SIZE AND NATURE MAY BE REQUESTED BY THE OWNER FOR FURTHER QUALIFICATION MEASURES.
3. THE LANDSCAPE CONTRACTOR SHALL HOLD A VALID CONTRACTOR'S LICENSE ISSUED BY THE APPROPRIATE LOCAL JURISDICTION.
- B. SCOPE OF WORK
1. WORK COVERED BY THESE SECTIONS INCLUDES THE FURNISHING AND PAYMENT OF ALL MATERIALS, LABOR, SERVICES, EQUIPMENT, LICENSES, TAXES AND ANY OTHER ITEMS THAT ARE NECESSARY FOR THE EXECUTION, INSTALLATION AND COMPLETION OF ALL WORK, SPECIFIED HEREIN AND / OR SHOWN ON THE LANDSCAPE PLANS, NOTES, AND DETAILS.
2. THE WORK SHALL BE PERFORMED IN ACCORDANCE WITH ALL APPLICABLE LAWS, CODES AND REGULATIONS REQUIRED BY AUTHORITIES HAVING JURISDICTION OVER SUCH WORK, INCLUDING ALL INSPECTIONS AND PERMITS REQUIRED BY FEDERAL, STATE AND LOCAL AUTHORITIES IN SUPPLY, TRANSPORTATION AND INSTALLATION OF MATERIALS.
3. THE LANDSCAPE CONTRACTOR SHALL VERIFY THE LOCATION OF ALL UNDERGROUND UTILITY LINES (WATER, SEWER, ELECTRICAL, TELEPHONE, GAS, CABLE, TELEVISION, ETC.) PRIOR TO THE START OF ANY WORK.

PRODUCTS

- A. ALL MANUFACTURED PRODUCTS SHALL BE NEW.
CONTAINER AND BALLED-AND-BURLAPPED PLANTS:
- B. 1. ALL PLANT MATERIAL SHALL BE FLORIDA NO. 1 OR BETTER ACCORDING TO GRADES AND STANDARDS FOR NURSERY PLANTS, CURRENT EDITION, OF THE FLORIDA MANUAL OF INSTALLATION.
2. FURNISH NURSERY-GROWN PLANTS COMPLYING WITH ANSI Z601-2014. PROVIDE WELL-SHAPED, FULLY BRANCHED, HEALTHY, VIGOROUS STOCK FREE OF DISEASE, INSECTS, EGGS, LARVAE, AND DEFECTS SUCH AS KNOTS, SUN SCALD, INJURIES, ABRASIONS, AND DISFIGUREMENT. ALL PLANTS WITHIN A SPECIES SHALL HAVE SIMILAR SIZE, AND SHALL BE OF A FORM TYPICAL FOR THE SPECIES. ALL TREES SHALL BE OBTAINED FROM SOURCES WITHIN THE PROJECT SITE, AND WITH SIMILAR CLIMATIC CONDITIONS.
3. ROOT SYSTEMS SHALL BE HEALTHY, DENSELY BRANCHED ROOT SYSTEMS, NON-OT-BOUND, FREE FROM ENCIRCLING AND/OR GIRDLING ROOTS, AND FREE FROM ANY OTHER ROOT DEFECTS (SUCH AS J-SHAPED ROOTS).
4. IF A PLANT DEEMED UNACCEPTABLE BY THE LANDSCAPE ARCHITECT OR OWNER SHALL BE IMMEDIATELY REMOVED FROM THE SITE AND SHALL BE REPLACED WITH AN ACCEPTABLE PLANT OF LIKE TYPE AND SIZE AT THE CONTRACTOR'S OWN EXPENSE. ANY PLANTS APPEARING TO BE UNHEALTHY, EVEN IF DETERMINED TO STILL BE ALIVE, SHALL NOT BE ACCEPTED. THE LANDSCAPE ARCHITECT AND OWNER SHALL BE THE SOLE JUDGES AS TO THE ACCEPTABILITY OF PLANT MATERIAL.
5. ALL TREES SHALL BE PLANTED IN THE SAME FORM, UNLESS OTHERWISE SPECIFIED. TREES WITH CENTRAL LEADERS WILL NOT BE ACCEPTED IF LEADER IS DAMAGED OR REMOVED. PRUNE ALL DAMAGED TWIGS AFTER PLANTING.
6. CALIPER MEASUREMENTS FOR STANDARD (SINGLE TRUNK) TREES SHALL BE AS FOLLOWS: SIX INCHES ABOVE THE ROOT FLARE FOR TREES UP TO AND INCLUDING FOUR INCHES IN CALIPER, AND TWELVE INCHES ABOVE THE ROOT FLARE FOR TREES EXCEEDING FOUR INCHES IN CALIPER.
7. MULTI-TRUNK TREES SHALL BE MEASURED BY THEIR OVERALL HEIGHT, MEASURED FROM THE TOP OF THE ROOT BALL.
8. ANY TREE OR SHRUB SHOWN TO HAVE EXCESS SOIL PLACED ON TOP OF THE ROOT BALL, SO THAT THE ROOT FLARE HAS BEEN COMPLETELY COVERED, SHALL BE REJECTED.
- C. SOD: PROVIDE WELL-ROOTED SOD OF THE VARIETY NOTED ON THE PLANS. SOD SHALL BE CUT FROM HEALTHY, MATURE TURF WITH WELLS-ROOTED TUCKER TOE. EACH PALL OF SOD SHALL BE ACCOMPANIED BY A CERTIFICATE FROM SUPPLIER STATING THE COMPOSITION OF THE SOD.
- D. TOPSOIL: SANDY TO CLAY LOAM TOPSOIL, FREE OF STONES LARGER THAN 1/2 INCH, FOREIGN MATTER, PLANTS, ROOTS, AND SEEDS.
- E. COMPOST: WELL-COMPOSTED, STABLE, AND WEED-FREE ORGANIC MATTER, pH RANGE OF 5.5 TO 8; MOISTURE CONTENT 35% TO 55 PERCENT BY WEIGHT; 100 PERCENT PASSING THROUGH 3/4-INCH SIEVE; SOLUBLE SALT CONTENT OF 5 TO 10 DECISIMENS/ML; NOT EXCEEDING 0.5 PERCENT INERT CONTAMINANTS AND FREE OF SUBSTANCES TOXIC TO PLANTINGS. NO MANURE OR ANIMAL-BASED PRODUCTS SHALL BE USED.
- F. FERTILIZER: GRANULAR FERTILIZER CONSISTING OF NITROGEN, PHOSPHORUS, POTASSIUM, AND OTHER NUTRIENTS IN PROPORTIONS, AMOUNTS, AND RELEASE RATES RECOMMENDED IN A SOIL REPORT FROM A QUALIFIED SOIL-TESTING AGENCY (SEE BELOW).
- G. MULCH: SIZE, TYPE, AND DEPTH AS INDICATED ON PLANS. FREE FROM DELETERIOUS MATERIALS AND SUITABLE AS A TOP DRESSING OF TREES AND SHRUBS.
- H. TREE STAKING AND GUYING
1. STAKES: 6' LONG GREEN METAL T-POSTS.
2. GUY AND TIE WIRE: ASTM A 441, CLASS 1, GALVANIZED-STEEL WIRE, 2-STRAND, TWISTED, 0.106 INCH DIAMETER.
3. PROTECT CHAFING GARD: REINFORCED NYLON OR CANVAS AT LEAST 1-1/2 INCH WIDE, WITH GROMMETS _ TO STRAP TREE TRUNKS FROM DAMAGE.
- I. PRE-EMERGENT HERBICIDES: PRE-EMERGENT, NON-STAINING PRE-EMERGENT HERBICIDE THAT IS LABELED FOR THE SPECIFIC ORNAMENTALS OR TURF ON WHICH IT WILL BE UTILIZED. PRE-EMERGENT HERBICIDES SHALL BE APPLIED PER THE MANUFACTURER'S LABELED RATES.

METHODS

1. **SOIL PREPARATION**
 - a. BEFORE STARTING WORK, THE LANDSCAPE CONTRACTOR SHALL VERIFY THAT THE GRADE OF ALL LANDSCAPE AREAS ARE WITHIN +0.0' 1" OF FINISH GRADE. THE CONTRACTOR SHALL NOTIFY THE OWNER IMMEDIATELY SHOULD THERE BE ANY DISCREPANCIES EXIST.
2. **SOIL TESTING:**
 - a. AFTER FINISH GRADES HAVE BEEN ESTABLISHED, CONTRACTOR SHALL HAVE SOIL SAMPLES FROM THE PROJECT'S LANDSCAPE AREAS TESTED BY AN ESTABLISHED SOIL TESTING LABORATORY. EACH SAMPLE SUBMITTED TO THE LAB SHALL CONTAIN NO LESS THAN ONE QUART OF SOIL, TAKEN FROM BETWEEN THE SOIL SURFACE AND 6" DEPTH. IF NO SAMPLE LOCATIONS ARE INDICATED ON THE PLANS, THE CONTRACTOR SHALL TAKE A MINIMUM OF THREE SAMPLES FROM VARIOUS REPRESENTATIVE LOCATIONS FOR TESTING.
 - b. THE CONTRACTOR SHALL HAVE THE SOIL TESTING LABORATORY PROVIDE RESULTS FOR THE FOLLOWING: SOIL TEXTURAL CLASS, GENERAL SOIL FERTILITY, pH, ORGANIC MATTER CONTENT, SALT (CEC), LIME, SODIUM ADSORPTION RATIO (SAR) AND BORON CONTENT.
 - c. THE CONTRACTOR SHALL ALSO SUBMIT THE PROJECT'S PLAN LIST TO THE LABORATORY ALONG WITH THE SOIL SAMPLES.
 - d. THE SOIL REPORT PRODUCED BY THE LABORATORY SHALL CONTAIN RECOMMENDATIONS FOR THE FOLLOWING (AS APPROPRIATE): SEPARATE SOIL PREPARATION AND BACKFILL MIX RECOMMENDATIONS FOR GENERAL ORNAMENTAL PLANTS, XERIC PLANTS, TURF, AND NATIVE SEED, AS WELL AS PRE-PLANT FERTILIZER APPLICATION AND RECOMMENDATIONS FOR ANY OTHER SOIL RELATED ISSUE. THE REPORT SHALL ALSO PROVIDE A FERTILIZER PROGRAM FOR THE ESTABLISHMENT PERIOD AND FOR LONG-TERM MAINTENANCE.
3. THE CONTRACTOR SHALL INSTALL SOIL AMENDMENTS AND FERTILIZERS PER THE SOILS REPORT RECOMMENDATIONS. ANY CHANGE IN COST DUE TO THE SOIL REPORT RECOMMENDATIONS, EITHER INCREASE OR DECREASE, SHALL BE SUBMITTED TO THE OWNER WITH THE REPORT.
4. **FOR BIDDING PURPOSES ONLY** THE SOIL PREPARATION SHALL CONSIST OF THE FOLLOWING:
 - a. TURF: INCORPORATE THE FOLLOWING AMENDMENTS INTO THE TOP 8" OF SOIL BY MEANS OF ROTOTILLING AFTER CROSS-RIPPING:
 - i. NITROGEN STABILIZED ORGANIC AMENDMENT - 4 CU. YDS. PER 1,000 S.F.
 - ii. PREPLANT TURF FERTILIZER (PER 20-10-10 OR SIMILAR, SLOW RELEASE, ORGANIC) - 15 LBS PER 1,000 S.F.
 - iii. "CLAY BUSTER" OR EQUAL - USE MANUFACTURER'S RECOMMENDED RATE
 - b. TREES, SHRUBS, AND PERENNIALS: INCORPORATE THE FOLLOWING AMENDMENTS INTO THE TOP 8" OF SOIL BY MEANS OF ROTOTILLING AFTER CROSS-RIPPING:
 - i. NITROGEN STABILIZED ORGANIC AMENDMENT - 4 CU. YDS. PER 1,000 S.F.
 - ii. 12-12-12 FERTILIZER (OR SIMILAR, ORGANIC, SLOW RELEASE) - 10 LBS. PER CU. YD.
 - iii. "CLAY BUSTER" OR EQUAL - USE MANUFACTURER'S RECOMMENDED RATE
 - iv. IRON SULPHATE - 2 LBS. PER CU. YD.
5. IN THE CONTEXT OF THESE PLANS, NOTES, AND SPECIFICATIONS, "FINISH GRADE" REFERS TO THE FINAL ELEVATION OF THE SOIL SURFACE (NOT TOP OF MULCH) AS INDICATED ON THE GRADING PLANS.
 - a. BEFORE STARTING WORK, THE LANDSCAPE CONTRACTOR SHALL VERIFY THAT THE ROUGH GRADES OF ALL LANDSCAPE AREAS ARE WITHIN +0.0' 1" OF FINISH GRADE. SEE SPECIFICATIONS FOR MORE DETAILED INSTRUCTION ON TURF AREA AND PLANTING BED PREPARATION.
 - b. CONSTRUCT AND MAINTAIN FINISH GRADES AS SHOWN ON GRADING PLANS, AND CONSTRUCT AND MAINTAIN SLOPES AS RECOMMENDED BY THE GEOTECHNICAL REPORT. ALL LANDSCAPE AREAS SHALL HAVE POSITIVE DRAINAGE AWAY FROM STRUCTURES AT THE MINIMUM SLOPE SPECIFIED IN THE REPORT AND ON THE GRADING PLANS. AREAS OF POTENTIAL PONDING SHALL BE REGRADED TO BLEND IN WITH THE SURROUNDING GRADES AND ELIMINATE PONDING POTENTIAL.
 - c. THE LANDSCAPE CONTRACTOR SHALL DETERMINE WHETHER OR NOT THE EXPORT OF ANY SOIL WILL BE NEEDED, TAKING INTO ACCOUNT THE ROUGH GRADE PROVIDED, THE AMOUNT OF SOIL AMENDMENTS TO BE ADDED (**BASED ON A SOIL TEST**, PER SPECIFICATIONS), AND THE FINISH GRADES TO BE ESTABLISHED. ENSURE THAT THE FINISH GRADE IN SHRUB AREAS IMMEDIATELY ADJACENT TO WALKS AND OTHER WALKING SURFACES, AS WELL AS SOIL AMENDMENTS, IS 1" BELOW THE ADJACENT FINISH SURFACE, IN ORDER TO ALLOW FOR PROPER MULCH DEPTH. TAPER THE SOIL SURFACE TO MEET FINISH GRADE, AS SPECIFIED ON THE GRADING PLANS, AT APPROXIMATELY 18" AWAY FROM THE WALKS.
 - d. ENSURE THAT THE FINISH GRADE IN TURF AREAS IMMEDIATELY ADJACENT TO WALKS AND OTHER WALKING SURFACES, AFTER INSTALLING SOIL AMENDMENTS, IS 1" BELOW THE FINISH SURFACE OF THE WALKS. TAPER THE SOIL SURFACE TO MEET FINISH GRADE, AS SPECIFIED ON THE GRADING PLANS, AT APPROXIMATELY 18" AWAY FROM THE WALKS.
 - e. SHOULD ANY CONFLICTS AND/OR DISCREPANCIES ARISE BETWEEN THE GRADING PLANS, GEOTECHNICAL REPORT, THESE NOTES AND PLANS, AND ACTUAL CONDITIONS, THE CONTRACTOR SHALL IMMEDIATELY BRING SUCH ITEMS TO THE ATTENTION OF THE LANDSCAPE ARCHITECT, GENERAL CONTRACTOR, AND OWNER.
6. ONCE SOIL PREPARATION IS COMPLETE, THE LANDSCAPE CONTRACTOR SHALL ENSURE THAT THERE ARE NO DEBRIS, TRASH, OR STONES LARGER THAN 1" REMAINING IN THE TOP 6" OF SOIL.

- B. SUBMITTALS**
1. THE CONTRACTOR SHALL PROVIDE SUBMITTALS AND SAMPLES, IF REQUIRED, TO THE LANDSCAPE ARCHITECT, AND RECEIVE APPROVAL IN WRITING FOR SUCH SUBMITTALS BEFORE WORK COMMENCES.
 2. SUBMITTALS SHALL INCLUDE PHOTOS OF PLANTS WITH A RULER OR MEASURING STICK FOR SCALE, PHOTOS OR SAMPLES OF ANY REQUIRED MULCHES, AND SOIL TEST RESULTS AND PREPARATION RECOMMENDATIONS FROM THE TESTING LAB (INCLUDING COMPOST AND FERTILIZER RATES AND TYPES, AND OTHER AMENDMENTS FOR TREE/SHRUB, TURF, AND SEED AREAS AS MAY BE APPROPRIATE).
 3. SUBMITTALS SHALL ALSO INCLUDE MANUFACTURER CUT SHEETS FOR PLANTING ACCESSORIES SUCH AS TREE STAKES AND TIES, WIRING, AND LANDSCAPE FABRICS (IF ANY).
 4. WHERE MULTIPLE ITEMS ARE SHOWN ON A PAGE, THE CONTRACTOR SHALL CLEARLY INDICATE THE ITEM BEING CONSIDERED.

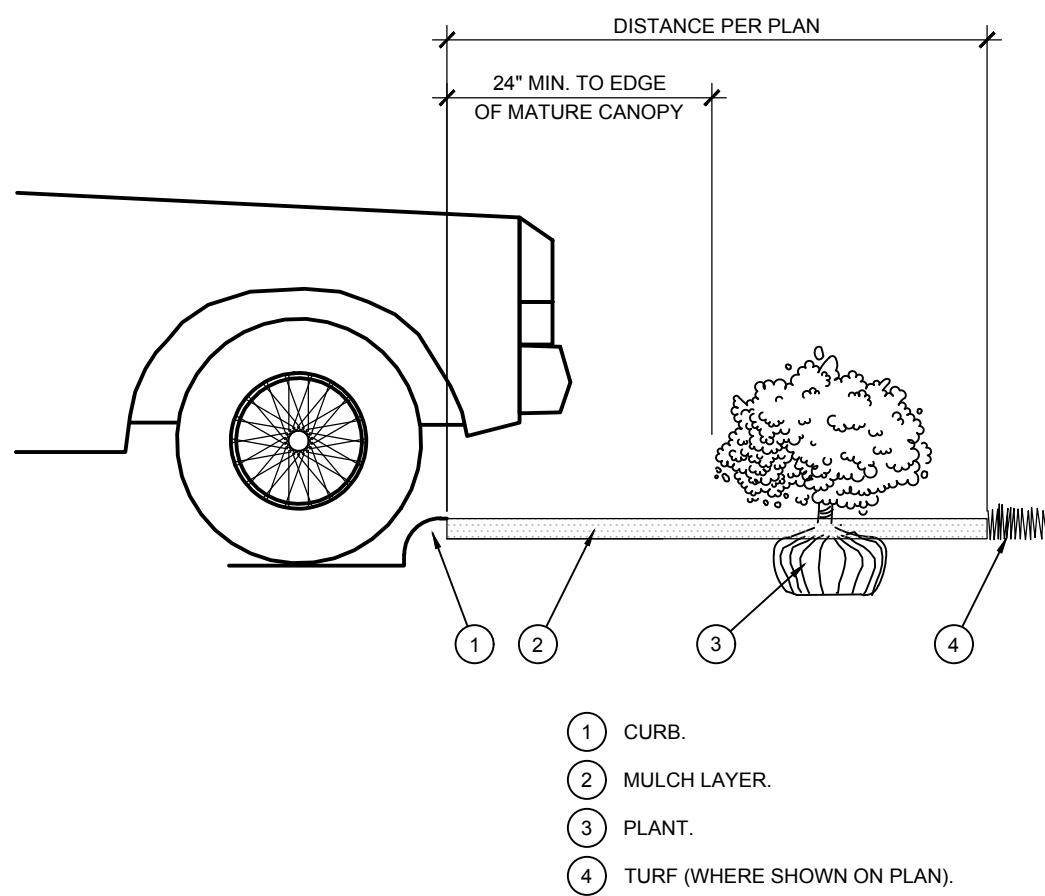
- C. GENERAL PLANTING
1. REMOVE ALL NURSERY TAGS AND STAKES FROM PLANTS.
 2. EXCEPT IN AREAS TO BE PLANTED WITH ORNAMENTAL GRASSES, APPLY PRE-EMERGENT HERBICIDES AT THE MANUFACTURER'S RECOMMENDED RATE.
 3. TRENCING NEAR EXISTING TREES:
 - a. CONTRACTOR SHALL NOT DISTURB ROOTS 1'-1/2" AND LARGER IN DIAMETER WITHIN THE CRITICAL ROOT ZONE (CRZ) OF EXISTING TREES, AND SHALL EXERCISE ALL POSSIBLE CARE AND PRECAUTIONS TO AVOID INJURY TO TREE ROOTS, TRUNKS, AND BRANCHES. THE CRZ IS DEFINED AS A CIRCULAR AREA EXTENDING OUTWARD FROM THE TREE TRUNK, WITH A RADIUS EQUAL TO 1" FOR EVERY 1" OF TRUNK DIAMETER-AT-BREAST-HEIGHT (4.5' ABOVE THE AVERAGE GRADE AT THE TREE TRUNK).
 - a. ALL EXCAVATION WITHIN THE CRZ SHALL BE PERFORMED USING HAND TOOLS. NO MACHINE EXCAVATION OR TRENCING OF ANY KIND SHALL BE ALLOWED WITHIN THE CRZ.
 - c. ALTER ALIGNMENT OF PIPE TO AVOID TREE ROOTS 1'-1/2" AND LARGER IN DIAMETER. WHERE TREE ROOTS 1'-1/2" AND LARGER IN DIAMETER ARE ENCOUNTERED IN THE FIELD, TUNNEL UNDER SUCH ROOTS. WRAP EXPOSED ROOTS WITH SEVERAL LAYERS OF BURLAP AND KEEP MOIST. CLOSE ALL TRENCES WITHIN THE CANOPY DRIP LINES WITHIN 24 HOURS.
 - d. ALL SEVERED ROOTS SHALL BE HAND PRUNED WITH SHARP TOOLS AND ALLOWED TO AIR-DRY. DO NOT USE ANY SORT OF SEALERS OR WOUND PAINTS.

1. TREE PLANTING
1. TREE PLANTING HOLES SHALL BE EXCAVATED TO MINIMUM WIDTH OF TWO TIMES THE WIDTH OF THE ROOTBALL, AND TO A DEPTH EQUAL TO THE DEPTH OF THE ROOTBALL LESS TWO TO FOUR INCHES. SCARIFY THE SIDES OF THE BOTTOM OF THE PLANTING HOLES PRIOR TO THE PLACEMENT OF THE TREE.
2. REMOVE ANY GLAZING THAT MAY HAVE BEEN CAUSED DURING THE EXCAVATION OF THE HOLE.
3. FOR CONTAINER AND BOX TREES, TO REMOVE ANY POTENTIALLY GIRDLING ROOTS AND OTHER ROOT DEFECTS, THE CONTRACTOR SHALL SHAVE A 1" LAYER OFF OF THE SIDES AND BOTTOM OF THE ROOTBALL OF ALL TREES JUST BEFORE PLACING INTO THE PLANTING PIT. DO NOT "TEASE" ROOTS OUT FROM THE ROOTBALL.
4. INSTALL THE TREE ON UNDISTURBED SUBGRADE SO THAT THE TOP OF THE ROOTBALL IS TWO TO FOUR INCHES ABOVE THE SURROUNDING GRADE.
5. BACKFILL THE TREE HOLE UTILIZING THE EXISTING TOPSOIL FROM ON-SITE. ROCKS LARGER THAN 1" DIA. AND ALL OTHER DEBRIS SHALL BE REMOVED FROM THE SOIL PRIOR TO THE BACKFILL. SUFFICIENT ADDITIONAL SOIL BE REQUIRED TO ACCOMPLISH THIS TASK. USE STORED TOPSOIL FROM ON-SITE OR IMPORT ADDITIONAL TOPSOIL FROM OFF-SITE AT NO ADDITIONAL COST TO THE OWNER. IMPORTED TOPSOIL SHALL BE OF SIMILAR TEXTURAL CLASS AND COMPOSITION IN THE ON-SITE SOIL.
6. TREES SHALL NOT BE STAKED UNDER LOCAL CONDITIONS (SUCH AS HEAVY WINDS OR SLOPES) REQUIRE STAKES TO KEEP TREES UPRIGHT. SUFFICIENT STAKING BE REQUIRED, THE TOTAL NUMBER OF TREE STAKES (BEYOND THE MINIMUMS LISTED BELOW) WILL BE LEFT TO THE LANDSCAPE CONTRACTOR'S DISCRETION. IF ANY TREES FALL OR LEAN, THE LANDSCAPE CONTRACTOR SHALL STRAIGHTEN THE TREE, OR REPLACE IT SHOULD IT BECOME DAMAGED. TREE STAKING SHALL ADHERE TO THE FOLLOWING GUIDELINES:
- a. 1"-2" TREES TWO STAKES PER TREE
 - b. 2-1/2" -4" TREES THREE STAKES PER TREE
 - c. TREES OVER 4" CALIPER FOUR STAKES PER TREE
 - d. MULTI-TRUNK TREES THREE STAKES PER TREE MINIMUM, QUANTITY AND POSITIONS AS DETERMINED TO STABILIZE THE TREE
7. UPON COMPLETION OF PLANTING, CONSTRUCT AN EARTH WATERING BASIN AROUND THE TREE. COVER THE INTERIOR OF THE TREE RING WITH MULCH (TYPE AND DEPTH PER PLANS).
- E. SHRUB, PERENNIAL, AND GROUNDCOVER PLANTING
1. THE PLANTING HOLES TWICE AS WIDE AND 2" LESS DEEP THAN EACH PLANT'S ROOTBALL. INSTALL THE PLANT IN THE HOLE. BACKFILL AROUND THE PLANT WITH SOIL AMENDED PER SOIL TEST RECOMMENDATIONS.
2. WHEN PLANTING IS COMPLETE, INSTALL MULCH (TYPE AND DEPTH PER PLANS) OVER ALL PLANTING BEDS, COVERING THE ENTIRE PLANTING AREA.
- F. SODDING
1. SOD VARIETY TO BE AS SPECIFIED ON THE LANDSCAPE PLAN.
2. LAY SOD WITHIN 24 HOURS FROM THE TIME OF STRIPPING. DO NOT LAY IF THE GROUND IS FROZEN.
3. LAY THE SOD TO FORM A SOLID MASS WITH TIGHTLY FITTED JOINTS. BUTT ENDS AND SIDES OF SOD STRIPS - DO NOT OVERLAP. STAGGER STRIPS TO OFFSET JOINTS IN ADJACENT COURSES.
4. ROLL THE SOD TO ENSURE GOOD CONTACT OF THE SOD'S ROOT SYSTEM WITH THE SOIL UNDERNEATH.
5. WATER THE SOD THOROUGHLY WITH A FINE SPRAY IMMEDIATELY AFTER PLANTING TO OBTAIN AT LEAST SIX INCHES OF PENETRATION INTO THE SOIL BELOW THE SOD.

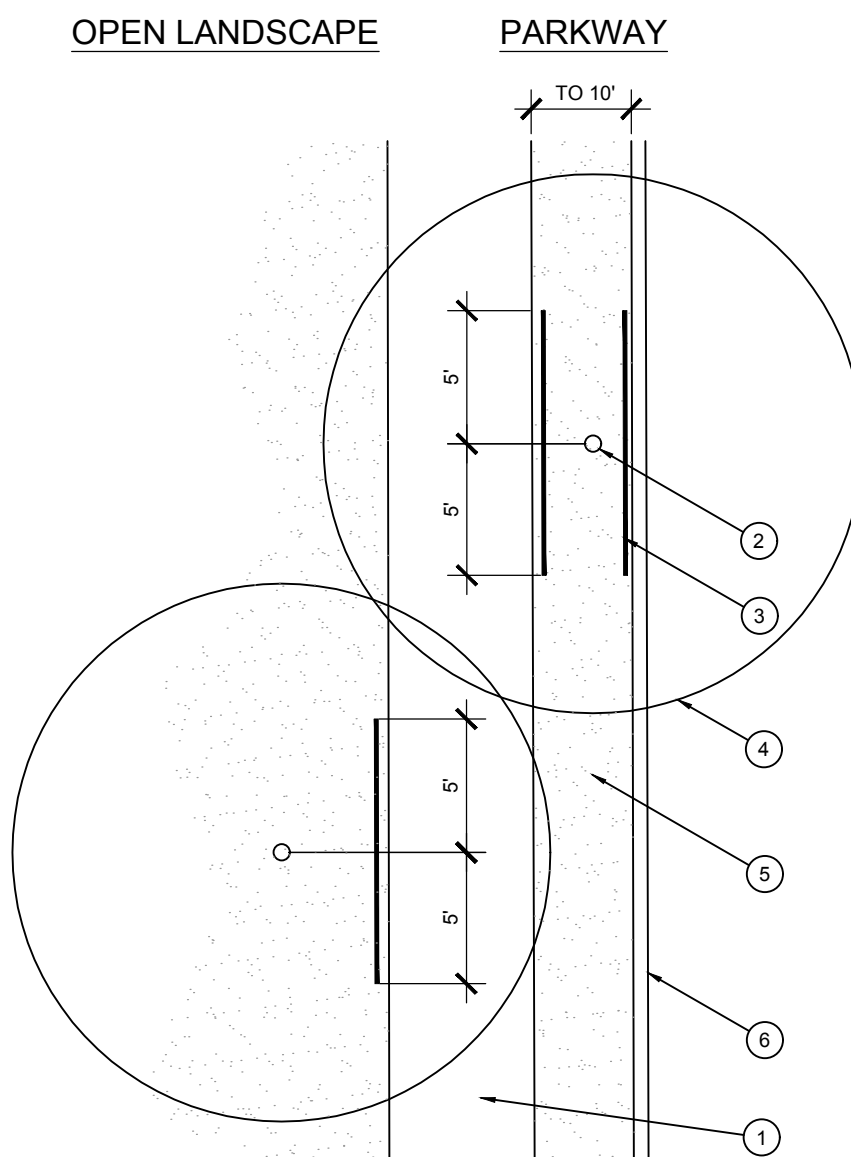
- G. MULCH
1. INSTALL MULCH TOPDRESSING, TYPE AND DEPTH PER MULCH NOTE, IN ALL PLANTING AREAS AND TREE RINGS.
 2. DO NOT INSTALL MULCH WITHIN 6" OF TREE ROOT FLARE EXCEPT AS MAY BE NOTED ON THESE PLANS. MULCH COVER WITHIN 6" OF CONCRETE WALKS AND CURBS SHALL NOT PROTRUDE ABOVE THE FINISH SURFACE OF THE WALKS AND CURBS. MULCH COVER WITHIN 12" OF WALLS SHALL BE AT LEAST 3" LOWER THAN THE TOP OF WALL.
- H. CLEAN UP
1. DURING LANDSCAPE PREPARATION AND PLANTING, KEEP ALL PAVEMENT CLEAN AND ALL WORK AREAS IN A NEAT, ORDERLY CONDITION.
 2. LEGALLY DISPOSE ALL EXCAVATED MATERIALS OFF THE PROJECT SITE.
- I. INSPECTION AND ACCEPTANCE
1. UPON COMPLETION OF THE WORK, THE LANDSCAPE CONTRACTOR SHALL PROVIDE THE SITE CLEAN, FREE OF DEBRIS AND TRASH, AND SUITABLE FOR USE AS INTENDED. THE LANDSCAPE CONTRACTOR SHALL THEN REQUEST THE OWNER AND FOUR (4) CITY ENGINEERS TO INSPECT THE WORK.
 2. WHEN THE INSPECTED PLANTING WORK DOES NOT COMPLY WITH THE CONTRACT DOCUMENTS, THE LANDSCAPE CONTRACTOR SHALL REPLACE AND/OR REPAIR THE REJECTED WORK TO THE OWNER'S SATISFACTION WITHIN 24 HOURS.
 3. THE LANDSCAPE MAINTENANCE PERIOD WILL NOT COMMENCE UNTIL THE LANDSCAPE WORK HAS BEEN RE-INSPECTED AND FOUND TO BE ACCEPTABLE. AT THAT TIME, A WRITTEN NOTICE OF FINAL ACCEPTANCE WILL BE ISSUED BY THE OWNER, AND THE MAINTENANCE AND GUARANTEE PERIODS WILL COMMENCE.

- J. LANDSCAPE MAINTENANCE**
1. THE LANDSCAPE CONTRACTOR SHALL BE RESPONSIBLE FOR THE MAINTENANCE OF ALL WORK SHOWN ON THESE PLANS FOR 90 DAYS BEYOND FINAL ACCEPTANCE OF ALL LANDSCAPE WORK BY THE OWNER. LANDSCAPE MAINTENANCE SHALL INCLUDE WEEKLY SITE VISITS FOR THE FOLLOWING CONDITIONS (AS APPLICABLE): PROPER PRUNING, RESTAKING OF TREES, RESETTING OF PLANTS THAT HAVE SETTLED, MOWING AND REMOVAL OF LAWNS, WEEDING, TREATING FOR INSECTS AND DISEASES, REPLACEMENT OF MULCH, REMOVAL OF LITTER, REPAIRS TO THE IRRIGATION SYSTEM DUE TO FAULTY PARTS AND/OR WORKMANSHIP, AND THE APPROPRIATE WATERING OF ALL PLANTINGS. THE LANDSCAPE CONTRACTOR SHALL MAINTAIN THE IRRIGATION SYSTEM IN PROPER WORKING ORDER, WITH SCHEDULING ADJUSTMENTS BY SEASON TO MAXIMIZE WATER CONSERVATION.
 2. SHOULD SODDED AREAS NOT BE COVERED BY AN AUTOMATIC IRRIGATION SYSTEM, THE LANDSCAPE CONTRACTOR SHALL BE RESPONSIBLE FOR WATERING THESE AREAS AND OBTAINING A FULL, HEALTHY STAND OF PLANT MATERIAL PRIOR TO FINAL ACCEPTANCE.
 3. TO ACHIEVE FINAL ACCEPTANCE AT THE END OF THE MAINTENANCE PERIOD, ALL OF THE FOLLOWING CONDITIONS MUST OCCUR:
 - a. THE LANDSCAPE SHALL SHOW ACTIVE, HEALTHY GROWTH (WITH EXCEPTIONS MADE FOR SEASONAL DORMANCY). ALL PLANTS NOT MEETING THIS CONDITION SHALL BE REJECTED AND REPLACED BY HEALTHY PLANT MATERIAL PRIOR TO FINAL ACCEPTANCE.
 - b. ALL HARDSCAPE SHALL BE CLEANED PRIOR TO FINAL ACCEPTANCE.
 - c. SODDED AREAS MUST BE FULLY GROWN AND MUST REACH A MINIMUM HEIGHT OF 1 1/2 INCHES BEFORE FIRST MOWING. BARE AREAS LARGER THAN TWELVE SQUARE INCHES MUST BE RESODDED PRIOR TO FINAL ACCEPTANCE. ALL SODDED TURF SHALL BE NEATLY MOWED.
- K. WARRANTY PERIOD, PLANT GUARANTEE AND REPLACEMENTS**

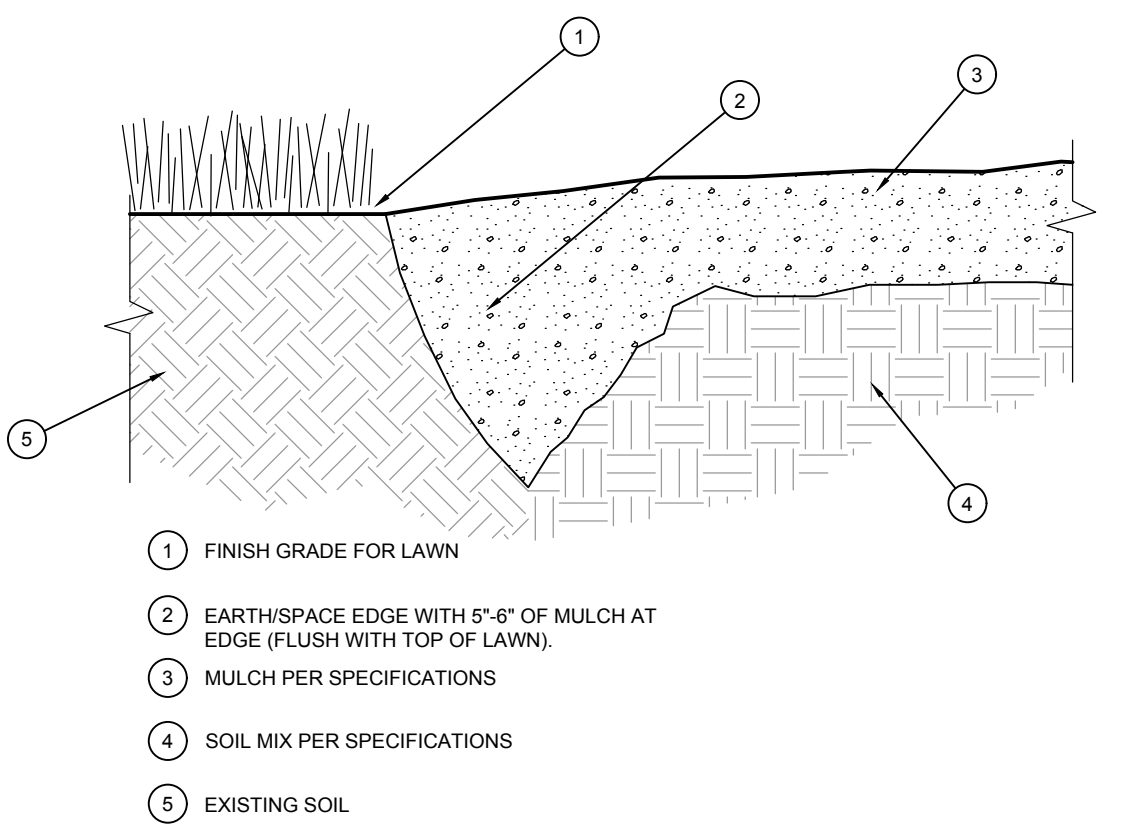
1. THE LANDSCAPE CONTRACTOR SHALL GUARANTEE ALL TREES, SHRUBS, PERENNIALS, SOD, AND IRRIGATION SYSTEMS FOR A PERIOD OF ONE YEAR FROM THE DATE OF THE OWNER'S FINAL ACCEPTANCE (90 DAYS FOR ANNUAL PLANTS). THE CONTRACTOR SHALL REPLACE, AT HIS OWN EXPENSE AND TO THE SATISFACTION OF THE OWNER, ANY AND ALL PLANTS THAT DIE OR REPAIR ANY PORTIONS OF THE IRRIGATION SYSTEM WHICH OPERATE IMPROPERLY.
2. AFTER THE INITIAL MAINTENANCE PERIOD AND DURING THE GUARANTEE PERIOD, THE LANDSCAPE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY AND ALL DAMAGE TO THE LANDSCAPE THAT CANNOT BE ATTRIBUTED DIRECTLY TO OVERWATERING OR OTHER DAMAGE BY HUMAN ACTIONS. PROVIDE A MINIMUM OF (2) COPIES OF RECORD DRAWINGS TO THE OWNER UPON COMPLETION OF WORK. A RECORD DRAWING SHALL BE A DRAWING THAT IS A COPY OF THE ORIGINAL DRAWING, AND IS DOCUMENTED THROUGH CHANGE ORDERS, ADDENDA, OR CONTRACTOR/CONSULTANT DRAWING MARKUPS.



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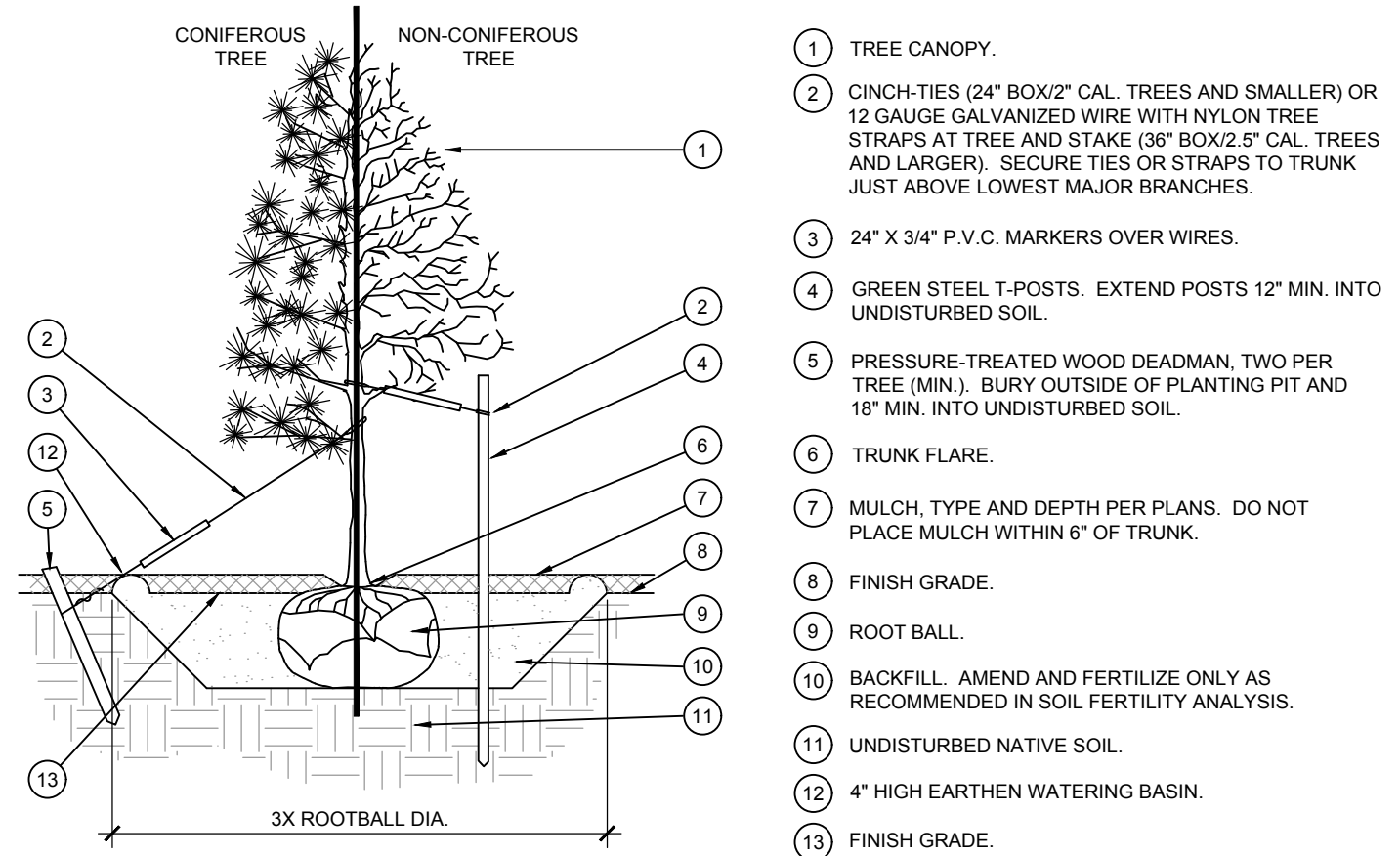


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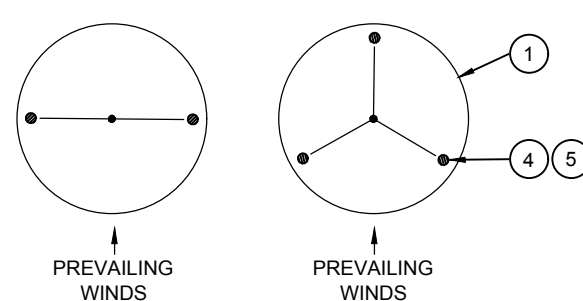
- NOTES:
USE WHEREVER MULCHED TRANSITION TO TURF AREA, INCLUDING ALL TREE MULCH
RINGS, SHRUBS, BEDS, MASS PLANTING, ETC., EXCEPT WHERE NOTED OR STEEL
EDGING HAS BEEN CALLED OUT.

SCALE: NOT TO SCALE



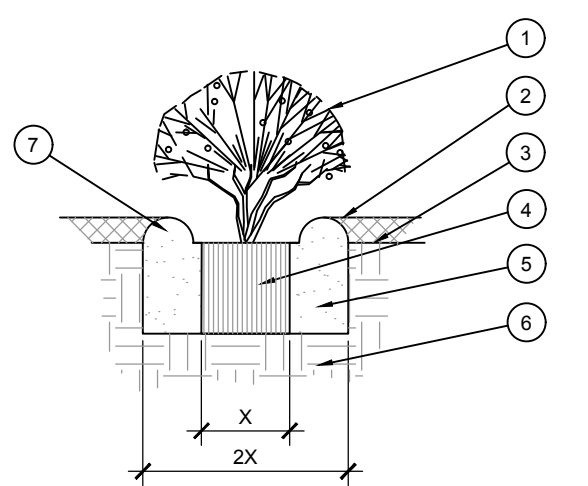
- 1 TREE CANOPY.
- 2 CINCH-TIES (24" BOX*2' CAL. TREES AND SMALLER) OR 12 GAUGE CABLE TIES (24" BOX*2' CAL. TREES AND LARGER). SECURE TIES OR STRAPS TO TRUNK JUST ABOVE LOWEST MAJOR BRANCHES.
- 3 24" X 3/4" P.V.C. MARKERS OVER WIRES.
- 4 GREEN STEEL T-POSTS. EXTEND POSTS 12" MIN. INTO UNDISTURBED SOIL.
- 5 PRESSURE-TREATED WOOD DEADMAN. TWO PER TREE (MIN.). BURY OUTSIDE OF PLANTING PIT AND 18" MIN. INTO UNDISTURBED SOIL.
- 6 TRUNK FLARE.
- 7 MULCH, TYPE AND DEPTH PER PLANS. DO NOT PLACE MULCH WITHIN 6" OF TRUNK.
- 8 FINISH GRADE.
- 9 ROOT BALL.
- 10 BACKFILL, AMEND AND FERTILIZE ONLY AS RECOMMENDED IN SOIL FERTILITY ANALYSIS.
- 11 UNDISTURBED NATIVE SOIL.
- 12 4" HIGH EARTHEN WATERING BASIN.
- 13 FINISH GRADE.

STAKING EXAMPLES (PLAN VIEW)



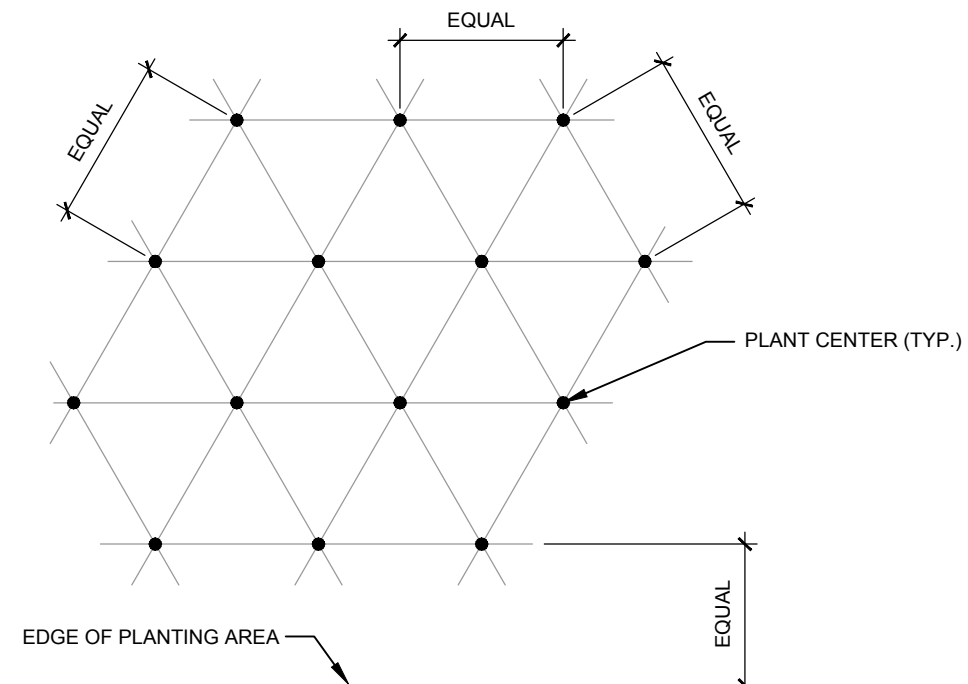
- NOTES:
1. SCARIFY SIDES OF PLANTING PIT PRIOR TO SETTING TREE.
2. REMOVE EXCESS SOIL APPLIED ON TOP OF THE ROOTBALL THAT COVERS THE ROOT FLARE. THE PLANTING HOLE DEPTH SHALL BE EQUAL TO THE ROOTBALL HEIGHT PLUS 10% ON UNDISTURBED SOIL. AND THE ROOT FLARE IS 12" - 4" ABOVE BOTTOM GRADE.
3. FOR B&B TREES, CUT OFF FIRST 1/3 OF WIRE BASKET BEFORE PLACING TREE IN HOLE. CUT OFF AND REMOVE REMAINDER OF BASKET AFTER TREE IS SET IN HOLE. REMOVE ALL NYLON TIES, TWINE AND OTHER PACKING MATERIAL. REMOVE AS MUCH BURLAP FROM AROUND ROOTBALL AS IS PRACTICAL.
4. REMOVE ALL NURSERY STAKES AFTER PLANTING.
5. FOR TREES 36" BOX/2 1/2" CAL. AND LARGER, USE THREE STAKES OR DEADEN (AS APPROPRIATE), SPACED EVENLY AROUND TREE.
6. STAKING SHALL BE TIGHT ENOUGH TO PREVENT TRUNK MOVEMENT ON BENDING, BUT LOOSE ENOUGH TO ALLOW SOME TRUNK MOVEMENT IN WIND.

SCALE: NOT TO SCALE



- 1 SHRUB, PERENNIAL, OR ORNAMENTAL GRASS.
- 2 MULCH, TYPE AND DEPTH PER PLANS. PLACE NO MORE THAN 1" OF MULCH WITHIN 6" OF PLANT CENTER.
- 3 FINISH GRADE.
- 4 ROOT BALL.
- 5 BACKFILL. AMEND AND FERTILIZE ONLY AS RECOMMENDED IN SOIL FERTILITY ANALYSIS.
- 6 UNDISTURBED NATIVE SOIL.
- 7 3" HIGH EARTHEN WATERING BASIN.

SCALE: NTS



NOTE: ALL PLANTS SHALL BE PLANTED AT EQUAL TRIANGULAR SPACING (EXCEPT WHERE SHOWN ON PLANS AS INFORMAL GROUPINGS). REFER TO PLANT LEGEND FOR SPACING DISTANCE BETWEEN PLANTS.

- 1) STEP 1: DETERMINE TOTAL PLANTS FOR THE AREA WITH THE FOLLOWING FORMULA
TOTAL AREA / AREA DIVIDER = TOTAL PLANTS

<u>PLANT SPACING</u>	<u>AREA DIVIDER</u>	<u>PLANT SPACING</u>	<u>AREA DIVIDER</u>
6"	0.22	18"	1.95
8"	0.39	24"	3.46
10"	0.60	30"	5.41
12"	0.87	36"	7.79
15"	1.35		

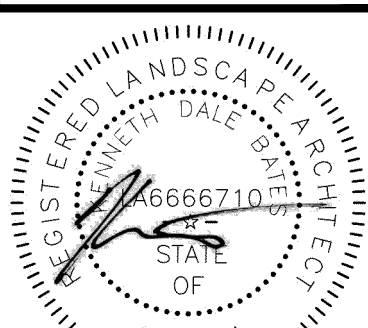
- 2) STEP 2: SUBTRACT THE ROW (S) OF PLANTS THAT WOULD OCCUR AT THE EDGE OF THE PLANTED AREA WITH THE FOLLOWING FORMULA: TOTAL PERIMETER LENGTH / PLANT SPACING = TOTAL PLANT SUBTRACTION

EXAMPLE: PLANTS AT 18" O.C. IN 100 SF PLANTING AREA, 40 LF PERIMETER
STEP 1: $100 \text{ SF} / 1.95 = 51 \text{ PLANTS}$

SCALE: NTS



LANDSCAPE SPECS & DETAILS
STARBUCKS - RIVERVIEW
10790 BIG BEND ROAD
RIVERVIEW, FL 33579



PLAN STATUS

REV	DATE	COMMENT
1	06/27/23	AHJ COMMENTS
2	10/11/23	AHJ COMMENTS

EDG DESIGN	JP DRAWN	KB CHKD
SCALE		
JOB No.	011045-01-001	
DATE	09/23/2022	
<div style="text-align: center;"> <h1>LP-2</h1> </div>		
SHEET		

[illegible]

SYMBOL	MANUFACTURER SYMBOL
1 1/2" x 1/2"	RAIN BIRD R-VAN-STRIP 1806-SAM-P45, TURF ROTARY, 5' X15' (LCS AND RCS), 5' X30' (SST) HAND ADJUSTABLE MULTI-STREAM ROTARY W/ 1800 TURF SPRAY BODY ON 6.0" POP-UP, WITH CHECK VALVE AND 45 PSI IN-STEM PRESSURE REGULATOR. 1/2" NPT FEMALE THREADED INLET.
•	RAIN BIRD R-VAN14 1806-SAM-P45, TURF ROTARY, 8'-14" 45'-270" AND 360" HAND ADJUSTABLE MULTI-STREAM ROTARY W/1800 TURF SPRAY BODY ON 6.0" POP-UP, WITH CHECK VALVE AND 45 PSI IN-STEM PRESSURE REGULATOR. 1/2" NPT FEMALE THREADED INLET.
•	RAIN BIRD R-VAN18 1806-SAM-P45, TURF ROTARY, 13'-18" 45'-270" AND 360" HAND ADJUSTABLE MULTI-STREAM ROTARY W/1800 TURF SPRAY BODY ON 6.0" POP-UP, WITH CHECK VALVE AND 45 PSI IN-STEM PRESSURE REGULATOR. 1/2" NPT FEMALE THREADED INLET.
•	RAIN BIRD R-VAN24 1806-SAM-P45, TURF ROTARY, 17'-24" 45'-270" AND 360" HAND ADJUSTABLE MULTI-STREAM ROTARY W/1800 TURF SPRAY BODY ON 6.0" POP-UP, WITH CHECK VALVE AND 45 PSI IN-STEM PRESSURE REGULATOR. 1/2" NPT FEMALE THREADED INLET.
•	RAINBIRD 1806-SAM-PRS SERIES POP UP SPRAY HEADS WITH ADAPTER AND RAINBIRD #1402 SERIES BUBBLER NOZZLES. (TWO PER TREE) SEE INSTALLATION NOTE #N-5 REGARDING TREE BUBBLER LATERAL PIPE
•	RAINBIRD 5004PCSAMR, ADJUSTABLE ARC 4" POP UP ROTARY HEAD, PART CIRCLE, #1.5 LA NOZZLE UNLESS NOTED OTHERWISE
•	RAINBIRD 5004PCSAMR, ADJUSTABLE ARC 4" POP UP ROTARY HEAD, PART CIRCLE, #4.0 NOZZLE UNLESS NOTED OTHERWISE
•	RAINBIRD XCZ-100-PRB-COM / 150-PRB-COM SERIES AUTOMATIC DRIP VALVE ASSEMBLY WITH 40 PSI PRESSURE REGULATOR XCZ-100-PRB-COM - 1" BALL VALVE WITH 1" PESB VALVE AND 1" PRESSURE REGULATING 40PSI QUICK-CHECK BASKET FILTER. 0.3GPM TO 20GPM.
•	RAINBIRD PEB SERIES ELECTRIC REMOTE CONTROL, "TREE BUBBLER ZONE" VALVE SEE INSTALLATION NOTE #N-5 REGARDING TREE BUBBLER LATERAL PIPE
•	RAIN BIRD PEB SERIES 1", 1-1/2", 2" PLASTIC INDUSTRIAL VALVES. LOW FLOW OPERATING CAPABILITY, GLOBE CONFIGURATION.
•	AREA TO RECEIVE DRIPLINE RAINBIRD XFS-CV-06-12 SERIES DRIP TUBE IN SHRUB BED INSTALLED AT 2" DEPTH
•	AREA TO RECEIVE DRIPLINE RAINBIRD XFS-CV-06-12 SERIES DRIP TUBE IN NARROW TURF AREAS INSTALLED AT 4" DEPTH
•	ZURN / WILKINS 375XLX SERIES REDUCED PRESSURE TYPE BACKFLOW PREVENTOR INSTALLED PER CITY CODE WITH SAME SIZE BRONZE BALL VALVE INSTALLED ON THE UP-STREAM SIDE. MOUNTED IN STRONGBOX SMOOTH TOUCH ENCLOSURE.
•	LASCO "V" SERIES SCH. 80 PVC TRUE UNION BALL VALVE, MAINLINE SIZE
•	IRRIGATION WATER METER AND TAP (BY OTHERS) SIZE AS NOTED ON THE PLAN
•	RAINBIRD 33DLRC QUICK COUPLER, 3/4"
•	RAINBIRD ESP12LXMEF2P SERIES AUTOMATIC WALL MOUNT CONTROLLER WITH ONE ESPLXMSM12 STATION MODULE
•	RAINBIRD WR2-RFC RAIN / FREEZE SENSOR LOCATE SENSOR AS FIELD DIRECTED BY THE LANDSCAPE ARCHITECT
•	1" MASTER VALVE MODEL # 100-EFB-CP WITH RAINBIRD FLOW SENSOR MODEL #FS100B SERIES IRRIGATION LATERAL LINE: CLASS 200
•	IRRIGATION MAINLINE: SCHEDULE 40 PVC
•	IRRIGATION SLEEVES, SCH. 40 PVC, MIN. TWICE SIZE OF PIPE TO BE INSERTED
•	IRRIGATION SLEEVE, SCH. 40 PVC, MIN. TWICE SIZE OF PIPE TO BE INSERTED

Valve Callout

- Valve Number
- Valve Flow
- Valve Size

LOCATE CONTROLLER AT LOCATION SHOWN ON PLAN. VERIFY LOCATION IN FIELD WITH OWNER'S REPRESENTATIVE.

120 VAC POWER TO CONTROLLER LOCATION IS NOT WITHIN THE IRRIGATION CONTRACTOR'S SCOPE OF WORK, AND SHALL BE PROVIDED BY OTHERS. HOOK-UP OF CONTROLLER TO 120 VAC SHALL BE PERFORMED BY THE IRRIGATION CONTRACTOR. IRRIGATION CONTRACTOR SHALL COORDINATE LOCATION OF WIRE SLEEVE PENETRATIONS THROUGH BUILDING WITH OWNER AND GENERAL CONTRACTOR. STATION RUN ORDER SHALL MATCH PLANS.

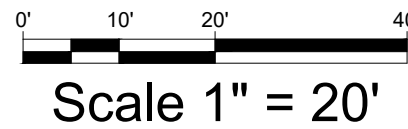
THIS DESIGN IS DIAGRAMMATIC. ALL PIPING, VALVES, AND OTHER EQUIPMENT SHOWN WITHIN PAVED AREAS OR OUT OF PROPERTY BOUNDARIES ARE FOR DESIGN CLARIFICATION ONLY, AND SHALL BE INSTALLED IN PLANTING AREAS WITHIN THE PROPERTY LINES OR LIMITS INDICATED ON PLAN. THE IRRIGATION CONTRACTOR SHALL VERIFY THE LOCATIONS OF ALL ABOVE-GRADE IRRIGATION EQUIPMENT WITH THE OWNER'S AUTHORIZED REPRESENTATIVE PRIOR TO INSTALLATION, OR IRRIGATION CONTRACTOR MAY BE REQUIRED TO MOVE SUCH ITEMS AT HIS OWN COST.

IRRIGATION CONTRACTOR IS RESPONSIBLE FOR VERIFYING ALL FINAL QUANTITIES PER DRAWINGS AND SPECIFICATIONS. ANY QUANTITIES PROVIDED ARE PROVIDED AS A CONVENIENCE TO THE CONTRACTOR ONLY AND SHALL NOT BE CONSIDERED ABSOLUTE.

INSTALL AUTOMATIC DRAIN VALVES AT THE LOW POINTS OF EACH LATERAL LINE (MIN. 2 PER VALVE) AS PER DETAIL ON SHEET LI-2. INSTALL AIR RELIEF VALVES ON DRIP SYSTEMS AT THE LOCATIONS SHOWN ON THE PLANS, AS PER DETAILS.

IN ADDITION TO PROVIDING SLEEVES FOR ALL PIPING UNDER ROADWAYS AND WALKWAYS, THE IRRIGATION CONTRACTOR SHALL PROVIDE AND INSTALL SCH. 40 PVC SLEEVES FOR ALL CONTROLLER WIRES OCCURRING UNDER ALL ROADWAYS AND WALKWAYS. SLEEVES FOR CONTROLLER WIRES SHALL BE 2" DIA. AND CONTAIN NO MORE THAN 25 WIRES. **FOR PLAN CLARITY, ONLY SOME REPRESENTATIVE SLEEVES ARE SHOWN; SOME SLEEVES MAY NOT BE SHOWN.**

NO MACHINE TRENCHING SHALL BE PERMITTED WITHIN THE ROOT ZONE OF EXISTING TREES. HAND-DIG ONLY WITHIN THE ROOT ZONES OF EXISTING TREES. NO ROOTS OVER 1" DIAMETER SHALL BE CUT. STAKE ALL PROPOSED TRENCH ROUTES NEAR EXISTING TREES FOR APPROVAL BY THE LANDSCAPE ARCHITECT BEFORE DIGGING BEGINS.

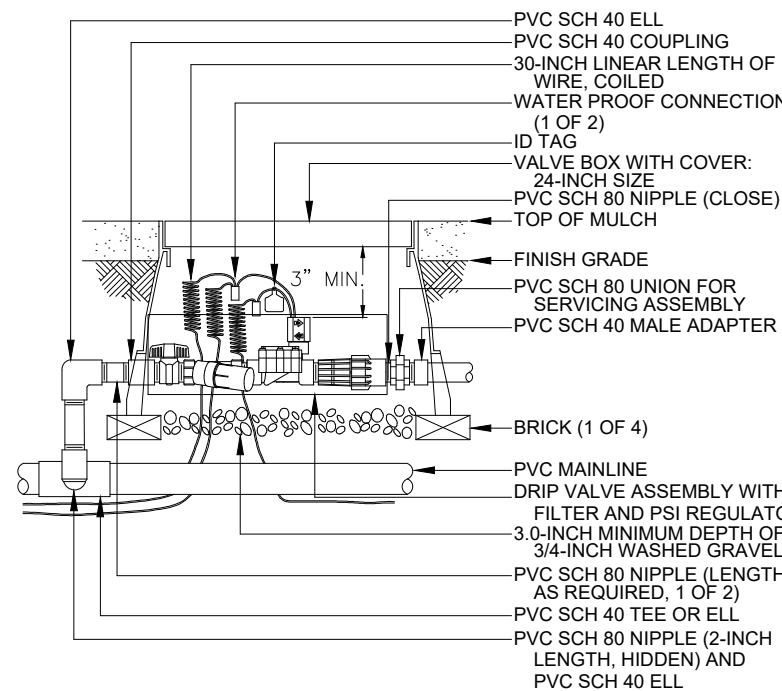


Scale 1" = 20'

NOTE: PRINTED DRAWING SIZE
MAY HAVE CHANGED FROM
ORIGINAL. VERIFY SCALE USING
BAR SCALE ABOVE.

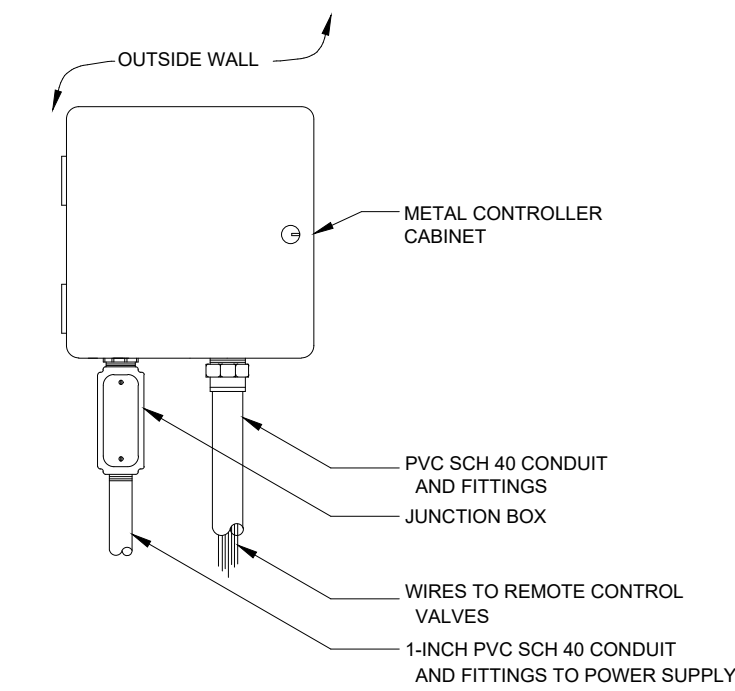


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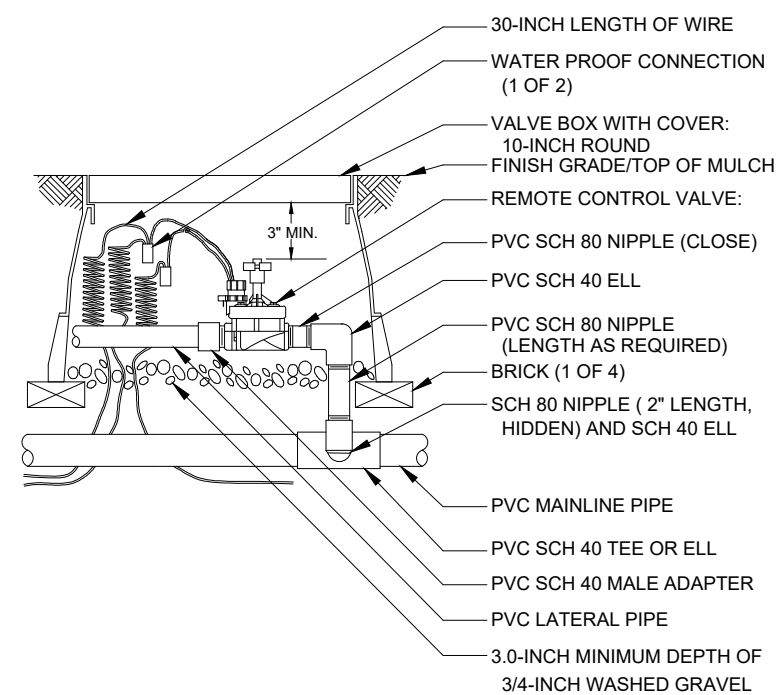
CONTROL ZONE KIT

N.T.S.



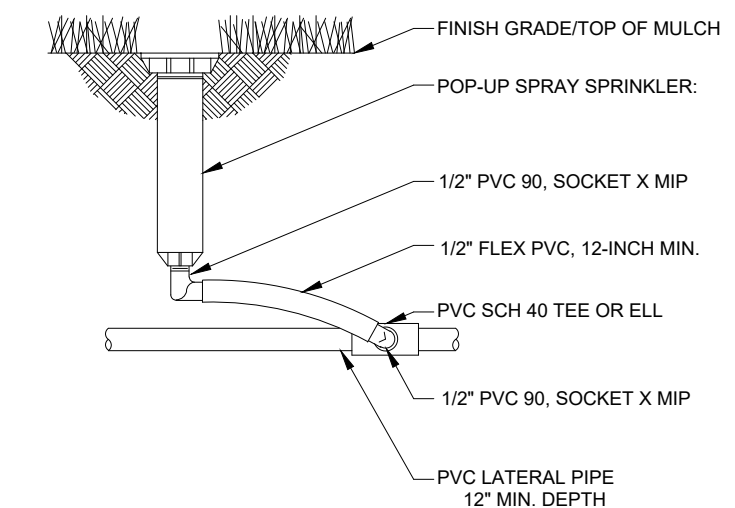
WALL MOUNT CONTROLLER

N.T.S.



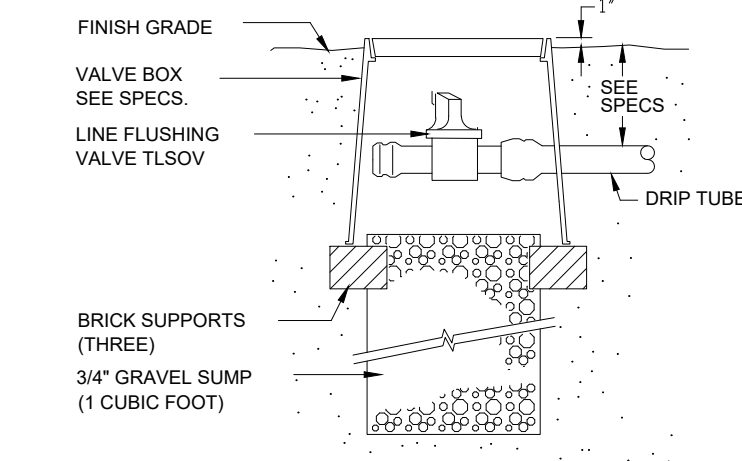
REMOTE CONTROL VALVE

N.T.S.



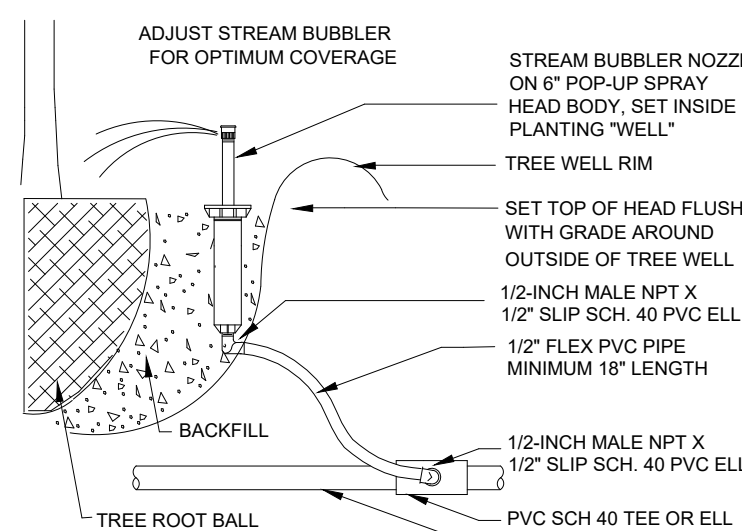
POP-UP SPRAY HEAD

N.T.S.



MANUAL LINE FLUSH VALVE

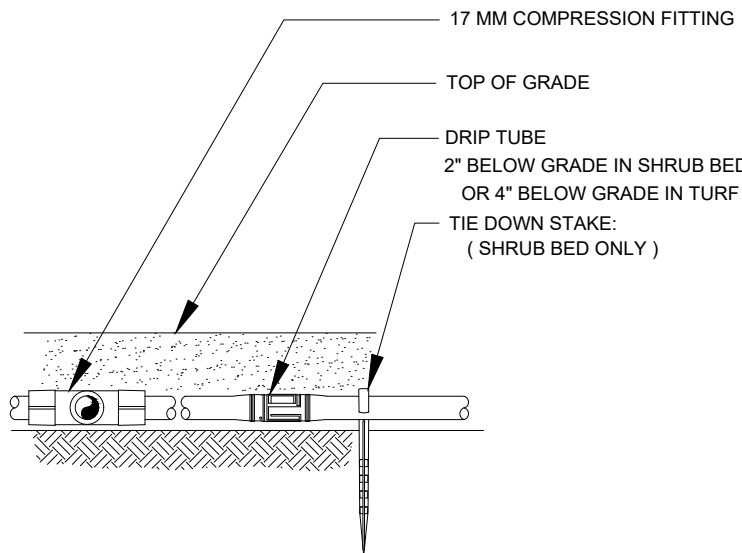
N.T.S.



INCLUDE TWO BUBBLER HEADS, SET ON OPPOSITE SIDES OF ROOT BALL

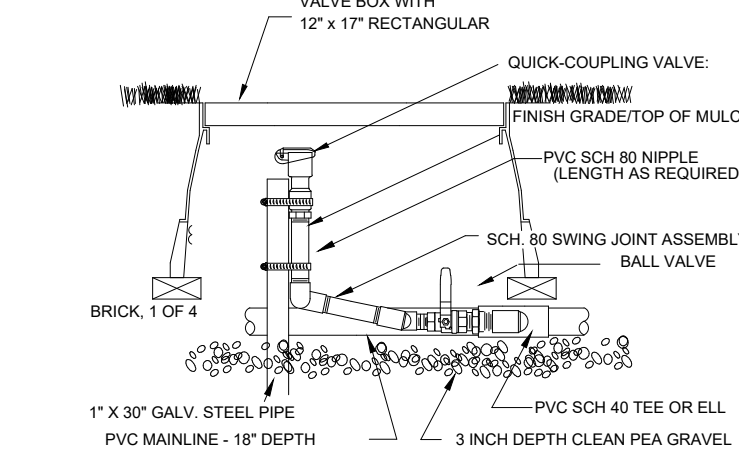
TREE BUBBLER

N.T.S.



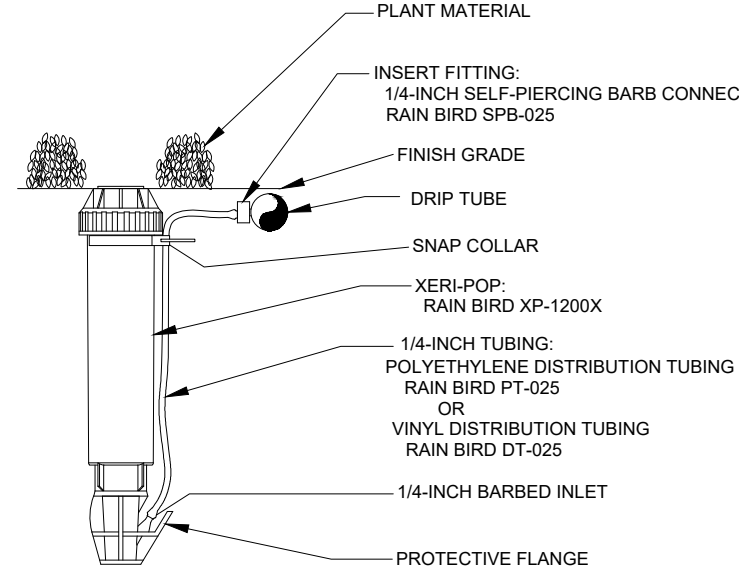
DRIFT TUBE

N.T.S.



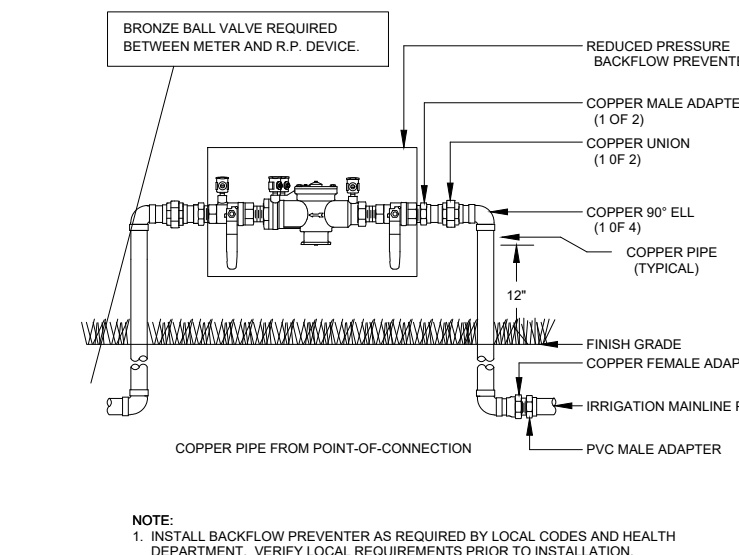
QUICK COUPLER VALVE WITH PVC BALL VALVE

N.T.S.



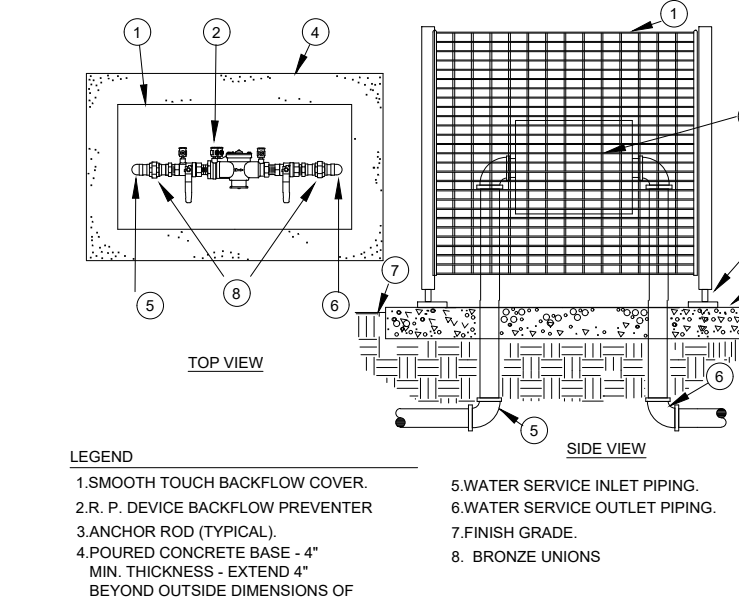
DRIFT CENTER FEED LAYOUT

N.T.S.



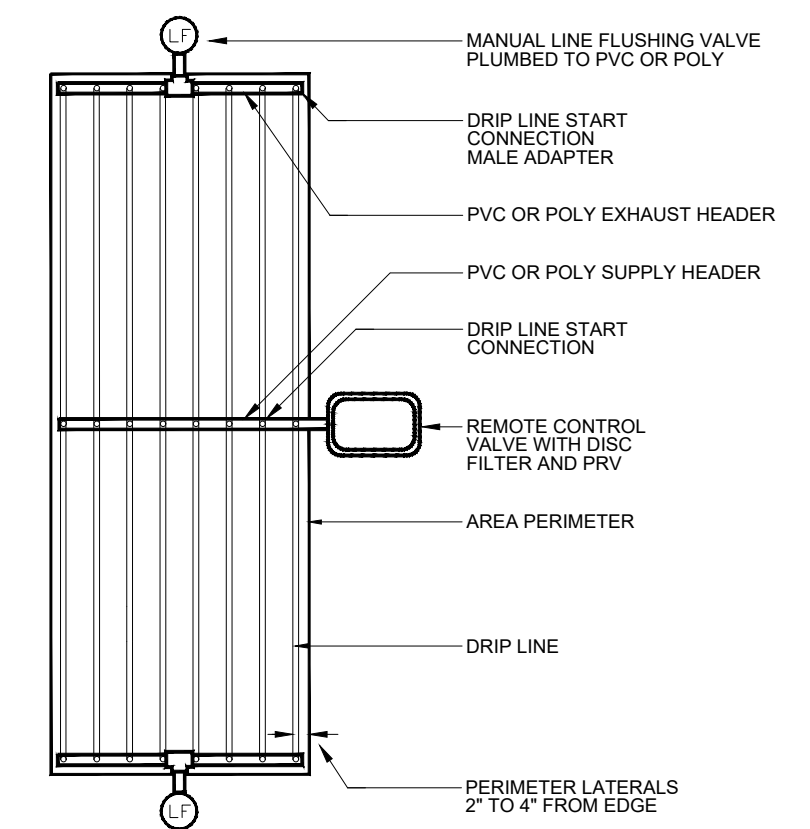
RP DEVICE

N.T.S.



RP DEVICE WITH ENCLOSURE

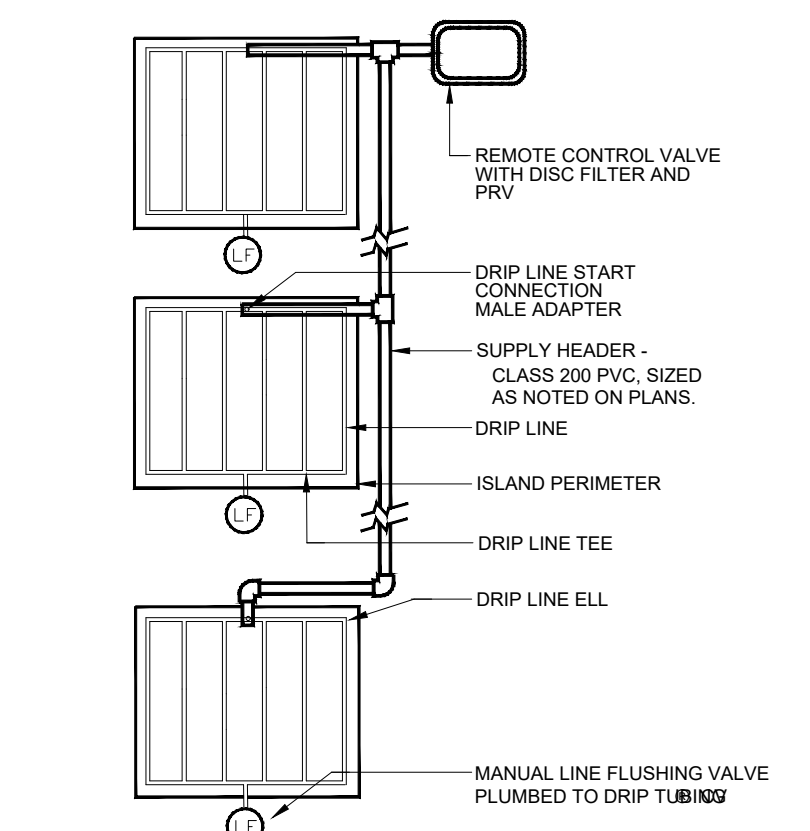
N.T.S.



SUPPLY AND EXHAUST HEADERS SHALL BE CLASS 200 PVC PIPE, OF THE SAME DIAMETER AS THE ZONE VALVE SIZE.
USE DRIFT TUBE FOR SUPPLY AND EXHAUST HEADERS ON GRIDS WITH FLOW SMALLER THAN 5 GPM ONLY.

DRIFT END FEED LAYOUT

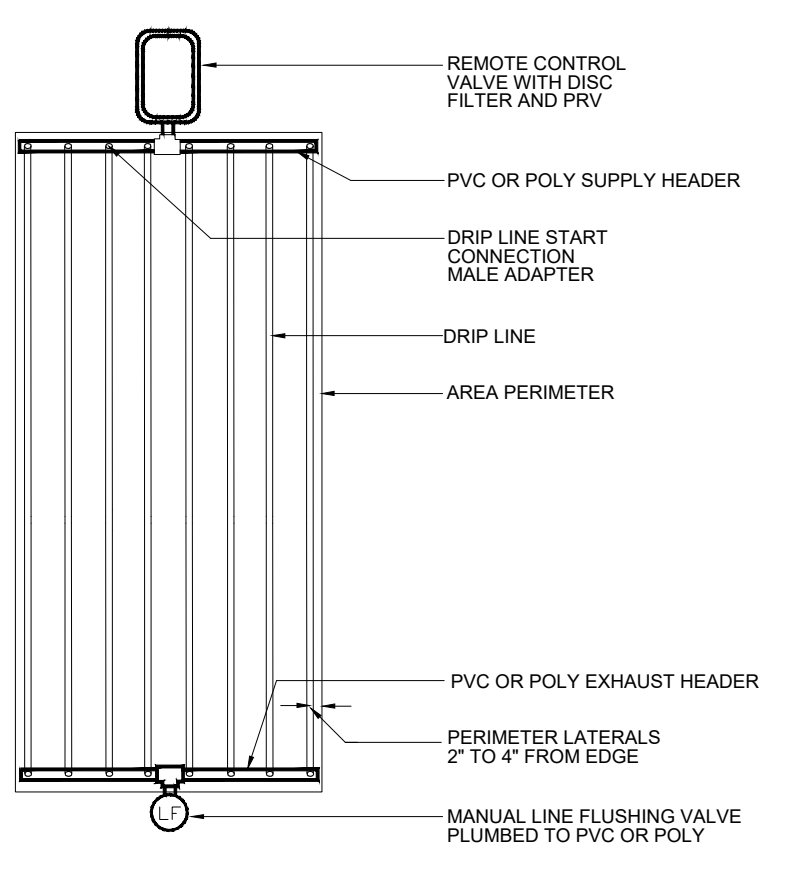
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USE DRIFT TUBE FOR SUPPLY AND EXHAUST HEADERS ON GRIDS WITH FLOW SMALLER THAN 5 GPM ONLY.

DRIFT ISLAND LAYOUT

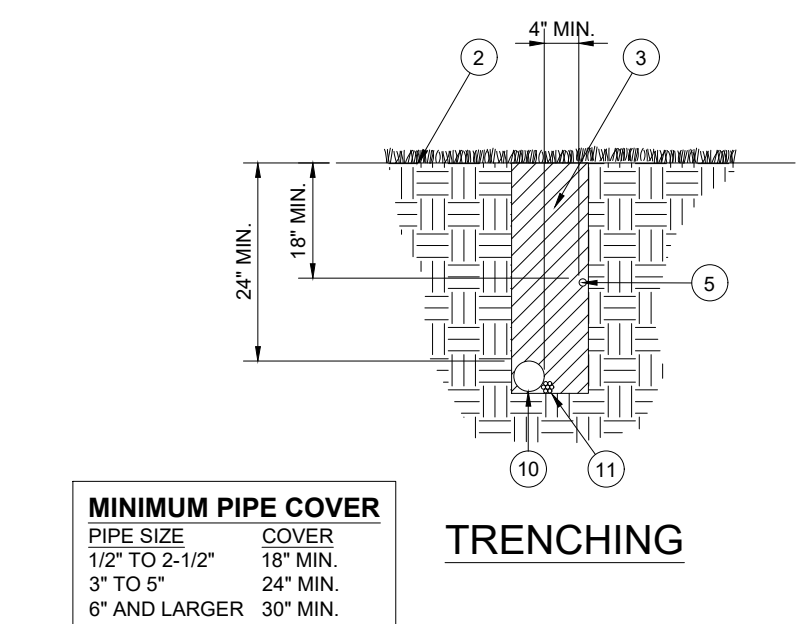
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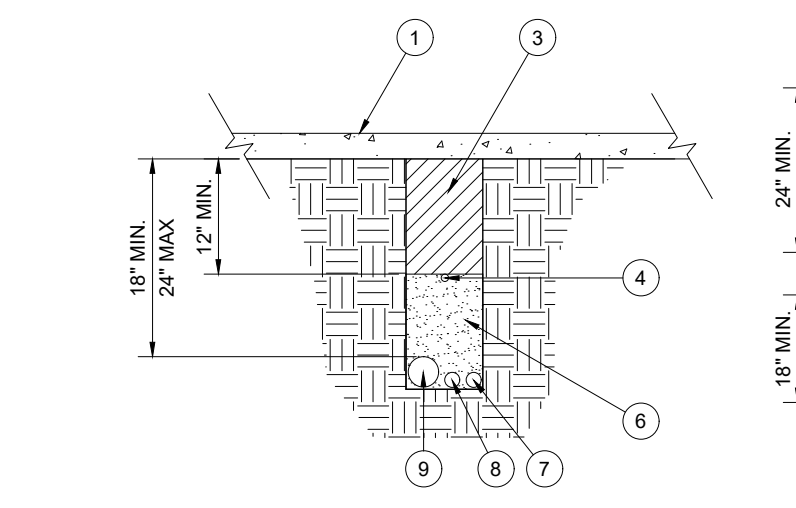
SUPPLY AND EXHAUST HEADERS SHALL BE CLASS 200 PVC PIPE, OF THE SAME DIAMETER AS THE ZONE VALVE SIZE.
USE DRIFT TUBE FOR SUPPLY AND EXHAUST HEADERS ON GRIDS WITH FLOW SMALLER THAN 5 GPM ONLY.

DRIFT END FEED LAYOUT

N.T.S.



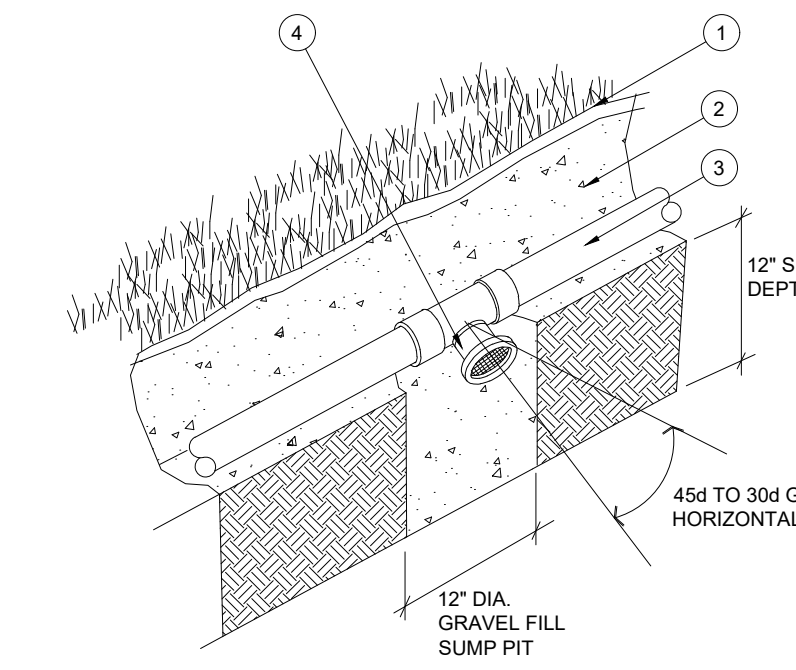
TRENCHING



SLEEVE

N.T.S.

PIPE AND SLEEVE INSTALLATION

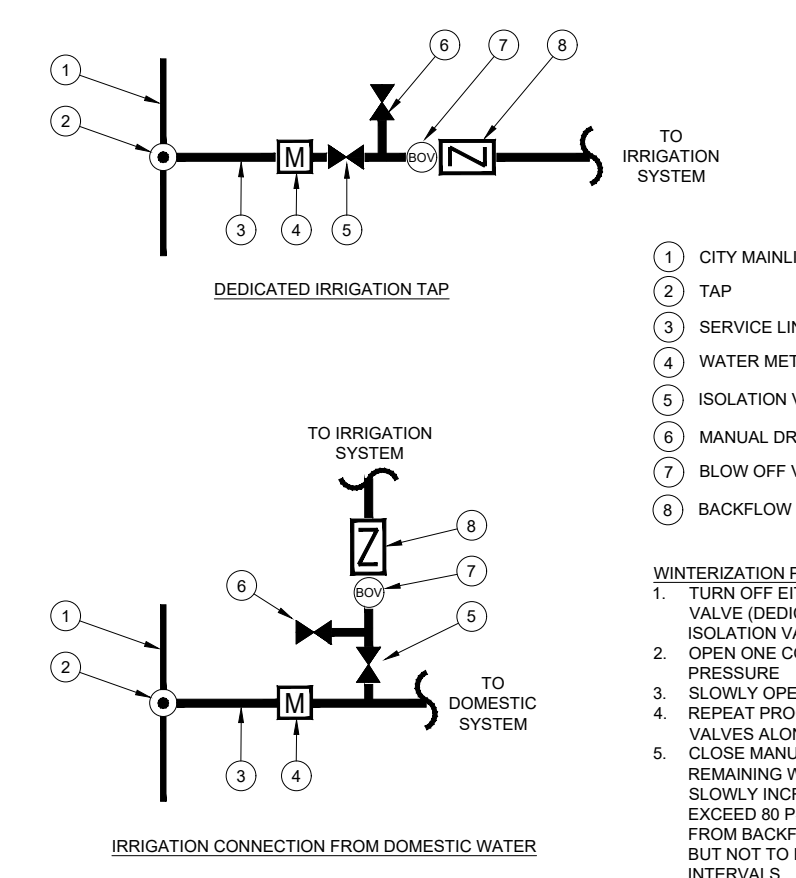


RAIN SENSOR, ROOF MOUNT

N.T.S.

AUTOMATIC DRAIN VALVE

N.T.S.



WATER TAP DIAGRAM

N.T.S.

EVERGREEN
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FLORIDA LANDSCAPE ARCHITECT

6666710

STATE OF FLORIDA

PLAN STATUS

REV	DATE	COMMENT
06/27/23	AHJ COMMENTS	
10/11/23	AHJ COMMENTS	

EDG DESIGN

JP DRAWN

KB CHKD

JOB No.

011045-01-001

DATE

09/23/2022

LI-2

SHEET

BOWMAN CONSULTING GROUP LTD.

5404 CYPRESS CENTER DR., SUITE 140

TAMPA, FL 33609

PHONE: (813) 736-2114

LICENSE NO. 30462

BOWMAN.COM

IRIGATION DETAILS

STARBUCKS - RIVERVIEW

10790 BIG BEND ROAD

RIVERVIEW, FL 33579

HILLSBOROUGH COUNTY, FL

Bowman

CERTIFICATE OF AUTHORIZATION LICENSE NO. 30462

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IRRIGATION SPECIFICATIONS

GENERAL

A. QUALIFICATIONS OF IRRIGATION CONTRACTOR

1. ALL WORK SHOWN ON THESE PLANS SHALL BE PERFORMED BY A SINGLE IRRIGATION CONTRACTING FIRM SPECIALIZING IN IRRIGATION SYSTEMS. SEE THE IRRIGATION PLAN FOR SPECIFIC EQUIPMENT AND SYSTEM LAYOUT.
2. THE IRRIGATION CONTRACTOR MUST HAVE ON ITS STAFF A LICENSED IRRIGATION INSTALLER, AS REGULATED BY THE APPROPRIATE LOCAL JURISDICTION. A LICENSED IRRIGATION INSTALLER SHALL BE PRESENT AT THE PROJECT SITE AT ALL TIMES AS WORK IS IN PROGRESS. THE OWNER MAY DEMAND THAT WORK STOP UNTIL THE CONTRACTOR PROVIDES FOR A LICENSED IRRIGATION INSTALLER TO BE PRESENT AT THE PROJECT SITE AND SUPERVISING ALL IRRIGATION WORK.
3. A LIST OF SUCCESSFULLY COMPLETED PROJECTS OF THIS TYPE, SIZE AND NATURE MAY BE REQUESTED BY THE OWNER FOR FURTHER QUALIFICATION MEASURES.

B. SCOPE OF WORK

1. WORK COVERED BY THESE SECTIONS INCLUDES THE FURNISHING AND PAYMENT OF ALL MATERIALS, LABOR, SERVICES, EQUIPMENT, LICENSES, TAXES, FEES, AND ANY OTHER ITEMS THAT ARE NECESSARY FOR THE EXECUTION, INSTALLATION AND COMPLETION OF ALL WORK, SPECIFIED HEREIN AND/OR SHOWN ON THE IRRIGATION PLANS, NOTES, AND DETAILS.
2. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH ALL APPLICABLE LAWS, CODES AND REGULATIONS REQUIRED BY AUTHORITIES HAVING JURISDICTION OVER SUCH WORK, INCLUDING ALL INSPECTIONS AND PERMITS REQUIRED BY FEDERAL, STATE AND LOCAL AUTHORITIES IN SUPPLY, TRANSPORTATION AND INSTALLATION OF MATERIALS. IN CASE OF CONFLICT BETWEEN THESE PLANS AND LOCAL AND/OR STATE CODES, CODES SHALL PREVAIL.
3. THE INTENT OF THE IRRIGATION SYSTEM IS TO PROVIDE 100% COVERAGE OF ALL LANDSCAPE AREAS. THE IRRIGATION PLAN IS DIAGRAMMATIC. COORDINATE IRRIGATION WITH UTILITY INSTALLATIONS. ACTUAL LOCATION OF CONTROLLER, BACKFLOW DEVICE, PIPING, VALVES, SPRAY HEADS, DRIP IRRIGATION, AND RELATED EQUIPMENT MAY NEED TO BE ADJUSTED BASED ON ACTUAL SITE CONDITIONS.
4. FOR CLARITY PURPOSES, SOME IRRIGATION LINES AND EQUIPMENT ARE SHOWN IN HARDCAPE AREAS WITHOUT ACCESS SLEEVES; THESE LINES SHALL BE INSTALLED IN A COMMON TRENCH OR AT THE PERIMETER OF THE HARDCAPE. IRRIGATION FIELD ADJUSTMENTS SHALL BE MADE AT NO ADDITIONAL COST TO THE OWNER.

PRODUCTS

- A. ALL MATERIALS SHALL BE NEW AND WITHOUT FLAWS OR DEFECTS OF ANY TYPE AND SHALL BE THE BEST OF THEIR CLASS AND KIND. ALL MATERIALS SHALL HAVE A MINIMUM GUARANTEE OF ONE YEAR AGAINST MATERIAL DEFECTS OR DEFECTIVE WORKMANSHIP. ALL MATERIALS SHALL BE OF THE BRANDS AND TYPES NOTED ON THE DRAWINGS OR AS SPECIFIED HEREIN, OR APPROVED EQUAL. THE CONTRACTOR MUST FIRST OBTAIN APPROVAL FROM THE IRRIGATION DESIGNER FOR AN 'APPROVED EQUAL' BEFORE INSTALLING SUCH MATERIALS IN THE FIELD, OR THE CONTRACTOR MAY BE REQUIRED TO REPLACE SUCH MATERIALS AT HIS OWN COST.
- B. BACKFLOW PREVENTION DEVICES SHALL BE OF THE SIZE AND TYPE INDICATED ON THE DRAWINGS. INSTALL BACKFLOW PREVENTION UNITS IN ACCORDANCE WITH IRRIGATION CONSTRUCTION DETAILS AND ALL APPLICABLE STATE AND LOCAL CODES AND ORDINANCES.
- C. PIPING
 1. PRESSURE SUPPLY LINES, DOWNSTREAM OF THE POINT-OF-CONNECTION:
 - a. SCHEDULE 40 PVC FOR ALL PIPE 1-1/2" OR LESS
 - b. CLASS 315 PVC FOR ALL PIPE 2" TO 2-1/2"
 - c. CLASS 200 PVC, GASKETED, FOR ALL PIPE 3" AND LARGER
 2. SLEEVING AND NON-PRESSURE LATERAL LINES (DOWNSTREAM FROM VALVES): CLASS 200 PVC
 3. FITTINGS: SCH. 40 PVC, EXCEPT AS NOTED OTHERWISE.
- D. VALVES AND DRIP VALVE ASSEMBLIES: TYPE AND SIZE AS NOTED ON PLANS. EACH VALVE SHALL BEAR A PRE-MANUFACTURED, NUMBERED WATERPROOF TAG BEARING A NUMBER CORRESPONDING TO ITS VALVE SEQUENCE OF OPERATION ON THE CONTROLLER. THE OPERATION SEQUENCE SHALL MATCH THAT AS SHOWN ON THE PLANS.
- E. QUICK COUPLERS, BALL VALVES, AND GATE VALVES: TYPE AND SIZE PER PLANS.
- F. VALVE BOXES: TYPE AND SIZE AS NOTED ON DETAILS. ALL VALVE BOXES SHALL BE LOCKING BOLT-DOWN TYPE, FURNISHED WITH LIDS AND BOLTS. BOXES SHALL BE OF A SIZE TO CONTAIN THE ENTIRE VALVE AND/OR VALVE ASSEMBLY. THE VALVE BOX LID SHALL HAVE THE VALVE STATION NUMBER HEAT-BRANDED INTO THE LID WITH 2" HIGH LETTERS.
- G. FIXED SPRAY HEADS AND ROTORS: PLASTIC BODY POP-UP, WITH A REMOVABLE PLASTIC SPRAY NOZZLE, EXACT TYPE, MODEL, AND SIZE SHALL BE AS INDICATED ON PLANS.
- H. INTEGRAL EMITTER DRIP TUBING: TUBING MODEL AND FLOW RATE AS NOTED ON PLANS, WITH INTEGRAL EMITTERS WELDED TO THE INSIDE WALL OF THE TUBING AS AN INTEGRAL PART OF THE TUBING ASSEMBLY.
- I. AUTOMATIC CONTROLLER: TYPE AND MODEL PER PLANS. PROVIDE VANDAL-PROOF ENCLOSURE FOR ALL EXTERIOR INSTALLATIONS. PROVIDE LINE-VOLTAGE DISCONNECT SWITCH WITH GROUND FAULT PROTECTION.
- J. 24 VOLT VALVE WIRE SHALL BE A MINIMUM OF #14 GAUGE, U.F. APPROVED FOR DIRECT BURIAL, SINGLE CONDUCTOR IRRIGATION WIRE. EACH CONTROLLER SHALL HAVE A DIFFERENT COLOR STATION AND COMMON WIRE IDENTIFICATION.
 1. STATION WIRE - ANY COLOR EXCEPT WHITE OR BLUE
 2. COMMON WIRE - WHITE
 3. EXTRA COMMON WIRES - BLUE
- K. WIRE SPLICES SHALL BE ENCASED IN A WATERPROOF COMPOUND OR GEL. ALL FIELD SPLICES SHALL BE LOCATED IN A 6 INCH ROUND VALVE BOX.
- L. RAIN SENSOR: TYPE AND MODEL PER PLANS.

METHODS

- A. THIS DESIGN IS DIAGRAMMATIC. ALL PIPING, VALVES, AND OTHER EQUIPMENT SHOWN WITHIN PAVED AREAS OR OUT OF PROPERTY BOUNDARIES ARE FOR CLARIFICATION ONLY, AND SHALL BE INSTALLED IN PLANTING AREAS WITHIN THE PROPERTY LINES OR LIMITS INDICATED ON PLAN. THE IRRIGATION CONTRACTOR SHALL VERIFY THE LOCATIONS OF ALL ABOVE-GRADE IRRIGATION EQUIPMENT WITH THE OWNER'S AUTHORIZED REPRESENTATIVE PRIOR TO INSTALLATION, OR IRRIGATION CONTRACTOR MAY BE REQUIRED TO MOVE SUCH ITEMS AT HIS OWN COST. ENSURE FIELD COORDINATION IS MADE EARLY ON IN THE CONSTRUCTION PHASE SO PLACEMENT LOCATION IS CORRECT.
- B. THE IRRIGATION CONTRACTOR SHALL MEET WITH THE OWNER'S REPRESENTATIVE PRIOR TO COMMENCEMENT OF WORK, AND SHALL OBTAIN ALL ENGINEERING, LANDSCAPE, AND OTHER APPLICABLE PLANS & DOCUMENTS. THE CONTRACTOR SHALL THOROUGHLY REVIEW THE PLANS AND REPORT ANY CONFLICTS OR DISCREPANCIES TO THE LANDSCAPE ARCHITECT AND OWNER'S REPRESENTATIVE IMMEDIATELY.
- C. THE IRRIGATION CONTRACTOR SHALL NOT WILLFULLY INSTALL THE IRRIGATION SYSTEM AS SHOWN ON THE DRAWINGS WHEN IT IS OBVIOUS IN THE FIELD THAT UNKNOWN OBSTRUCTIONS, GRADES OR DIMENSIONS EXIST THAT MIGHT NOT HAVE BEEN CONSIDERED IN THE ENGINEERING. SUCH OBSTRUCTIONS OR DIFFERENCES SHALL BE BROUGHT TO THE ATTENTION OF THE IRRIGATION DESIGNER. IN THE EVENT THAT THIS NOTIFICATION IS NOT PERFORMED, THE IRRIGATION CONTRACTOR SHALL ASSUME FULL RESPONSIBILITY FOR ANY REVISIONS AND NECESSARY COSTS.
- D. THE IRRIGATION CONTRACTOR SHALL PAY ANY AND ALL FEES AND PERMITS ASSOCIATED WITH THE INSTALLATION OF THE IRRIGATION SYSTEM.
- E. AT LEAST SEVEN DAYS BEFORE BEGINNING WORK, CONFIRM THE STATIC WATER PRESSURE IS AT LEAST 65 PSI IF THE STATIC WATER PRESSURE IS OUTSIDE OF THE STATED RANGE, DO NOT PROCEED WITHOUT FIRST NOTIFYING THE IRRIGATION DESIGNER AND OWNER IN WRITING, AND OBTAINING SUBSEQUENT DIRECTION FOR CORRECTIVE MEASURES. SHOULD THE IRRIGATION CONTRACTOR CHOOSE TO BEGIN THE INSTALLATION WITHOUT SUCH NOTIFICATION, THE IRRIGATION CONTRACTOR WILL ASSUME THE RESPONSIBILITY FOR ALL COSTS INCURRED TO ENSURE THE SYSTEM IS WORKING PROPERLY. NO CHANGE ORDERS WILL BE AUTHORIZED IN SUCH CIRCUMSTANCES.
- F. THE IRRIGATION CONTRACTOR SHALL VERIFY THE LOCATION OF ALL UNDERGROUND UTILITY LINES (WATER, SEWER, ELECTRICAL, TELEPHONE, GAS, CABLE, TELEVISION, ETC.) PRIOR TO THE START OF ANY WORK. THE CONTRACTOR SHALL BE FAMILIAR WITH ALL GRADE DIFFERENCES, LOCATIONS OF WALLS, STRUCTURES AND UTILITIES.
- G. COORDINATE WITH THE OWNER THE PROPOSED LOCATIONS OF THE AUTOMATIC CONTROLLER AND ANY REQUIRED SLEEVES THROUGH THE BUILDING FOR CONTROL WIRES.
- H. TRENCING NEAR EXISTING TREES:
 1. CONTRACTOR SHALL NOT DISTURB ROOTS 1-1/2" AND LARGER IN DIAMETER WITHIN THE CRITICAL ROOT ZONE (CRZ) OF EXISTING TREES, AND SHALL EXERCISE ALL POSSIBLE CARE AND PRECAUTIONS TO AVOID INJURY TO TREE ROOTS, TRUNKS, AND BRANCHES. THE CRZ IS DEFINED AS A CIRCULAR AREA EXTENDING OUTWARD FROM THE TREE TRUNK, WITH A RADIUS EQUAL TO 1" FOR EVERY 1" OF TRUNK DIAMETER AT-BREAST-HEIGHT (4.5' ABOVE THE AVERAGE GRADE AT THE TRUNK).
 2. ALL EXCAVATION WITHIN THE CRZ SHALL BE PERFORMED USING HAND TOOLS. NO MACHINE EXCAVATION OR TRENCING OF ANY KIND SHALL BE ALLOWED WITHIN THE CRZ.
 3. ALTER ALIGNMENT OF PIPE TO AVOID TREE ROOTS 1-1/2" AND LARGER IN DIAMETER. WHERE TREE ROOTS 1-1/2" AND LARGER IN DIAMETER ARE ENCOUNTERED IN THE FIELD, TUNNEL UNDER SUCH ROOTS. WRAP EXPOSED ROOTS WITH SEVERAL LAYERS OF BURLAP AND KEEP MOIST. CLOSE ALL TRENCHES WITHIN THE CANOPY DRIP LINES WITHIN 24 HOURS.
 4. ALL SEVERED ROOTS SHALL BE HAND PRUNED WITH SHARP TOOLS AND ALLOWED TO AIR-DRY. DO NOT USE ANY SORT OF SEALERS OR WOUND PAINTS.

I. BACKFILL

1. ALL BACKFILL MATERIAL SHALL BE SUBJECT TO APPROVAL BY THE OWNER. BACKFILL MATERIAL SHALL BE FREE FROM RUBBISH, ROCK LARGER THAN 1", LARGE STONES, BRUSH, SOD, FROZEN MATERIAL OR OTHER UNSUITABLE SUBSTANCES THAT MAY DAMAGE PIPE DURING THE BACKFILLING OPERATIONS. SEPARATE OUT ROCKS LARGER THAN 1 INCH IN ANY DIRECTION FROM EXCAVATED MATERIAL, AND REMOVE FROM AREAS TO RECEIVE LANDSCAPING. COVER FOR BOTH TOP AND SIDES OF PIPE SHALL BE A MINIMUM OF 2 INCHES OF ROCK-FREE SOIL, SAND, OR OTHER APPROVED MATERIAL.
2. IN THE EVENT THAT THE MATERIAL FROM THE EXCAVATION OR TRENCING IS FOUND TO BE UNSUITABLE FOR USE IN BACKFILL, IT SHALL BE REMOVED FROM THE SITE AND PROPERLY AND LEGALLY DISPOSED OF BY THE CONTRACTOR AT THE CONTRACTOR'S EXPENSE. THE CONTRACTOR SHALL THEN PURCHASE AND FURNISH SUITABLE BACKFILL MATERIAL CONSISTING OF EARTH, LOAM, SANDY CLAY, SAND OR OTHER APPROVED MATERIALS FREE OF DEBRIS.

J. BACKFLOW PREVENTER INSTALLATION

- CONTRACTOR SHALL MAKE CONNECTIONS TO EXISTING WATER SOURCES AT LOCATION SHOWN ON PLANS AND AS APPROVED BY THE OWNER, AND SHALL MAKE ANY MINOR CHANGES IN LOCATION AS MAY BE NECESSARY DUE TO ACTUAL SITE CONDITIONS. BACKFLOW PREVENTER HEIGHT SHALL BE AS PER LOCAL CODES AND IRRIGATION DETAILS. INSTALL A BRASS BALL VALVE IMMEDIATELY UPSTREAM OF THE SITE AND PROPERLY TO SERVE AS AN ISOLATION VALVE. TO EVERY EXTENT POSSIBLE, INSTALL BACKFLOW PREVENTER IN A LOCATION SCREENED FROM PUBLIC VIEW (SUCH AS BEHIND A SHRUB ROW).

K. PIPING

1. PIPE SIZE SHALL CONFORM TO THOSE SHOWN ON THE DRAWINGS. NO SUBSTITUTIONS OF SMALLER PIPE SIZES SHALL BE PERMITTED, BUT SUBSTITUTIONS FOR LARGER SIZES MAY BE APPROVED.
2. MAINLINE PIPE AND WIRES SHALL BE INSTALLED WITH A MINIMUM COVER OF 18 INCHES (24" FOR MAINLINE 3"-5" AND 30" FOR MAINLINE 6" AND GREATER). LATERAL PIPE SHALL BE INSTALLED WITH A MINIMUM COVER OF 12 INCHES.
3. ASSEMBLE ALL THREADED FITTINGS WITH TEFLON TAPE, WHICH SHALL BE APPLIED TO MALE ENDS ONLY.
4. ALL SOLVENT-WELD CONNECTIONS SHALL BE MADE WITH APPROVED SOLVENT-WELD PRIMER AND GLUE.
5. PIPE SHALL BE INSTALLED WITH A MINIMUM OF 4" HORIZONTAL CLEARANCE FROM ANY OTHER PIPE AND 2" VERTICAL CLEARANCE FROM ANY PIPES THAT CROSS OVER OR UNDER.

L. VALVES

1. VALVES SHALL BE INSTALLED PER MANUFACTURER'S DIRECTIONS AND THE IRRIGATION DETAILS.
2. VALVE BOXES SHALL BE INSTALLED FLUSH WITH THE GRADE, WITH CLEAN PEA GRAVEL LOCATED BELOW THE VALVE AS NOTED ON THE DETAILS. LOCATE BOXES WITHIN 12 TO 24" OF SIDEWALKS OR LANDSCAPE EDGES, WITH TOPS OF BOXES 1" ABOVE FINISH GRADE IN TURF, AND 3" ABOVE FINISH GRADE IN SHRUB AREAS (TO AVOID BEING COVERED BY MULCH).
3. EACH VALVE BOX COVER SHALL BE HEAT-BRANDED WITH THE CONTROLLER STATION NUMBER.
4. DO NOT INSTALL MORE THAN TWO VALVES IN A JUMBO BOX.

M. DRIP IRRIGATION EQUIPMENT

- SHALL BE INSTALLED PER MANUFACTURER'S DIRECTIONS AND THE IRRIGATION DETAILS.
1. SUBSURFACE DRIP LINES SHALL BE BURIED NO MORE THAN 2" BELOW FINISH GRADE.
 2. DRIP LINES MOUNTED ON GRADE SHALL BE LOCATED BENEATH LANDSCAPE FABRIC, AND SECURED IN PLACE WITH WIRE STAPLES AT A MAXIMUM OF 24" ON CENTER.
 3. SPRAY, ROTOR, AND BUBBLER HEADS:
 1. ALL SPRAY AND ROTOR HEAD LOCATIONS SHALL BE STAKED, FLAGGED AND/OR OTHERWISE CLEARLY MARKED ON THE GROUND PRIOR TO INSTALLATION. SPRINKLER HEAD STAKING SHALL BE INSPECTED AND APPROVED BY THE OWNER'S REPRESENTATIVE BEFORE INSTALLATION.
 2. ALL SPRAY HEADS SHALL BE CONNECTED WITH A 1/2 INCH MINIMUM LENGTH OF 1 INCH FLEX PVC. THE FLEX PVC SHALL BE SOLVENT WELDED TO SCHEDULE 40 PVC FITTINGS WITH WELD-ON #795 SOLVENT AND #P70 PRIMER. ALL ROTORS SHALL BE CONNECTED TO LATERAL BENDS WITH PRE-MANUFACTURED JOINTS.
 3. ALL ROTOR, SPRAY AND BUBBLER HEADS SHALL BE SET PERPENDICULAR AND FLUSH TO FINISH GRADE AND WITH A CLEARANCE OF FOUR INCHES (MINIMUM) FROM THE EDGE OF ANY BUILDINGS, WALLS, BOULDERS, AND HARDCAPE, WITH A CLEARANCE OF TWELVE INCHES (MINIMUM) FROM BUILDINGS, UNLESS OTHERWISE SPECIFIED.
 4. ALL ROTOR, SPRAY AND BUBBLER HEADS AND VALVES SHALL BE FLUSHED AND ADJUSTED FOR OPTIMUM COVERAGE WITH MINIMUM OVERSPRAY ON WALLS, STREETS, WALLS, ETC.
 4. LATERAL PIPE TO TREE STREAM BUBBLER HEADS IS OMITTED FOR GRAPHIC CLARITY. CONNECT TREE BUBBLER HEADS TO VALVES AS SHOWN WITH CLASS 200 PVC PIPE SIZED TO ALLOW A MAXIMUM FLOW VELOCITY OF 5 FEET PER SECOND.

O. AUTOMATIC CONTROLLER

1. INSTALL THE CONTROLLER AT THE LOCATION INDICATED BY THE OWNER. INSTALL CONTROLLER WITH A BACKUP BATTERY AS RECOMMENDED BY THE MANUFACTURER.
2. THE IRRIGATION CONTRACTOR SHALL COORDINATE 120 V.A.C. ELECTRICAL POWER TO CONTROLLER AND DEDICATE ONE (1) 20-AMP BREAKER FOR EACH CONTROLLER. IT SHALL BE THE RESPONSIBILITY OF THE IRRIGATION CONTRACTOR TO MAKE THE FINAL HOOK-UP FROM THE ELECTRICAL SOURCE TO THE CONTROLLER UNIT ONLY.
3. ALL VALVE CONTROL WIRE SHALL BE AWG 14 TYPE UF, 600 VOLT TEST, DIRECT BURIAL. NO SPLICES SHALL BE ALLOWED EXCEPT AT VALVES AND CONTROLLER. WHERE SPLICES MAY BE NECESSARY DUE TO EXCESSIVELY LONG WIRE RUNS, THE CONTRACTOR SHALL MAKE ALL SPLICES IN 6" ROUND VALVE BOXES WITH 3MS "DBY-DIRECT BURIAL SPLICE KIT". THE CONTRACTOR SHALL LABEL ALL WIRES WITH WATERPROOF TAGS AND MARKERS AT ALL SPLICES AND VALVE MANIFOLDS, AND SHALL LEAVE A 2" COIL OF EXCESS WIRE AT EACH CONNECTION.
4. PROVIDE #10 COMMON WIRE, DIRECT BURIAL, TO ALL REMOTE CONTROL VALVES.
5. CONNECT ALL DIRECT BURIAL WIRES TO VALVES USING 3MS "DBY-DIRECT BURIAL SPLICE KIT" (UNLESS OTHERWISE SPECIFIED).
6. PROVIDE THREE ADDITIONAL IRRIGATION CONTROL WIRES ALONG EACH BRANCH OF MAINLINE FOR FUTURE EXPANSION. STUB ADDITIONAL CONTROL WIRES INTO BACK OF IRRIGATION CONTROLLERS.
7. THE IRRIGATION CONTRACTOR SHALL BE RESPONSIBLE FOR INSTALLING ALL CONTROL WIRE SLEEVES AND PIPE SLEEVES UNDER PAVED AREAS PRIOR TO PAVING - SEE SLEEVING NOTES.
8. INSTALL THE RAIN SENSOR IN THE VICINITY OF THE CONTROLLER, AND COORDINATE LOCATION WITH THE OWNER. PROVIDE MINIMUM 6" CLEARANCE FROM OTHER OUTDOOR EQUIPMENT, FREE AND CLEAR OF ANY TREE OR OTHER OVERHEAD OBSTRUCTION, AND ABOVE THE HEIGHT OF THE SPRINKLER COVERAGE. IT IS THE RESPONSIBILITY OF THE IRRIGATION CONTRACTOR TO ENSURE THE RAIN SENSOR IS PLACED IN A LOCATION WHERE IT CAN RECEIVE ADEQUATE RAINFALL WITHOUT OBSTRUCTIONS. IF IT IS PLACED IN AN INADEQUATE LOCATION, THE IRRIGATION CONTRACTOR MAY BE REQUIRED TO RELOCATE IT AT NO ADDITIONAL COST TO THE OWNER.
9. ALL IRRIGATION EQUIPMENT NOT OTHERWISE DETAILED OR SPECIFIED SHALL BE INSTALLED AS PER MANUFACTURER'S RECOMMENDATIONS AND SPECIFICATIONS.
10. QUALITY CONTROL
 1. PERFORM COVERAGE TESTS AFTER IRRIGATION SYSTEM IS COMPLETED, BUT PRIOR TO ANY PLANTING AND PERFORM TESTING IN THE PRESENCE OF THE IRRIGATION DESIGNER AND THE CONSTRUCTION MANAGER.
 2. THE SYSTEM TO ASSURE THAT ALL LAWN AND PLANTING AREAS ARE WATERED COMPLETELY AND UNIFORMLY.
 3. MAKE ALL NECESSARY ADJUSTMENTS TO PROVIDE COMPLETE COVERAGE, INCLUDING REALIGNMENT OF HEADS AND REPLACEMENT OF NOZZLES.
11. CLEAN UP
 1. DURING IRRIGATION EXCAVATION AND INSTALLATION, KEEP ALL PAVED SURFACE CLEAN AND ALL WORK AREAS IN A NEATLY ORDERLY CONDITION.
 2. DISPOSED LEGALLY OF ALL EXCAVATED MATERIALS OFF THE PROJECT SITE.
12. INSPECTION AND ACCEPTANCE
 1. UPON COMPLETION OF THE WORK, THE IRRIGATION CONTRACTOR SHALL PROVIDE THE SITE CLEAN, FREE OF DEBRIS AND TRASH, AND SUITABLE FOR USE AS INTENDED. THE IRRIGATION CONTRACTOR SHALL THEN REQUEST AN INSPECTION BY THE OWNER TO DETERMINE FINAL ACCEPTABILITY.
 2. WHEN THE INSPECTED WORK DOES NOT COMPLY WITH THE CONTRACT DOCUMENTS, THE CONTRACTOR SHALL REPLACE AND/OR REPAIR THE REJECTED WORK TO THE OWNER'S SATISFACTION WITHIN 24 HOURS.
 3. THE MAINTENANCE PERIOD WILL NOT COMMENCE UNTIL THE WORK HAS BEEN RE-INSPECTED BY THE OWNER AND FOUND TO BE ACCEPTABLE. AT THAT TIME, A WRITTEN NOTICE OF FINAL ACCEPTANCE WILL BE ISSUED BY THE OWNER, AND THE MAINTENANCE AND GUARANTEE PERIODS WILL COMMENCE.
 4. CONTROLLER CHART: THE IRRIGATION CONTRACTOR SHALL PROVIDE A 11" X 17" COLOR-CODED, LAMINATED COPY OF THE IRRIGATION LAYOUT AND PLACE IT IN THE CONTROLLER'S COVER. THE CONTROLLER CHART SHALL CLEARLY DELINEATE THE AREAS COVERED BY EACH VALVE, USING A SEPARATE COLOR FOR EACH ZONE.
 5. TURN THE FOLLOWING ITEMS IN TO THE OWNER UPON COMPLETION OF THE INSTALLATION:
 - a. QUICK COUPLER KEYS (2)
 - b. CONTROLLER MANUAL (1)
 - c. CONTROLLER KEYS (2)
 - d. A MINIMUM OF (2) COPIES OF RECORD DRAWINGS. A RECORD DRAWING IS A RECORD OF ALL CHANGES THAT OCCURRED IN THE FIELD AND THAT ARE DOCUMENTED THROUGH CHANGE ORDERS, ADDENDA, OR CONTRACTOR/CONSULTANT DRAWING MARKUPS.
13. REFER TO THE PLANTING SPECIFICATIONS FOR ADDITIONAL CONDITIONS OF FINAL ACCEPTANCE AND START OF THE MAINTENANCE PERIOD.
14. WARRANTY
 1. THE IRRIGATION SYSTEM SUPPLIED AND INSTALLED SHALL BE WARRANTED (LABOR AND MATERIALS) TO REMAIN OPERATIONAL FOR A PERIOD OF 12 MONTHS AFTER THE DATE OF FINAL ACCEPTANCE. DURING THIS PERIOD, THE CONTRACTOR SHALL ALSO REPAIR ANY SETTLEMENT OF THE IRRIGATION TRENCHES.
 2. BY THE END OF THE WARRANTY PERIOD, ANY IRRIGATION PART THAT IS EITHER NON-OPERATIONAL OR THAT IS OPERATING BELOW STANDARDS AS DETERMINED BY THE OWNER, SHALL BE REMOVED FROM THE SITE AND SHALL BE REPLACED. REPLACEMENTS SHALL BE OF THE SAME KIND AS SPECIFIED IN THE IRRIGATION LEGEND, AND SHALL BE INSTALLED AS ORIGINALLY SPECIFIED.
 3. IRRIGATION PARTS DAMAGED OR IMPAIRED DUE TO ACTS OF GOD, VANDALISM, AND/OR THE OWNER'S IMPROPER MAINTENANCE SHALL NOT BE COVERED BY THIS WARRANTY.
15. SHOULD THE PERMITTING JURISDICTION REQUIRE AN IRRIGATION AUDIT, THE IRRIGATION CONTRACTOR SHALL RETAIN THE SERVICES OF A THIRD-PARTY CERTIFIED LANDSCAPE IRRIGATION AUDITOR, AT NO ADDITIONAL COST TO THE OWNER.

IRRIGATION LEGEND

SYMBOL

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MANUFACTURER/MODEL

RAIN BIRD R-VAN-STRIP 1806-SAM-P45, TURF ROTARY, 5'X15' (LCS AND RCS), 5'X30' (SST) HAND ADJUSTABLE MULTI-STREAM ROTARY W/ 1800 TURF SPRAY BODY ON 6.0" POP-UP, WITH CHECK VALVE AND 45 PSI IN-STEM PRESSURE REGULATOR, 1/2" NPT FEMALE THREADED INLET.

RAIN BIRD R-VAN14 1806-SAM-P45, TURF ROTARY, 8'-14' 45'-270" AND 360" HAND ADJUSTABLE MULTI-STREAM ROTARY W/1800 TURF SPRAY BODY ON 6.0" POP-UP, WITH CHECK VALVE AND 45 PSI IN-STEM PRESSURE REGULATOR, 1/2" NPT FEMALE THREADED INLET.

RAIN BIRD R-VAN18 1806-SAM-P45, TURF ROTARY, 13'-18' 45'-270" AND 360" HAND ADJUSTABLE MULTI-STREAM ROTARY W/1800 TURF SPRAY BODY ON 6.0" POP-UP, WITH CHECK VALVE AND 45 PSI IN-STEM PRESSURE REGULATOR, 1/2" NPT FEMALE THREADED INLET.

RAIN BIRD R-VAN24 1806-SAM-P45, TURF ROTARY, 17'-24' 45'-270" AND 360" HAND ADJUSTABLE MULTI-STREAM ROTARY W/1800 TURF SPRAY BODY ON 6.0" POP-UP, WITH CHECK VALVE AND 45 PSI IN-STEM PRESSURE REGULATOR, 1/2" NPT FEMALE THREADED INLET.

RAINBIRD 1806-SAM-PRS SERIES POP UP SPRAY HEADS WITH ADAPTER AND RAINBIRD #1402 SERIES BUBBLER NOZZLES. (TWO PER TREE) SEE INSTALLATION NOTE #N-5 REGARDING TREE BUBBLER LATERAL PIPE

RAINBIRD 5004PCSAMR, ADJUSTABLE ARC 4" POP UP ROTARY HEAD, PART CIRCLE, #1.5 LA NOZZLE UNLESS NOTED OTHERWISE
RAINBIRD 5004PCSAMR, ADJUSTABLE ARC 4" POP UP ROTARY HEAD, PART CIRCLE, #4.0 NOZZLE UNLESS NOTED OTHERWISE

RAINBIRD XCZ-100-PRB-COM / 150-PRB-COM SERIES AUTOMATIC DRIP VALVE ASSEMBLY WITH 40 PSI PRESSURE REGULATOR XCZ-100-PRB-COM - 1" BALL VALVE WITH 1" PESB VALVE AND 1" PRESSURE REGULATING 40PSI QUICK-CHECK BASKET FILTER, 0.3GPM TO 20GPM.

RAINBIRD PEB SERIES ELECTRIC REMOTE CONTROL, "TREE BUBBLER ZONE" VALVE
SEE INSTALLATION NOTE #N-5 REGARDING TREE BUBBLER LATERAL PIPE

RAIN BIRD PEB SERIES
1", 1-1/2", 2" PLASTIC INDUSTRIAL VALVES. LOW FLOW OPERATING CAPABILITY, GLOBE CONFIGURATION.

AREA TO RECEIVE DRIPLINE

RAINBIRD XFS-CV-06-12 SERIES DRIP TUBE IN SHRUB BED INSTALLED AT 2" DEPTH

AREA TO RECEIVE DRIPLINE

RAINBIRD XFS-CV-06-12 SERIES DRIP TUBE IN NARROW TURF AREAS INSTALLED AT 4" DEPTH

ZURN / WILKINS 375XLB SERIES REDUCED PRESSURE TYPE BACKFLOW PREVENTOR INSTALLED PER CITY CODE WITH SAME SIZE BRONZE BALL VALVE INSTALLED ON THE UP-STREAM SIDE.
MOUNTED IN STRONGBOX SMOOTH TOUCH ENCLOSURE.

LASCO "V" SERIES SCH. 80 PVC TRUE UNION BALL VALVE, MAINLINE SIZE

IRRIGATION WATER METER AND TAP (BY OTHERS) SIZE AS NOTED ON THE PLAN

RAINBIRD 33DLRC QUICK COUPLER, 3/4"

RAINBIRD ESP12LXMEF2P SERIES AUTOMATIC WALL MOUNT CONTROLLER WITH ONE ESPLXMSM12 STATION MODULE

RAINBIRD WR2-RFC RAIN / FREEZE SENSOR LOCATE SENSOR AS FIELD DIRECTED BY THE LANDSCAPE ARCHITECT

1" MASTER VALVE MODEL # 100-EFB-CP WITH RAINBIRD FLOW SENSOR MODEL #FS100B SERIES

IRRIGATION LATERAL LINE: CLASS 200

IRRIGATION MAINLINE: SCHEDULE 40 PVC

IRRIGATION SLEEVES, SCH. 40 PVC, MIN. TWICE SIZE OF PIPE TO BE INSERTED

IRRIGATION SLEEVE, SCH. 40 PVC, MIN. TWICE SIZE OF PIPE TO BE INSERTED

IRRIGATION NOTE:

1. L.I.C. SHALL SELECT R-VAN SPRAY NOZZLES FOR "HEAD-TO-HEAD" COVERAGE, ADJUSTED FOR NO OVERSPRAY ONTO WALLS AND WALKS. NO OVERSPRAY INTO STREETS IS PERMITTED.
2. ALL PIPE TO BE SIZED SUCH THAT FLOWS WILL NOT EXCEED VELOCITY OF 5 FPS

WATER CONSERVATION

IRRIGATION WATER CONSERVATION SHALL BE ACCOMPLISHED THROUGH THE FOLLOWING EFFORTS:

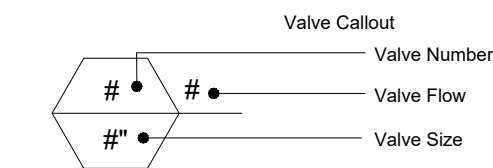
1. SEPARATE TURF / SHRUB ZONES FOR SCHEDULING ADJUSTMENT
2. NO OVERSPRAY ONTO PAVEMENT PERMITTED
3. USE OF RAIN SENSOR SHUT OFF OVER-RIDE DEVICE

LATERAL PIPE SIZE CHART

LATERAL PIPE SHALL BE SIZED TO ALLOW A MAXIMUM FLOW VELOCITY OF FIVE FEET PER SECOND ACCORDING TO THE FOLLOWING CHART:

FLOW IN GPM	LATERAL PIPE SIZE
UP TO 5 GPM	3/4" CLASS 200
6 - 10 GPM	3/4" CLASS 200
11 - 15 GPM	1" CLASS 200
16 - 28 GPM	1 1/4" CLASS 200
29 - 35 GPM	1 1/2" CLASS 200
36 - 64 GPM	2" CLASS 200
65 - 81 GPM	2 1/2" CLASS 200
82 - 120 GPM	3" CLASS 200

VALVE KEY



CRITICAL ANALYSIS

P.O.C. NUMBER: 01
Water Source Information: Irrigation Meter, By Others

FLOW AVAILABLE
Water Meter Size: 1"
Flow Available: 30 gpm

PRESSURE AVAILABLE
Static Pressure at POC (est.): 68.00 psi
Elevation Change: NA
Service Line Size: NA
Length of Service Line: NA
Pressure Available: 65.00 psi

DESIGN ANALYSIS
Maximum Station Flow: 24.0 gpm
Flow Available at POC: 30.0 gpm
Residual Flow Available: 6.0 gpm

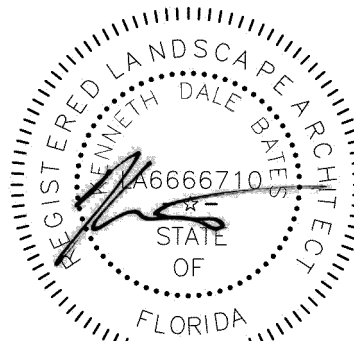
Critical Station: 12
Head Pressure Required: 35.00 psi
Lateral Loss: 3.30 psi
Loss through Valve: 2.90 psi
Pressure Req. at Critical Station: 41.20 psi
Loss for Main Line: 1.91 psi
Loss for Fittings (per Main Line): 0.38 psi
Loss for Master Valve: 3.00 psi
Loss for Backflow: 11.00 psi
Loss for Water Meter: 3.40 psi
Critical Station Pressure at POC: 60.89 psi
Pressure Available: 65.00 psi
Residual Pressure Available: 4.11 psi

IRRIGATION SPECIFICATIONS

STARBUCKS - RIVERVIEW
10790 BIG BEND ROAD
RIVERVIEW, FL 33579

BOWMAN CONSULTING GROUP LTD.
4504 CYPRESS CENTER DR., SUITE 140
TAMPA, FL 33609
PHONE: (813) 736-2114
LICENSE NO. 30462
BOWMAN.COM

HILLSBOROUGH COUNTY, FL



PLAN STATUS

REV	DATE	COMMENT
1	06/27/23	AHJ COMMENTS
2	10/11/23	AHJ COMMENTS

EDG	JP	KB
DESIGN	DRAWN	CHKD
SCALE		
JOB No.	011045-01-001	
DATE	09/23/2022	

LI-3

SHEET

