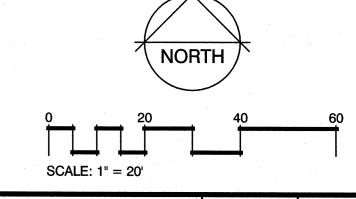


## IRRIGATION NOTES

- I. AN AUTOMATIC IRRIGATION SYSTEM SHALL BE DESIGNED AND INSTALLED ON THE PROJECT SITE IN CONFORMANCE WITH THESE DETAILS, NOTES, AND SPECIFICATIONS. THE IRRIGATION SYSTEM SHALL BE COMPRISED OF PIPING, IRRIGATION HEADS, VALVES, CONTROLS, CONTROL WIRING, FITTINGS, ELECTRICAL CONNECTIONS AND NECESSARY ACCESSORIES.
- 2. FULL AND COMPLETE 100% COVERAGE IS REQUIRED. BUBBLERS SHALL BE INSTALLED TO EACH SHRUB AND TREE AND SPRAY OR ROTOR HEADS SHALL BE INSTALLED IN ALL TURF GRASS AREAS AND GROUNDCOVER BEDS.
- 3. MAKE NECESSARY ADJUSTMENTS TO LAYOUT REQUIRED TO ACHIEVE FULL COVERAGE OF IRRIGATED AREAS WITHOUT OVERTHROW ON ROADWAYS,
- SIDEWALKS, BUILDINGS AND TO PROTECT TREES FROM CLOSE HIGH SPRAY VELOCITY 4. ALL WORK SHALL BE PERFORMED BY PERSONS FAMILIAR WITH THIS TYPE OF WORK AND UNDER THE SUPERVISION OF A FOREMAN FAMILIAR WITH THIS TYPE OF WORK. THE FOREMAN SHALL REMAIN ON-SITE DURING ALL LANDSCAPE IRRIGATION INSTALLATIONS.
- 5. COMPLY WITH ALL LOCAL CODES AND ORDINANCES.
- 6. VERIFY LOCATIONS OF ALL UNDERGROUND UTILITIES PRIOR TO TRENCHING OPERATIONS.
- 7. INSTALL NO MORE THAN ONE TEE OR ELBOW OFF OF MAINLINE PER REMOTE CONTROL VALVE AND ONE REMOTE CONTROL VALVE PER VALVE BOX. DO NOT USE MANIFOLD SYSTEMS.
- 8. COORDINATE INSTALLATION/OPERATION OF IRRIGATION SYSTEM WITH OTHER TRADES.
- 9. VERIFY 'WORKING' PSI AT MAXIMUM OPERATING FLOW PRIOR TO DESIGN OF SYSTEM (±55 PSI REPORTED SEE CIVIL DRAWINGS).
- 10. USE KBI VALVE OR IN HEAD CHECK VALVES TO PREVENT LOW HEAD DRAINAGE WHERE IT OCCURS.
- 11. "AS-BUILT" RECORD DRAWINGS SHALL BE SIGNED BY THE INSTALLER AND DELIVERED TO OWNER PRIOR TO FINAL PAYMENT
- 12. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL COSTS ASSOCIATED WITH PERMITTING AND INSTALLING POINT OF CONNECTION AND ELECTRICAL
- 13. USE THRUST BLOCKS ON ALL BENDS ON THE 3" MAINLINE. 14. SEE SHEET L7 FOR IRRIGATION DETAILS.
- 15. INSTALL POINT-OF-CONNECTION WHERE SHOWN ON DRAWING AND IN ACCORDANCE WITH DETAILS SHOWN ON SHEET L7.
- 16. PIPING:
- IRRIGATION MAINS: POLYVINYL CHLORIDE, SCHEDULE 40
- IRRIGATION LATERALS: POLYVINYL CHLORIDE, CLASS 200
- IRRIGATION SLEEVES UNDER HARD SURFACES TWICE THE DIAMETER OF THE PIPING GOING THROUGH IT; POLYVINYL CHLORIDE, CLASS 2005CH - MINIMUM COVER OVER IRRIGATION MAINS SHALL BE 24", AND 18" OVER IRRIGATION LATERALS LINES.
- SCHEDULE 80 FITTINGS SHALL BE USE ON ALL BENDS 2" IN DIAMETER OR LARGER ON THIS PROJECT AND SCHEDULE 40 FITTINGS EVERYWHERE ELSE. - SWING JOINTS - THREADED FITTINGS WITH ELASTOMERIC SEALS THAT ALLOW 360 DEGREE ROTATION MAY BE USED IN LIEU OF STANDARD THREADED FITTINGS.
- 18. VALVES:
- REMOTE CONTROL VALVES: EACH SPRINKLER SECTION SHALL BE AUTOMATICALLY OPERATED BY A REMOTE CONTROL VALVE INSTALLED UNDERGROUND AND OPERATED BY A 24-VOLT AC ELECTRIC SOLENOID. VALVES SHALL BE GLOVE TYPE OF HEAVY DUTY CONSTRUCTION AND SHALL HAVE MANUAL SHUT-OFF AND FLOW CONTROL ADJUSTMENT AND PROVIDE FOR MANUAL OPERATION. INSTALL VALVES WITH SCHEDULE 80 PVC UNIONS ON EACH SIDE TO ALLOW FOR EASY REMOVAL. VALVES SHALL HAVE A MINIMUM OF (200 PSI) WORKING PRESSURE.
- VALVES 2" AND SMALLER SHALL BE OF GLASS-FILLED NYLON CONSTRUCTION FURNISHED AS STRAIGHT GLOBE PATTERN TYPE. FLOW CONTROL WHEEL SHALL BE PURPLE COLOR FOR NON-POTABLE SUPPLY.
- VALVES 3" AND LARGER SHALL BE OF GLASS-FILLED NYLON CONSTRUCTION FURNISHED AS STRAIGHT OR ANGLE PATTERN TYPE, AND HAVE TWO INLETS ( FURNISHED WITH ONE PLUGGED) TO ALLOW INSTALLATION AS EITHER A STRAIGHT OR ANGLE PATTERN VALVE. FLOW CONTROL WHEEL SHALL BE PURPLE COLOR FOR NON-POTABLE SUPPLY.
- VALVES SHALL BE DIAPHRAGM TYPE DESIGNED TO OPERATE IN WATER LEADING TO THE SOLENOID ACTUATOR AND THE DIAPHRAGM CHAMBER. VALVE SHALL INCORPORATE A NON-ADJUSTABLE TYPE OPENING AND CLOSING SPEED CONTROL FOR PROTECTION AGAINST SURGE PRESSURES.
- VALVES SHALL BE COMPLETELY SERVICEABLE FROM THE TOP WITHOUT REMOVING VALVE BODY FROM THE SYSTEM. VALVES TO OPERATE AT NO MORE THAN 7 PSI PRESSURE LOSS AT MANUFACTURERS MAXIMUM RECOMMENDED FLOW RATE.
- UNDERGROUND SHUT-OFF VALVES: BALL VALVES (FOR ISOLATION VALVES 4" AND SMALLER): FULL-PORT BALL VALVES WITH BRONZE BODY, PTFE SEATS, AND 90 DEGREE ON/OFF HANDLE. BALL VALVES TO HAVE NPT FEMALE END CONNECTIONS TO ACCOMMODATE THE TYPE OF PIPE INSTALLED. 20. VALVE BOXES:
- ISOLATION VALVE: VALVE BOXES SHALL BE PRECAST POLYMER CONCRETE WITH COMPRESSIVE STRENGTH OF THE CONCRETE IN EXCESS OF 4000 PSI. BOXES SHALL BE MINIMUM 32 INCHES LONG BY 19 INCHES WIDE BY 18 INCHES DEEP. BOXES SHALL BE INSTALLED WITH EXTENSIONS AS REQUIRED TO PROVIDE DEPTH OF COVER REQUIRED OVER PIPE AT VALVE LOCATION. COVERS SHALL BE PRECAST POLYMER CONCRETE WITH RECESSED
- LOCK-DOWN BOLT. - REMOTE CONTROL VALVES: BODIES SHALL BE GREEN, HDPE STRUCTURAL FOAM TYPE A, CLASS III. BOX OPENINGS SHALL BE MINIMUM 32 INCHES LONG BY 19 INCHES WIDE BY 18 INCHES DEEP WITH LOCKABLE BOLT DOWN HDPE COVER, PURPLE COLOR FOR NON-POTABLE SUPPLY.
- QUICK COUPLING VALVES: BODIES SHALL BE GREEN, HDPE STRUCTURAL FOAM TYPE A, CLASS III. BOX OPENINGS SHALL BE MINIMUM TO INCHES ROUND BY 12 INCHES) DEEP WITH LOCKABLE BOLT DOWN HDPE COVER, PURPLE COLOR FOR NON-POTABLE SUPPLY.
- 21. AUTOMATIC CONTROL EQUIPMENT: RECOMMEND THAT A DECODER CONTROLLER (TWO WIRE SYSTEM) BE USED WITH ASSOCIATED EQUIPMENT. RAIN BIRD, HUNTER AND TORO ARE ACCEPTABLE.
- 22. SPRINKLER HEADS: - IRRIGATION SPRINKLERS: THE ENTIRE INTERNAL ASSEMBLY INCLUDING FILTER SCREEN, TO BE CAPABLE OF REMOVAL FROM THE TOP WITHOUT REMOVING THE
- SPRINKLER CASE FROM THE RISER. ALL SPRINKLERS SHALL BE SUPPLIED WITH PURPLE COLOR CAPS OR COVERS FOR NON-POTABLE SUPPLY. - ROTOR POP-UP SPRINKLERS: TO BE A DUAL OR TRI-NOZZLE COMBINATION TYPE WITH POSITIVE DRIVE BY MEANS OF A WATER-DRIVEN GEAR ASSEMBLY. SPRINKLER HEAD TO ROTATE UNIFORMLY AND TO BE DRIVEN BY MEANS OF A TRAIN OF GEARS. SPRINKLERS TO BE EQUIPPED WITH AN INTEGRAL ANTI-DRAIN VALVE TO BE SELF-CLOSING AT PRESSURES OF 10 FEET OF HEAD OR LESS. GEARS AND PINIONS SHALL BE ASSEMBLED ON STAINLESS STEEL SPINDLES IN A WATER-LUBRICATED SANDPROOF GEAR CASE. AN INLET SCREEN SHALL PREVENT DEBRIS FROM ENTERING THE SPRINKLER AND SHALL BE REMOVABLE WITH THE INTERNAL ASSEMBLY. SPRINKLERS OUTER CASE SHALL BE CONSTRUCTED OF CORROSION RESISTANT, IMPACT RESISTANT, HEAVY-DUTY ABS. - SPRAY HEADS: NOZZLE SHALL BE POP-UP SPRAY TYPE OF STANDARD, UNDERSIZE OR OVERSIZE CONFIGURATION AS NOTED ON PLANS. THE SPRINKLER BODY, STEM, NOZZLE AND SCREEN SHALL BE CONSTRUCTED OF HEAVY-DUTY, ULTRAVIOLET RESISTANT PLASTIC. IT SHALL HAVE A HEAVY DUTY STAINLESS STEEL RETRACT SPRING AND A RATCHETING SYSTEM FOR ALIGNMENT OF THE PATTERN. THE SPRINKLER SHALL HAVE A SOFT ELASTOMER PRESSURE-ACTIVATED COMOLDED WIPER SEAL FOR CLEANING DEBRIS FROM THE POP-UP STEM. THE SPRINKLER SHALL BE CAPABLE OF HOUSING PROTECTIVE, NONCLOGGING
- FILTER SCREENS OR PRESSURE COMPENSATING SCREENS (PCS) UNDER THE NOZZLE. - PRESSURE COMPENSATING FLOOD BUBBLER: THE BUBBLER SHALL HAVE A "TRICKLE" PATTERN OR AN "UMBRELLA" PATTERN DISCHARGE. THE BUBBLER ASSEMBLY SHALL HAVE A PLASTIC INLET FILTER SCREEN TO PROTECT THE NOZZLE AGAINST CLOGGING. THE PRESSURE COMPENSATING BUBBLER SHALL BE OF A PERMANENTLY ASSEMBLED DESIGN CONSTRUCTED OF DURABLE, UV-RESISTANT PLASTIC WITH AN INTEGRAL RUBBER FLOW WASHER FOR REGULATING THE FLOW RATE AT AN OPERATING PRESSURE RANGE OF 20 TO 90 PSI. THE PRESSURE COMPENSATING BUBBLER SHALL HAVE A 1/2 INCH FEMALE THREADED INLET FOR CONNECTION TO THE PIPING SYSTEM RISER.
- 23. QUICK COUPLERS: SHALL HAVE ALL PARTS CONTAINED IN A TWO-PIECE UNIT AND SHALL CONSIST OF A COUPLER WATER SEAL VALVE ASSEMBLY AND A REMOVABLE UPPER BODY TO ALLOW THE SPRING AND KEY TRACK TO BE SERVICED WITHOUT SHUT DOWN OF THE MAIN. METAL PARTS SHALL BE BRASS. LIDS SHALL BE LOCKABLE, PURPLE COLOR VINYL COVERED FOR NON-POTABLE SUPPLY AND HAVE SPRINGS FOR POSITIVE CLOSURE ON KEY REMOVAL. FURNISH THREE (3) HOSE SWIVELS AND OPERATING KEYS FOR EACH SIZE COUPLER TO THE OWNER' REPRESENTATIVE.
- 24. LOW VOLTAGE WIRE: THE APPROPRIATE WIRE SYSTEM SHALL BE USED FOR THE TYPE OF AUTOMATIC CONTROLLER INSTALLED, AS RECOMMENDED BY THE MANUFACTURER.
- 25. WARNING TAPE AND TRACER WIRE:
- WARNING TAPE STANDARD, 4-MIL POLYETHYLENE 76 MM (3 INCH) WIDE TAPE, DETECTABLE TYPE PURPLE WITH BLACK LETTERS FOR NON-POTABLE WATER SUPPLY, AND IMPRINTED WITH "CAUTION BURIED IRRIGATION WATER LINE BELOW" INSTALLED OVER IRRIGATION MAINS ONLY. TRACER WIRES - NO. 14, GREEN, TYPE TW PLASTIC-COATED COPPER TRACER WIRE SHALL BE INSTALLED WITH ALL NON-METALLIC IRRIGATION MAIN LINES.
- 26. TEST AND FLUSHING: PRESSURE TEST - PRESSURE TEST LINES BEFORE JOINT AREAS ARE BACKFILLED. BACKFILL A MINIMUM OF 12 INCHES OVER THE PIPE TO MAINTAIN PIPE STABILITY DURING TEST PERIOD. TEST PIPING AT HYDRAULIC PRESSURE OF 150 PSI FOR MINIMUM 30 MINUTES WITH MAXIMUM 5 PSI LOSS. LOCATE PUMP AT LOW POINT IN LINE AND APPLY PRESSURE GRADUALLY. INSTALL PRESSURE GAGE SHUT-OFF- VALVE AND SAFETY BLOW-OFF VALVE BETWEEN PRESSURE SOURCE AND PIPING. INSPECT EACH JOINT AND REPAIR LEAKS. LINE SHALL BE RETESTED UNTIL SATISFACTORY. FLUSHING - AFTER TESTING, FLUSH SYSTEM WITH A MINIMUM OF 150 PERCENT OF OPERATING FLOW PASSING THROUGH EACH PIPE BEGINNING WITH LARGER MAINS AND CONTINUING THROUGH SMALLER MAINS IN SEQUENCE. FLUSH LINES BEFORE INSTALLING SPRINKLER HEADS AND QUICK COUPLERS. OPERATION TEST - UPON COMPLETION OF THE FINAL ADJUSTMENT OF THE SPRINKLER HEADS TO PERMANENT LEVEL AT GROUND SURFACE, TEST EACH SPRINKLER SECTION BY THE PAN TEST AND VISUAL TEST TO INDICATE A UNIFORM DISTRIBUTION WITHIN ANY ONE SPRINKLER HEAD AREA AND OVER THE ENTIRE AREA. OPERATE THE ENTIRE INSTALLATION TO DEMONSTRATE THE COMPLETE AND SUCCESSFUL OPERATION OF ALL EQUIPMENT





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