

SPECIFICATIONS

WORK INCLUDED:

WORK CONSISTS OF INSTALLING AN AUTOMATED IRRIGATION SYSTEM AS SHOWN ON THE PLANS AND AS HEREBY SPECIFIED, INCLUDING THE FURNISHING OF ALL LABOR, EQUIPMENT, MATERIALS, NECESSARY FOR THE CONSTRUCTION OF THE AUTOMATED IRRIGATION SYSTEM AND PERMITS.

RELATED WORK

DRAWINGS AND GENERAL PROVISIONS OF THE CONTRACT, INCLUDING GENERAL AND SUPPLEMENTARY CONDITIONS AND OTHER SPECIFICATION SECTIONS, APPLY TO THIS SECTION.

CONTRACTOR'S QUALIFICATIONS

EACH BIDDER SHALL HAVE INSTALLED AT LEAST 2 (TWO) IRRIGATION PROJECTS SIMILAR IN NATURE WITHIN THE PAST YEAR.
THE CONTRACTOR SHALL BE LICENSED AND BONDED IN THE COMMUNITY THIS PROJECT RESIDES.

THE CONTRACTOR SHALL SUBMIT WITH HIS BID, A LISTING OF THOSE PROJECTS WHICH MEET THIS REQUIREMENT, ALSO, PROPER CONTACT NAME, ADDRESS, AND TELEPHONE NUMBERS OF THOSE WHO CAN VERIFY THIS INFORMATION.

QUALITY ASSURANCE:

ALL FEDERAL, STATE, AND LOCAL GOVERNING AGENCY REQUIREMENTS AND INDUSTRY STANDARDS APPLICABLE ARE HEREBY MADE PART OF THIS SPECIFICATION.

WORK SHALL NOT COMMENCE UNTIL ALL PERMITS APPLICABLE TO THIS SECTION HAVE BEEN SECURED.

THE WATER MANAGEMENT CONSULTANT WILL HAVE THE RIGHT AT ANY STAGE OF THE CONSTRUCTION OPERATION TO REJECT ANY AND ALL WORK AND MATERIALS WHICH DO NOT MEET THE REQUIREMENTS OF THESE SPECIFICATIONS. SUCH REJECTED WORK AND MATERIALS SHALL BE IMMEDIATELY REMOVED FROM THE SITE AND REPLACED IN AN ACCEPTABLE MANNER.

SUBMITTALS

SUBMIT THE FOLLOWING:

PRODUCT DATA: SUBMIT 2 SETS OF MANUFACTURER'S TECHNICAL DATA FOR THE OWNER'S RECORDS.

OPERATING INSTRUCTIONS: SUBMIT INSTRUCTION SHEETS AND PARTS LIST COVERING ALL OPERATING EQUIPMENT FOR THE OWNER'S RECORDS AT THE FINAL INSPECTION.

GUARANTEE:

THE CONTRACTOR SHALL GUARANTEE THE AUTOMATIC IRRIGATION SYSTEM FOR A PERIOD OF ONE YEAR FROM THE DATE OF ACCEPTANCE AGAINST DEFECTS IN EQUIPMENT, MATERIALS AND WORKMANSHIP. REPAIR AND REPLACEMENT OF FAULTY MATERIALS AND EQUIPMENT SHALL BE MADE WITHIN 48 HOURS AND AT NO COST TO THE OWNER. CONTRACTOR SHALL PROVIDE A FALL SYSTEM SHUT DOWN FOR 2005 AND 2006 AND A COMPLETE SPRING TURN ON IN 2006 AT NO ADDITIONAL CHARGE.

THE CONTRACTOR SHALL BE AVAILABLE TO PROMPTLY REPAIR THE SYSTEM IN THE EVENT OF DAMAGE BY OTHERS OR DUE TO CIRCUMSTANCES BEYOND THE CONTROL OF THE CONTRACTOR. WITHIN 48 HOURS PAYMENT OF SUCH REPAIRS SHALL BE NEGOTIATED AND APPROVED BY THE WATER MANAGEMENT CONSULTANT PRIOR TO THE WORK.

THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR THE WORK UNTIL THE EXPIRATION OF THE GUARANTEE PERIOD. THE INSTALLING CONTRACTOR SHALL SUBMIT A WRITTEN MAINTENANCE AND OPERATION PROGRAM TO THE OWNER PRIOR TO FINAL PAYMENT.

PROTECTION

PRIOR TO COMMENCING ANY WORK REQUIRED UNDER THE CONTRACT, THE CONTRACTOR SHALL LOCATE ALL UTILITIES, SUBSURFACE DRAINAGE AND UNDER GROUND CONSTRUCTION SO THAT PROPER PRECAUTIONS MAY BE TAKEN NOT TO DISTURB OR DAMAGE ANY SUBSURFACE IMPROVEMENTS.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR REPAIRING IMMEDIATELY, AT HIS OWN EXPENSE, ANY DAMAGE TO THE WORK OF OTHERS WHICH IS CAUSED BY THE CONTRACTOR IN THE COURSE OF THIS WORK, INCLUDING, BUT NOT LIMITED TO UTILITIES, STRUCTURES, PAVEMENT, NEW AND EXISTING GRADES, NEW AND EXISTING VEGETATION, ETC.

ANY OBJECTIONABLE MATERIALS SUCH AS OLD CONCRETE, BRICKS, OR OTHER DEBRIS ENCOUNTERED DURING THE INSTALLATION OPERATIONS SHALL BE REMOVED FROM THE SITE BY THE CONTRACTOR.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING HIS WORK WITH ALL OTHER PARTIES INVOLVED WITH THE JOB IN ORDER TO ELIMINATE UNNECESSARY COMPLICATIONS DURING THE INSTALLATION OF HIS WORK.

FIELD QUALITY CONTROL/WORKMANSHIP

THE OWNERS REPRESENTATIVE SHALL INSPECT THE WORK AT ANY TIME DURING THE COURSE OF THE CONSTRUCTION ACTIVITIES TO ENSURE ADHERENCE TO THE PLANS AND SPECIFICATIONS.

AREAS WHICH ARE DEFICIENT DUE TO UNFORESEEN CONDITIONS OR OBSTRUCTIONS SHALL BE BROUGHT TO THE ATTENTION OF THE OWNERS REPRESENTATIVE PRIOR TO THE INSTALLATION IN THAT AREA.

FINAL INSPECTION AND FINAL ACCEPTANCE

UPON COMPLETION OF ALL WORK, AND INSPECTION FOR ACCEPTANCE OF WORK WILL BE HELD. THE CONTRACTOR SHALL NOTIFY THE OWNER AT LEAST THREE DAYS PRIOR TO THE ANTICIPATED INSPECTION DATE.

THE CONTRACTOR SHALL DEMONSTRATE THE ENTIRE SYSTEM TO THE OWNER, PROVING THAT ALL REMOTE CONTROL VALVES ARE PROPERLY BALANCED, THAT ALL HEADS ARE PROPERLY ADJUSTED FOR RADIUS AND ARC OF COVERAGE, AND THAT THE SYSTEM IS WORKABLE, CLEAN, AND EFFICIENT. THIS SHALL BE A REQUIREMENT FOR ACCEPTANCE OF THE WORK.

AT THE TIME OF THE INSPECTIONS, IF THE WORK IS WHOLLY OR SUBSTANTIALLY ACCEPTABLE, A LETTER OF ACCEPTANCE WILL BE ISSUED BY THE OWNER STATING THE DATE THE GUARANTEE PERIOD SHALL BEGIN. MINOR DEFICIENCIES SHALL BE RECTIFIED WITH THREE (3) DAYS OF THE INSPECTION DATE. IF SIGNIFICANT DEFICIENCIES ARE FOUND DURING THE INSPECTION, SUCH WORK SHALL BE CORRECTED PRIOR TO THE ISSUANCE OF THE LETTER OF ACCEPTANCE.

EXECUTION:

PIPELINE POSITIONS INDICATED ON THE PLANS ARE GENERALLY SCHEMATIC AND SHALL BE FIELD ADJUSTED BY THE CONTRACTOR TO AVOID OBSTACLES.

ALL LATERAL PIPING IS TO BE PULLED IN WITH THE USE OF A VIBRATORY FLOW EXCEPT WHERE OBSTACLES MAKE IT IMPOSSIBLE TO INSTALL THE PIPE IN SUCH A MANNER.

ALL PVC MAINLINES ARE TO BE INSTALLED WITH THE USE OF A TRENCHER EXCEPT WHERE OBSTACLES MAKE IT IMPOSSIBLE. ALL SOIL WILL BE PROPERLY RE-COMPACTED AND SOD REPLACED IN ALL TRENCHES (IF APPLICABLE), AND REMAINING AREAS WILL BE LEFT IN A "READY OF SOD" CONDITION.

EXISTING CONDITIONS:

CONTRACTOR SHOULD MAKE AN EFFORT TO REVIEW THE PROJECT SITE PRIOR TO SUBMITTING A BID PROPOSAL. THIS IS A NEW CONSTRUCTION PROJECT.

CLEANING:

THE CONTRACTOR SHALL, AT ALL TIMES, KEEP THE PREMISES FREE FROM ACCUMULATIONS OF WASTE MATERIALS OR RUBBISH CAUSED BY HIS EMPLOYEES OR WORK. ALL WASTE MATERIALS SHALL BE DISPOSED OF PROPERLY OFF-SITE.

***AS-BUILT* DRAWINGS**

THE CONTRACTOR SHALL PROVIDE A COMPLETE SET OF ACCURATE "AS BUILT" DRAWINGS IN MYLAR FORM ACCURACY WILL BE VERIFIED BY THE WATER MANAGEMENT CONSULTANT BEFORE FINAL PAYMENT TO THE INSTALLING CONTRACTOR.

LEGEND

● RAIN BIRD 1804 SERIES POP-UP SPRAY OR APPROVED EQUAL

REFER TO INSTALLATION DETAIL. NOZZLES TO BE RAIN BIRD 1800-12 & 15 SERIES NOZZLES. ALL LATERAL PIPING THAT IS ROUTED THROUGH PLANTING BEDS WILL BE TRENCHED AT AN 18" DEPTH TO AVOID FUTURE DAMAGE.

○ RAIN BIRD 1812 SERIES POP-UP SPRAY OR APPROVED EQUAL

REFER TO INSTALLATION DETAIL. NOZZLES TO BE RAIN BIRD 1800-6, 10, 12 & 15 SERIES NOZZLES. ALL LATERAL PIPING TO 12" POP-UPS WILL REMAIN ENTIRELY OUT OF FLOWER BEDS TO AVOID CULTIVATION DAMAGE. ANY PIPING THAT MUST ENTER THE FLOWER BED MUST BE PLACED AT AN 18" DEPTH OF BETTER.

⊕ RAIN-BIRD PEB SERIES 1" ELECTRIC VALVE OR APPROVED EQUAL

VALVES TO BE PLACED IN SHRUB BEDS WHERE SHOWN ON PLANS. ALL PIPING IN VALVE BOX SHALL BE SCHEDULE 80 (UP STREAM), ALL SCHEDULE 80 SHALL BE SOLVENT WELDED BACK INTO SCHEDULE 40 FITTING OUTSIDE VALVE BOX. THE AMETEK BOXES ALLOWED ARE: 1 VALVE-AMETEK BOX # 181116 (10"), 2-3 VALVES-AMETEK BOX # 170136 AND 4-5 VALVES-AMETEK BOX # 180125.

ALL VALVE BOXES TO BE SUPPLIED WITH "BROWN" LIDS AND "BLACK" BOXES IN ALL CASES

□ RAIN BIRD ESP24K LX PLUS OR APPROVED EQUAL

RAIN BIRD ESP24K LX PLUS WALL MOUNTED CONTROLLER ON THE OUTSIDE WALL NEXT TO WHERE THE WATER COMES OUT OF THE BUILDING. 110-VOLT POWER INTO THE CONTROLLER SHALL BE PROVIDED BY OTHERS.

⊞ HUNTER MINI-CLIK RAIN SENSOR, MOUNTED ON THE BUILDING ROOF AND WIRED INTO THE CONTROLLER.

----- MAINLINE

MAINLINE IS TO BE CONSTRUCTED OF CRESLINE, CANTEX, JET STREAM AND/OR EAGLE PVC CLASS 200 OR BETTER. 1 1/2" IN SIZE MAINLINE WILL BE INSTALLED AT 24" IN DEPTH WITH THE USE OF A TRENCHER OR HAND TRENCHING WHERE NOTED. ALL TRENCHES WILL BE COMPACTED AND TOP DRESSED.

ALL ASSOCIATED FITTINGS FOR MAINLINES WILL BE PVC SCH. 40 AND MANUFACTURED BY DURA, SPEARS, LASCO, OR NIBCO OR APPROVED EQUAL.

----- LATERAL

LATERALS IS TO BE CONSTRUCTED OF CRESLINE, AND/OR EAGLE POLYETHYLENE NSF, 1 1/4" & 1" IN SIZE. LATERALS WILL BE INSTALLED AT 12" IN DEPTH WITH THE USE OF A VIBRATORY FLOW AND HAND TRENCHING WHERE NOTED. ALL REMAINING "SLITS AND TRENCHES" WILL BE COMPACTED AND TOP DRESSED.

ALL ASSOCIATED FITTINGS FOR LATERAL PIPING WILL BE POLY. INSERT FITTINGS AND MANUFACTURED BY DURA, SPEARS, LASCO, OR NIBCO OR APPROVED EQUAL.

ALL FITTING TO PIPE CONNECTIONS WILL BE SECURED WITH OETIKER STAINLESS STEEL CRIMP CLAMPS.

CONTROLLER:

TURF "WHITE" NEUTRAL # 14-1, U.L. LISTED, P.E. COATED, 600 VOLT, ANNUALS "RED" NEUTRAL # 14-1, U.L. LISTED, P.E. COATED, 600 VOLT, SPARK "PURPLE" NEUTRAL # 14-1, U.L. LISTED, P.E. COATED, 600 VOLT.

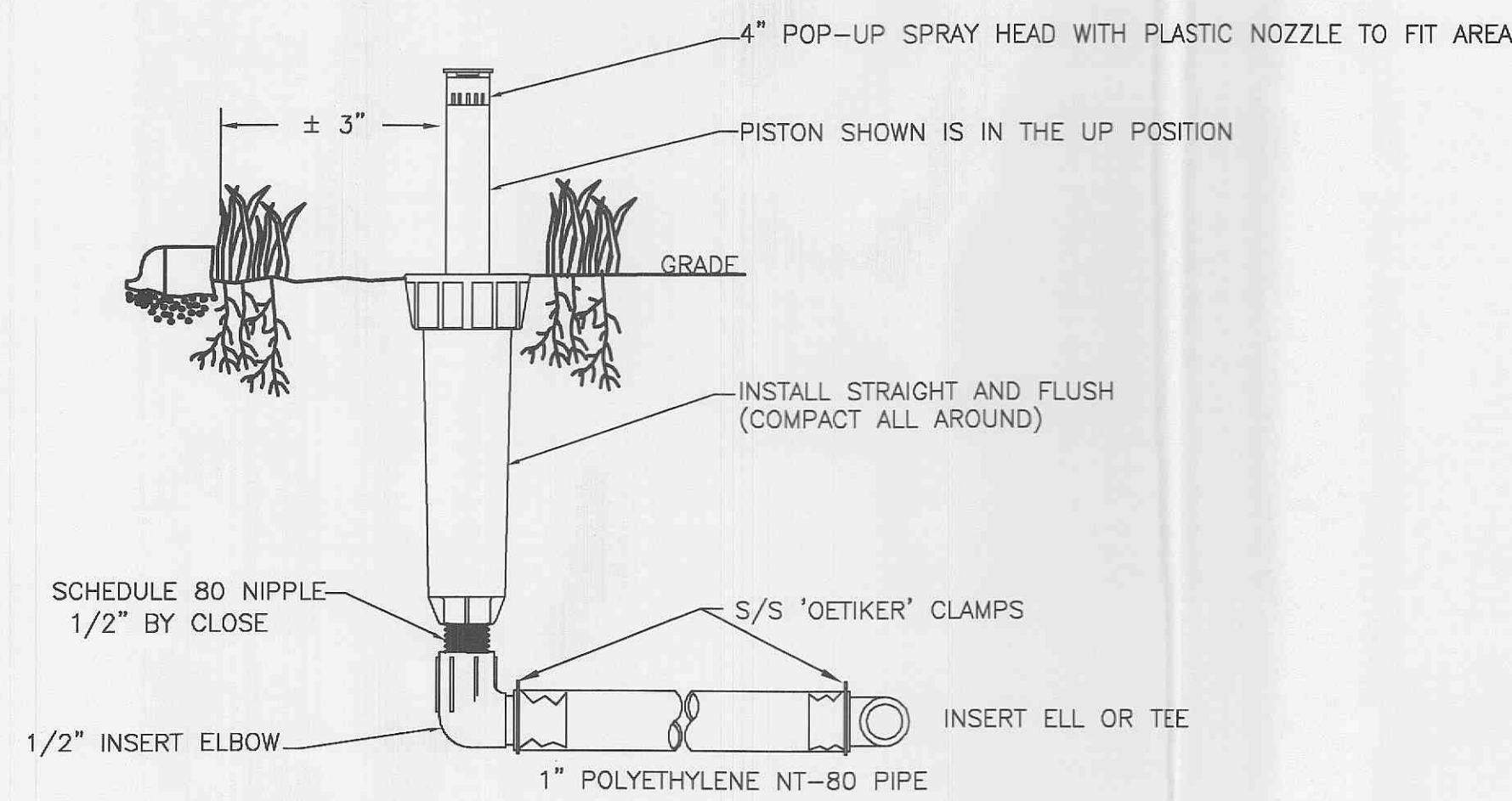
MULTI CONDUCTOR (1) # 18/13, U.L. LISTED, P.E. OUTER COATING, 30 VOLT. INSTALL FROM CONTROLLER TO VALVES 1, 2, 3, 4, 5, 6, 7, 8, 9, 16 & 17 (2 SPARES).

MULTI CONDUCTOR (1) # 18/13, U.L. LISTED, P.E. OUTER COATING, 30 VOLT. INSTALL FROM CONTROLLER TO VALVES 10, 11, 12, 13, 14, & 15 (7 SPARES).

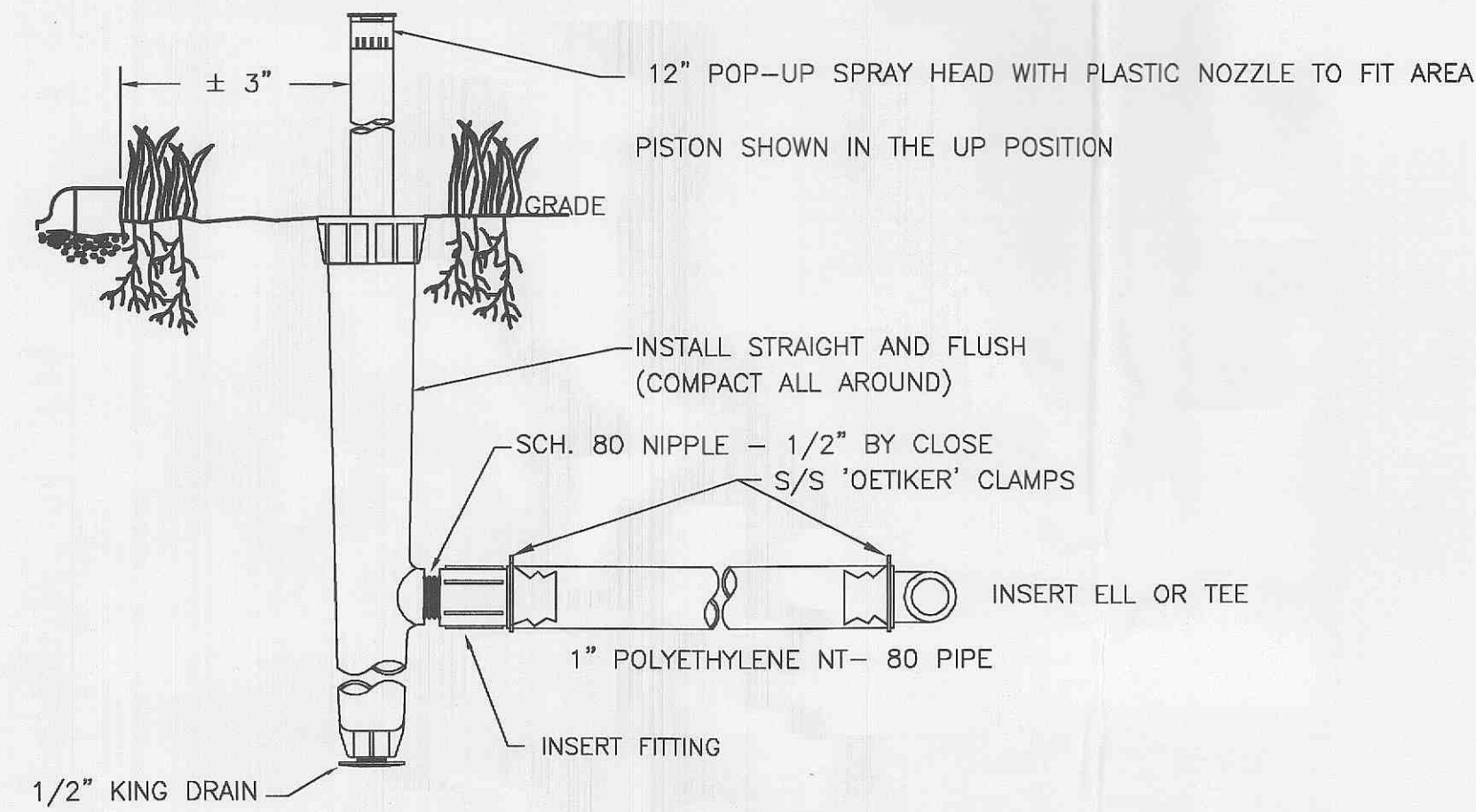
USE 3M EPOXY TYPE SPLICES OR "HEAT SHRINK" METHODS REQUIRED FOR SPLICING. OPEN FIELD SPLICES ARE NOT ALLOWED.

==== SLEEVING/AUGERING

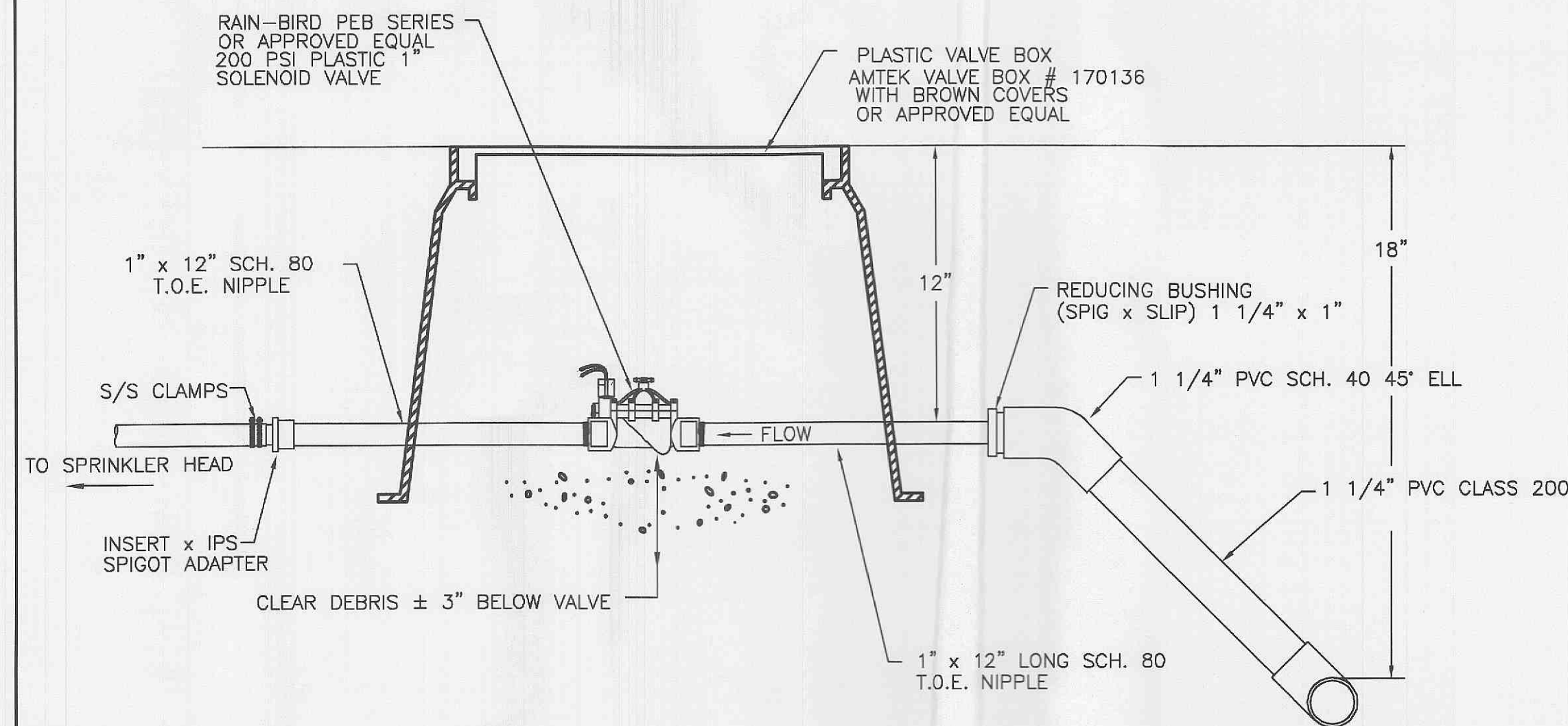
SLEEVING/AUGER AS REQUIRED FOR INSTALLATION OF LATERAL AND MAINLINE PIPING. ANY WIRING THAT MUST BE INSTALLED IN THESE AREAS MUST BE PLACED IN 2" P.V.C. SLEEVE NEXT TO MAINLINE.



A 4" POP-UP SPRAY HEADRAINBIRD 1804 OR APPROVED EQUAL
NO SCALE SAMPLE INSTALLATION DETAIL

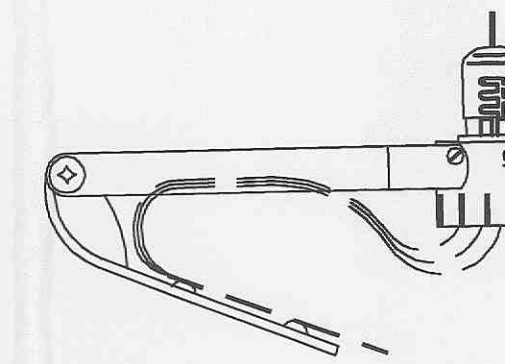


B 12" POP-UP SPRAY HEABAINBIRD 1812 OR APPROVED EQUAL
NO SCALE SAMPLE INSTALLATION DETAIL



C RAIN BIRD 1" PED SERIES ELECTRIC SOLENOID VALVE
NO SCALE SAMPLE INSTALLATION DETAIL

D AUTOMATIC RAIN SENSOR
NO SCALE



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RED ROBIN
Irrigation Systems & Supplies

RED ROBIN GOURMET BURGERS
1440 MEXICO LOOP ROAD EAST
O'FALLON, MO

IRRIGATION DETAILS
ENGINEERING RE-ISSUE: 10/28/05

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Revisions

△	PLANNING & ZONING ISSUE
△	06/17/05
△	PLANNING & ZONING RE-ISSUE
△	07/06/05
△	PLAN REVIEW ISSUE
△	08/24/05
△	ENGR. RE-ISSUE @ 24X36
△	09/16/05
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ENGINEER

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