PART 3 – EXECUTION

3.1. GENERAL:

3.1.1. PLANS ARE DIAGRAMMATIC. ALL PIPING, VALVE BOXES, AND ASSOCIATED EQUIPMENT SHALL BE LOCATED IN LANDSCAPE AREAS. NO IRRIGATION EQUIPMENT SHALL BE LOCATED IN HARDSCAPE. GROUP VALVE BOXES TOGETHER AND LOCATE IN SHRUB AREAS, WHENEVER POSSIBLE.

3.1.2. UNLESS OTHERWISE INDICATED, COMPLY WITH REQUIREMENTS OF UNIFORM PLUMBING CODE.

3.1.3. PLANT MATERIAL 24" BOX SIZE AND LARGER SHALL BE PLANTED PRIOR TO THE INSTALLATION OF IRRIGATION PIPING.

3.1.4. VERIFY WATER PRESSURE AT EACH POINT OF CONNECTION PRIOR TO INITIATING WORK. NOTIFY THE OWNER'S AUTHORIZED REPRESENTATIVE IF PRESSURE IS LESS THEN INDICATING ON DRAWINGS. CONTRACTOR IS RESPONSIBLE FOR ALL FIELD REVISIONS IF OWNER'S AUTHORIZED REPRESENTATIVE IS NOT INFORMED OF DISCREPANCIES.

3.1.5. CONNECT TO EXISTING STREET SERVICE LINE AT LOCATION INDICATED.

3.1.6. SYSTEM DESIGN:

3.1.6.1. ALL SCALED DIMENSIONS ARE APPROXIMATE. THE CONTRACTOR SHALL CHECK AND VERIFY ALL DIMENSIONS ON THE SITE PRIOR TO PROCEEDING WITH WORK UNDER THIS CONTRACT.

3.1.6.2. THE CONTRACTOR SHALL LOCATE AND MARK ALL EXISTING UTILITIES SUCH AS POWER, TELEPHONE, DOMESTIC WATER, WATER, AND TILE DRAINS. EXTREME CARE SHALL BE TAKEN BY THE CONTRACTOR WHEN EXCAVATING OR WORKING IN THESE AREAS AND COORDINATION AND COOPERATION BETWEEN THE OWNER'S REPRESENTATIVE AND THE CONTRACTOR IS REQUIRED AS THE WORK PROGRESS TO THE AREA. CONTRACTOR SHALL GIVE 24 HOURS NOTICE TO REPRESENTATIVE AS WORK PROGRESSES TO UNDERGROUND UTILITY AREAS. CONTRACTOR SHALL BE RESPONSIBLE FOR DAMAGE TO ANY UTILITIES.

3.1.6.3. SHOULD UTILITIES NOT LOCATED OR MARKED BE FOUND DURING EXCAVATION, THE CONTRACTOR SHALL PROMPTLY NOTIFY THE OWNER AND SHALL DISCONTINUE WITH WORK IN THE AREA, EXCEPT NECESSARY EMERGENCY WORK, TO REPAIR OR PREVENT DAMAGE UNTIL INSTRUCTIONS ARE GIVEN TO THE CONTRACTOR BY THE OWNER'S REPRESENTATIVE.

3.1.6.4. FAILURE TO NOTIFY THE OWNER OF DISCOVERY OF SUCH UTILITIES OR DAMAGE THERETO WILL RESULT IN THE CONTRACTOR BEING LIABLE FOR ANY AND ALL DAMAGE CAUSED TO THE UTILITIES AS A RESULT OF HIS ACTIONS.

3.1.6.5. THE CONTRACTOR SHALL, BEFORE STARTING WORK ON THE SPRINKLER SYSTEM, CAREFULLY NOTE ALL FINISH GRADES IN ORDER TO SATISFY HIMSELF THAT HE MAY PROCEED WITH THE WORK, AND TO RESTORE FINISH GRADES TO ORIGINAL CONTOURS BEFORE COMPLETION.

3.1.6.6. THE INSTALLATION OF ALL SPRINKLER MATERIALS, INCLUDING PIPE, SHALL BE COORDINATED WITH THE LANDSCAPE DRAWINGS TO AVOID INTERFERING WITH THE TREES, SHRUBS, OR OTHER PLANTING.

3.1.6.7. LAY OUT SPRINKLER HEADS AND MAKE ANY MINOR ADJUSTMENTS REQUIRED DUE TO DIFFERENCE BETWEEN SITE AND DRAWINGS. ANY SUCH DEVIATIONS IN LAYOUT SHALL BE WITHIN THE INTENT OF THE ORIGINAL DRAWINGS, AND WITHOUT ADDITIONAL COST TO THE OWNER. WHEN DIRECTED BY THE OWNER, THE LAYOUT SHALL BE APPROVED BEFORE INSTALLATION.

3.1.6.8. DO NOT WILLFULLY INSTALL THE SPRINKLER SYSTEM AS INDICATED ON THE DRAWINGS WHEN IT IS OBVIOUS IN THE FIELD THAT PREVIOUSLY UNKNOWN OBSTRUCTIONS OR GRADE DIFFERENCES EXIST, THAT MIGHT NOT HAVE BEEN CONSIDERED IN THE ENGINEERING. SUCH OBSTRUCTIONS OR DIFFERENCES SHOULD BE BROUGHT TO THE ATTENTION OF THE LANDSCAPE ARCHITECT.

3.1.6.9. THE CONTRACTOR SHALL CONNECT TO THE WATER SOURCE AS INDICATED ON THE DRAWINGS. THE CONTRACTOR SHALL VERIFY STATIC PRESSURE AS STATED ON THE PLANS PRIOR TO BEGINNING WORK. IF STATIC PRESSURE OR POINT OF CONNECTION DIFFER FROM THAT SHOWN ON THE PLANS, THE CONTRACTOR WILL PROMPTLY NOTIFY LANDSCAPE ARCHITECT BEFORE STARTING WORK.

3.1.6.10. THE ROUTING OF THE PRESSURE SUPPLY LINES AS INDICATED ON THE DRAWINGS IS DIAGRAMMATIC. LOCATE ALL PRESSURE SUPPLY LINES IN PLANTING AREAS. CROSS PERPENDICULAR UNDER PAVEMENT IN A SLEEVE AS DESCRIBED IN THESE SPECIFICATIONS.

3.2. BACKFLOW PREVENTER:

3.2.1. BACKFLOW PREVENTER ASSEMBLY SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS, LOCATED AND AS DIRECTED ON DRAWINGS ADJACENT TO THE POINT OF CONNECTION, AND SHALL CONFORM TO ALL APPLICABLE HEALTH CODE AND ORDINANCE REQUIREMENTS.

3.2.2. BACKFLOW PREVENTER ASSEMBLIES SHALL BE LOCATED IN SHRUB AREAS WHERE POSSIBLE. EXACT LOCATION AND POSITIONING SHALL BE VERIFIED ON THE SITE AND SHALL BE APPROVED BY THE DISTRICT.

3.2.3. BACKFLOW PREVENTER ASSEMBLIES FOR POTABLE WATER IRRIGATION SYSTEMS SHALL BE PAINTED FLAT BLACK.

3.2.4. BACKFLOW PREVENTER ASSEMBLIES FOR POTABLE RECYCLED WATER IRRIGATION SYSTEMS SHALL BE PAINTED PURPLE.

3.3. PRESSURE REGULATION DEVICES:

2.3.1. PRESSURE REGULATION DEVICES SHALL BE INSTALLED AS DIRECTED BY THE PLANS AND DETAILED DRAWINGS.

3.4. AUTOMATIC CONTROL SYSTEM:

3.4.1. AUTOMATIC CONTROLLER SHALL BE INSTALLED AS SHOWN AND AS DIRECTED. FINAL LOCATION SHALL BE APPROVED BY THE LANDSCAPE ARCHITECT PRIOR TO INSTALLATION. CONTROLLER SHALL BE TESTED WITH COMPLETE ELECTRICAL CONNECTIONS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR POWER TO THE CONTROLLER FOR OPERATION AND TESTING PURPOSES.

3.4.2. CONNECTIONS TO CONTROL WIRING SHALL BE MADE WITHIN AUTOMATIC CONTROLLER ENCLOSURE. ALL WIRE SHALL FOLLOW THE PRESSURE MAIN INSOFAR AS POSSIBLE.

3.4.3. ELECTRICAL WIRING FOR 120 VAC POWER SHALL BE WITHIN A RIGID PVC PLASTIC CONDUIT FROM CONTROLLER TO ELECTRICAL OUTLET. THE ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR INSTALLING ALL WIRING TO THE SUB-PANELS, CLOCKS, OR ELSEWHERE AS REQUIRED, IN ORDER TO COMPLETE THIS INSTALLATION. A DISCONNECT SWITCH SHALL BE INCLUDED.

3.4.4. CONTROLLERS SHALL HAVE A MASTER SWITCH. IT SHALL BE POSSIBLE TO OPERATE EACH VALVE MANUALLY INDEPENDENT OF THE CLOCK OR ANY OTHER VALVE.

3.4.5. CONTRACTOR SHALL SUPPLY AND INSTALL A MANUFACTURER APPROVED BATTERY IN CONTROLLER TO PREVENT LOSS OF PROGRAM.

3.4.6. CONTROL SYSTEM SHALL BE PROGRAMMED TO OPERATE ONE SYSTEM AT A TIME.

3.4.7. SYSTEM ENCLOSURES SHALL BE EQUIPPED WITH A AUTOMATIC RAIN SHUT-OFF DEVICE.

3.4.8. PRIOR TO SUBSTANTIAL COMPLETION OF PROJECT INSTALLATION, UNITED GREENTECH AND/OR THE CONTROLLER MANUFACTURER WILL TEST THE CONTROLLER, INCLUDING A TEST FROM A REMOTE LOCATION, TO ENSURE THAT IT IS IN FULL WORKING ORDER AND ISSUE THE CITY OF CHULA VISTA WITH A CERTIFICATE STATING THAT THIS TEST HAS BEEN SUCCESSFULLY COMPLETED. THE TEST SHALL BE REPEATED AT THE END OF THE DEVELOPERS ONE YEAR MAINTENANCE PERIOD.

3.4.8.1. FOR TECHNICAL ASSISTANCE DURING INSTALLATION CONTACT:
KERN TURF (661) 978-5325.
CONTROLLER MANUFACTURER – RAINBIRD (626)812-3400

3.4.8.2. FOR CERTIFICATION AND PROJECT TURN-OVER CONTACT:
KERN TURF (661) 978-5325..
CONTROLLER MANUFACTURER – RAINBIRD (626)812-3400

3.5. AUTOMATIC CONTROL WIRE:

3.5.1. INSTALL CONTROL WIRES WITHIN PVC SCH 40 ELECTRICAL CONDUIT FROM THE CONTROLLER TO ALL REMOTE CONTROL VALVES. CONTROL WIRE CONDUIT SHALL BE ROUTED WITH THE IRRIGATION MAINLINE PIPING IN COMMON TRENCHES WHEREVER POSSIBLE. PROVIDE A MINIMUM OF 4" FROM MAINLINE PIPE OR FITTINGS EXCEPT AT TERMINAL POINTS.

3.5.2. WHEN NOT ROUTED WITH MAINLINE, INSTALL CONTROL WIRE CONDUIT AT LEAST 18" BELOW FINISH GRADE.

3.5.3. CONDUIT TO RUN THROUGH SLEEVES SHOWN ON THE DRAWINGS. PULL BOXES SHOWN AT CROSSINGS OF VEHICULAR PAVING ARE TO BE USED AS HAND-HOLES AND/OR SPLICE LOCATIONS. CONTROL WIRE CONDUIT TO BE SEPARATE FROM WATER LINES AND 120V ELECTRICAL SERVICE LINE.

3.5.4. ALL SPLICES, WHEN APPROVED FOR USE, SHALL BE ENCASED IN PRE-APPROVED WATERPROOF CONNECTORS.

3.5.5. END OF SPARE WIRES SHALL BE ENCASED IN A WATERPROOF CONNECTOR.

3.5.6. FOR TRADITIONAL CONTROL SYSTEMS WITH SINGLE PILOT WIRE TO EACH REMOTE CONTROL VALVE THE FOLLOWING SHALL APPLY:

3.5.6.1. PROVIDE ONE CONTROL WIRE AND THE COMMON GROUND WIRE TO SERVICE EACH VALVE IN SYSTEM. PROVIDE 4 FOOT MINIMUM EXPANSION LOOP AT EACH VALVE TO PERMIT REMOVAL AND MAINTENANCE OF VALVES.

3.5.6.2. CONTINUOS WIRE RUNS SHALL NOT BE LESS THAN 500 FEET IN LENGTH. THERE SHALL BE NO SPLICES ON WIRE RUNS LESS THAN 500 FT.

3.5.6.3. SPLICE/CONNECTIONS SHALL BE WITH APPROVED DEVICES AND INSTALLED PER THE MANUFACTURER'S DIRECTIONS.

3.5.6.4. IN CASE OF DAMAGE TO ANY COMMON OR CONTROL WIRE, CONTRACTOR IS TO RUN AN EXTRA COMMON AND TWO EXTRA CONTROL WIRES ON EACH LEG OF MAINLINE TO THE FARTHEST RCV BACK TO THE CONTROLLER.

3.5.6.5. IDENTIFY DIRECT BURIAL CONTROL WIRES FROM AUTOMATIC VALVES TO TERMINAL STRIPS OF CONTROLLER AT TERMINAL STRIP BY TAGGING WIRE WITH NUMBER OF CONNECTED VALVES.

3.5.7. N/A

3.5.7.1. N/A

3.5.7.2. N/A

3.5.7.3. N/A

3.5.7.4. N/A

3.6. FLOW, RAIN, MOISTURE SENSING DEVICE:

3.6.1. ALL SENSING DEVICES SHALL BE LOCATED AND/OR ARRANGED APPROXIMATELY AS INDICATED ON PLANS AND SUBJECT TO FIELD APPROVAL BY THE LANDSCAPE ARCHITECT.

3.6.1.1. IN GENERAL LOCATIONS SHALL BE AS FOLLOWS:
FLOW SENSING – LOCATED DOWNSTREAM OF MASTER CONTROL VALVE ON COMMON MAINLINE SECTION.
RAIN SENSING – LOCATED TO PROVIDE A CLEAR VIEW OF THE SKY AND WHERE IT WILL NOT BE AFFECTED BY SPRAY FROM AN IRRIGATION SYSTEM.
MOISTURE SENSING – LOCATED IN REPRESENTATIVE HYDROZONE WITHIN ROOTED SOIL PROFILE.

3.6.2. ALL SENSING DEVICE SHALL BE INSTALLED PER MANUFACTURE'S DIRECTIONS, INSTRUCTIONS AND SPECIFICATIONS.

3.6.3. EACH CONTROLLER ASSEMBLY SHALL BE EQUIPPED WITH ITS OWN RAIN SENSING DEVICE, UNLESS SYSTEM IS OPERATED BY A CENTRAL CONTROL SYSTEM.

3.6.3. EACH CONTROLLER ASSEMBLY SHALL BE EQUIPPED WITH ITS OWN FLOW SENSING DEVICE.

3.7. MASTER CONTROL / REMOTE CONTROL VALVE:

3.7.1. LOCATE AND INSTALL IN SHRUB AREAS, AT APPROXIMATE LOCATIONS AS SHOWN ON THE DRAWINGS.

3.7.2. INSTALLATION SHALL INCLUDE A PVC OR BRASS UNION ON THE DOWNSTREAM SIDE OF THE VALVE. ALL CONNECTIONS TO VALVES SHALL BE MADE HORIZONTALLY.

3.7.3. LOCATE MASTER CONTROL VALVE ON COMMON MAINLINE SECTION DOWNSTREAM OF THE BACKFLOW PREVENTION EQUIPMENT AND UPSTREAM OF THE FLOW SENSING DEVICE.

3.7.4. WHERE POSSIBLE, VALVES SHALL BE GROUPED TOGETHER IN A MANIFOLD DOWNSTREAM OF A MANIFOLD ISOLATION VALVE AS DETAILED AND SHOWN ON THE PLANS.

3.8. QUICK COUPLING VALVES:

3.8.1. WHERE POSSIBLE, INSTALL QUICK COUPLING VALVES IN SHRUB AREAS, AT APPROXIMATE LOCATIONS AS SHOWN ON THE DRAWINGS.

3.8.2. QUICK COUPLING VALVES SHALL BE INSTALLED WITHIN A VALVE BOX AS DETAILED AND SPECIFIED IN PART 2. VALVE AND BOX SHALL BE LOCATED TO ALLOW APPROXIMATELY 12 INCH CLEARANCE FROM VALVE BOX TO PAVING, WALKS, HEADERS OR CURBS, AND AS SHOWN ON PLANS AND AS DIRECTED.

3.8.3. QUICK COUPLING VALVES ON RECYCLED WATER SYSTEMS MUST BE SUCH THAT ACCESS AND OPERATION CAN BE ACCOMPLISHED ONLY WITH A SPECIAL ACME THREADED KEY.

3.9. BALL VALVES:

3.9.1. WHERE POSSIBLE, INSTALL BALL VALVES IN SHRUB AREAS, AT APPROXIMATE LOCATIONS AS SHOWN ON THE DRAWINGS.

3.9.2. BALL VALVES SHALL BE INSTALLED TO ISOLATE INDIVIDUAL VALVES OR VALVE MANIFOLDS AND/OR SECTIONS OF THE IRRIGATION MAINLINE.

3.9.3. BALL VALVES SHALL BE INSTALLED TO SECTION THE IRRIGATION MAINLINE INTO MANAGEABLE AREAS, TO LIMIT DRAINING OF MAINLINE DURING REPAIRS.

3.10. NON-PRESSURE LATERAL LINE ANTI DRAIN VALVES:

3.10.1. PROVIDE MANUFACTURER'S INSTALLED ANTI-DRAIN VALVES IN ALL POP-UP SPRINKLER HEADS.

3.10.2. WHERE MANUFACTURER'S INSTALLED ANTI-DRAIN VALVES ARE NOT AVAILABLE INSTALL ANTI-DRAIN VALVES ON POP-UP SPRINKLERS SWING JOINT ASSEMBLY OR BELOW THE HEAD FOR SHRUB HEADS ON RISERS.

3.10.3. ADDITIONAL IN-LINE ANTI-DRAIN VALVES SHALL BE INSTALLED WHEREVER NECESSARY TO PREVENT LOW HEAD DRAINAGE AFTER THE SYSTEM IS SHUT OFF.

3.11. MANUAL AND ANTISIPHON VALVES:

3.11.1. MANUAL AND ANTI-SIPHON CONTROL VALVES SHALL BE INSTALLED AS DIRECTED BY THE PLANS AND DETAIL DRAWINGS.

3.11.1. MANUAL AND ANTI-SIPHON CONTROL VALVES SHALL BE LOCATED IN INCONSPICUOUS LOCATION AS APPROVED BY THE OWNER'S REPRESENTATIVE.

3.12. VALVE AND PULL BOXES:

3.12.1. INSTALL NO MORE THAN ONE VALVE PER BOX.

3.12.2. VALVE BOXES SHALL BE INSTALLED ADJACENT TO PAVED SURFACES WITH CLEARANCE AS DETAILED, WHERE POSSIBLE.

3.12.3. VALVE BOXES SHALL BE SET AT HEIGHTS AS FOLLOWS:
IN SHRUB AREAS – TOP OF COVER SET ONE INCH ABOVE FINISH GRADE.
IN TURF AREAS – TOP OF COVER SET ONE-HALF INCH ABOVE OR EVEN WITH FINISH GRADE
IN ALL CONDITIONS – TOP OF COVER SET NO HIGHER THAN ADJACENT PAVING SURFACE.

3.12.4. ON THE INSIDE SURFACE OF EACH REMOTE CONTROL VALVE BOX, PULL BOX AND QUICK COUPLING BOX, WRITE THE VALVE DESIGNATION NUMBER IN PERMANENT BLACK MARKER OR PAINT. DO NOT WRITE ON VALVE BOX LID.

3.12.5. ALL VALVE BOX LIDS SHALL MARKED TO IDENTIFY INCLUDED EQUIPMENT AS SHOWN IN THE VALVE BOX I.D. DETAIL DRAWING.

3.12.6. IN ADDITION TO THE "PB" IDENTIFICATION FOR A PULL BOX, WHERE PULL BOXES ARE LOCATED AT STREET CROSSINGS, THE CONTRACTOR SHALL STAMP OR ETCH THE LETTER "E" INTO THE IMPROVEMENT DIRECTLY OVER THE SLEEVE.

3.13. INSTALLATION OF PIPE:

3.13.1. INSTALLATION OF POLYVINYL CHLORIDE PIPE:

3.13.1.1. BECAUSE OF THE FRAGILE NATURE OF PLASTIC PIPE AND FITTINGS, EXERCISE CAUTION IN HANDLING, LOADING AND STORING, TO AVOID DAMAGE.

3.13.1.2. THE PIPE AND FITTINGS SHALL BE STORED UNDER COVER UNTIL USED AND SHALL BE TRANSPORTED IN A VEHICLE WITH A BED LONG ENOUGH TO ALLOW THE LENGTH OF PIPE TO LAY FLAT SO AS NOT BE SUBJECTED TO UNDUE BENDING OR CONCENTRATED EXTERNAL LOAD AT ANY POINT.

3.13.1.3. ANY PIPE THAT HAS BEEN DENTED OR DAMAGED SHALL BE DISCARDED UNLESS SUCH DENT OR DAMAGED SECTION IS CUT OUT AND PIPE REJOINED WITH A COUPLING.

3.13.1.4. TRENCH DEPTH SHALL BE AS SPECIFIED ABOVE FROM THE FINISH GRADE TO THE TOP OF THE PIPE. THE BOTTOM OF THE TRENCH SHALL BE FREE OF ROCKS, CLODS, AND OTHER SHARP-EDGED OBJECTS.

3.13.1.5. PIPE ENDS AND FITTINGS SHALL BE WIPED WITH "MEK" PRIMER, OR APPROVED EQUAL, BEFORE WELDING SOLVENT IS APPLIED. WELDED JOINTS SHALL BE GIVEN A MINIMUM OF 15 MINUTES TO SET BEFORE MOVING OR HANDLING. ALL FIELD CUTS SHALL BE BEVELED TO REMOVE BURRS AND EXCESS MATERIAL BEFORE FITTING AND GLUING TOGETHER.

3.13.1.6. PIPE SHALL BE SNAKED FROM SIDE-TO-SIDE OF TRENCH BOTTOM TO ALLOW FOR EXPANSION AND CONTRACTION.

3.13.1.7. CENTER LOAD PIPE WITH SMALL AMOUNT OF BACKFILL TO PREVENT ARCHING AND SLIPPING UNDER PRESSURE. LEAVE JOINTS EXPOSED FOR SITE OBSERVATION DURING TESTING.

3.13.1.8. NO WATER SHALL BE PERMITTED IN THE PIPE UNTIL SITE OBSERVATION HAS BEEN COMPLETED AND A PERIOD OF AT LEAST 24 HOURS HAS ELAPSED FOR SOLVENT WELD SETTING AND CURING.

3.13.1.9. PLASTIC TO METAL JOINTS SHALL BE MADE WITH PLASTIC MALE ADAPTERS, METAL NIPPLE HAND TIGHTENED, PLUS ONE TURN WITH A STRAP WRENCH.

3.13.1.10. PLASTIC TO PLASTIC JOINTS: SOLVENT-WELD, USING SOLVENT RECOMMENDED BY PIPE MANUFACTURER ONLY.

3.13.1.11. SOLVENT-WELD JOINTS: ASSEMBLE PER MANUFACTURER'S RECOMMENDATIONS.

3.13.1.12. PROVIDE MINIMUM OF 6" OF CLEARANCE BETWEEN PIPES SHARING THE SAME TRENCH.

3.13.1.13. ALL SLEEVES FOR INSTALLATION OF PIPE, WIRE OR WIRE CONDUIT UNDER PAVING SHALL RUN CONTINUOUSLY UNDER THE PAVED AREA AND EXTEND A MINIMUM OF 12 INCHES PAST EDGE OF HARDSCAPE. SEE DETAIL DRAWINGS.

3.13.2. METALLIC PIPE:

3.13.2.1 CUT BY POWER HACKSAW, CIRCULAR CUTTING MACHINE USING AN ABRASIVE WHEEL, OR HAND HACKSAW. CUT NO PIPING WITH METALLIC WHEEL CUTTER OF ANY DESCRIPTION. REAM AND REMOVE ROUGH EDGES OF BURRS SO SMOOTH AND UNOBSTRUCTED FLOW IS OBTAINED.

3.13.2.2. CAREFULLY AND SMOOTHLY PLACE THREAD LUBRICANT ON MALE THREAD ONLY. TIGHTEN SCREWED JOINTS WITH TONGS OR WRENCHES. CAULKING IS NOT PERMITTED.

3.13.2.3. USE DIELECTRIC FITTINGS AT CONNECTION WHERE PIPES OF DISSIMILAR METAL ARE JOINED.

3.13.3. EXCAVATION OF TRENCHES:

3.13.3.1. EXCAVATE TRENCHES, PREPARE SUBGRADE, AND BACKFILL TO LINE AND GRADE WITH SUFFICIENT ROOM FOR PIPE FITTINGS, TESTING AND INSPECTING OPERATIONS. DO NOT BACKFILL UNTIL THE PIPE SYSTEM HAS BEEN SUBJECTED TO A HYDROSTATIC TEST AS SPECIFIED.

3.13.3.2. TRENCH DEPTH, MEASURED FROM FINISH GRADE TO TOP OF PIPE, FOR IRRIGATION PIPE LINES SHALL BE AS FOLLOWS:

3.13.3.3. PRESSURE SUPPLY LINE:

2-1/2" I.D. PIPE AND SMALLER	18" MIN.
3" AND LARGER	24" MIN.

3.13.3.4. NON-PRESSURE LINE:

2-1/2" I.D. PIPE AND SMALLER	12" MIN.
3" AND LARGER	18" MIN.

3.13.3.5. PRESSURE SUPPLY LINE IN SLEEVE:

UNDER VEHICULAR PAVING	36" MIN.
UNDER PEDESTRIAN PAVING, WALLS OR DRAINAGE FEATURES	18" MIN.

3.13.3.6. NON-PRESSURE LINE IN SLEEVE:

UNDER VEHICULAR PAVING	30" MIN
UNDER PEDESTRIAN PAVING, WALLS OR DRAINAGE FEATURES	18" MIN.

3.13.3.7. ELECTRICAL AND COMMUNICATION CABLE IN SLEEVE:

UNDER VEHICULAR PAVING	36" MIN.
UNDER PEDESTRIAN PAVING, WALLS OR DRAINAGE FEATURES	18" MIN.

3.13.3.8. DRIP DISTRIBUTION TUBING: 4" MIN.

3.13.4. SUBSOIL SHALL BE FREE OF ALL ROCKS OVER ONE (1) INCH DIAMETER, DEBRIS, AND LITTER PRIOR TO USE AS BACKFILL.

3.13.5. REPAIR ANY LEAKS AND REPLACE ALL DEFECTIVE PIPE OR FITTINGS UNTIL LINES MEET TEST REQUIREMENTS. DO NOT COVER ANY LINES UNTIL THEY HAVE BEEN CHECKED AND APPROVED FOR TIGHTNESS, QUALITY OF WORKMANSHIP AND MATERIALS.

3.13.6. BACKFILL TRENCHES, AFTER APPROVAL OF PIPING, WITH SUITABLE AND APPROVED MATERIAL, TAMP SOIL AROUND PIPE AND THOROUGHLY COMPACT ALL TRENCH FILLS UNTIL 90% COMPACTION HAS BEEN ACHIEVED.

3.13.7. BACKFILL MATERIAL SHALL BE AN APPROVED SOIL, FREE FROM ROCKS AND CLODS. PROVIDE BACKFILL UNDER, AROUND AND ABOVE TOP OF PIPE FOR PVC PLASTIC PIPE AND BRASS PIPING.

3.14. CONCRETE THRUST BLOCKS AND SUPPORTS:

3.14.1. THRUST BLOCKS AND FOOTINGS SHALL BE FORMED AND PLACED ON NINETY-PERCENT (90%) MINIMUM COMPACTED OR UNDISTURBED SUBGRADE. CONSTRUCT TO SHAPES SPECIFIED AND PARALLEL TO WALKWAYS. TOOL FINISH EXPOSED SURFACE.

3.15. IDENTIFICATION TAPE: PROVIDE AND INSTALL AS DIRECTED BY THE PLANS AND DETAIL DRAWINGS AND AS REQUIRED BY THE MUNICIPALITY AND/OR WATER PURVEYOR.

3.16. VALVE/STATION IDENTIFICATION, IRRIGATION WATER, DO NOT DRINK WARNING TAG SHALL BE INSTALLED AS DIRECTED BY THE PLANS AND DETAIL DRAWINGS.

3.17. SPRINKLER HEADS:

3.17.1. ALL SPRINKLER HEADS SHALL BE INSTALLED AS PER DETAILS SHOWN.

3.17.2. SHRUB HEADS ON RISERS ARE NOT PERMITTED TO BE LOCATED ADJACENT TO PAVING SURFACES, HEADERS, TOP OF RETAINING WALLS, IN FRONT OF PROJECT SIGNAGE OR IN TURF AREAS.

3.17.3. TOP OF POP-UP SPRINKLER HEADS SHALL BE INSTALLED FLUSH WITH ADJACENT PAVING SURFACE.

3.17.4. POP-UP SPRINKLER HEADS SHALL BE INSTALLED APPROXIMATELY FOUR INCHES AWAY FROM ANY PAVING SURFACE. IN SHRUB AREAS, WHERE POP-UP SPRINKLER HEADS ARE LOCATED AT THE HEAD ON A PARKING STALL, POP-UP SPRINKLERS SHALL BE LOCATED EIGHTEEN INCHES FROM BACK OF CURB.

3.17.5. SPRINKLER HEADS SHALL BE LOCATED OR ADJUSTED TO MINIMIZE OR ELIMINATE OVER-SPRAYING ON SIDEWALKS, STREETS, WINDOWS, WALLS AND ALL OTHER NON-DESIGNATED USE AREAS.

3.17.6. SPRINKLER HEADS WITHIN THE SAME CIRCUIT SHALL BE OF THE SAME MANUFACTURER AND SERIES AND HAVE A UNIFORM PRECIPITATION RATE.

3.17.7. SPACING OF SPRINKLER HEADS SHALL NOT EXCEED MAXIMUM DISTANCES AS INDICATED IN THE IRRIGATION LEGEND.

3.17.8. ADJUST NOZZLES ARCS AND PRESSURE COMPENSATING DEVICES TO SUIT ANY PARTICULAR CONDITIONS OF THE AREA. THIS SHALL BE DONE AFTER THE SYSTEM HAS BEEN THOROUGHLY TESTED, IMMEDIATELY AFTER WRITTEN NOTIFICATION BY THE LANDSCAPE ARCHITECT TO DO SO.

3.18. DRIP IRRIGATION EQUIPMENT: See Detail Drawings.

3.18.1. PRIOR TO START OF CONSTRUCTION THE IRRIGATION CONTRACTOR SHALL CONTACT THE LANDSCAPE ARCHITECT AND/OR THE IRRIGATION CONSULTANT FOR A PRE-CONSTRUCTION MEETING. DURING CONSTRUCTION THE CONTRACTOR SHALL SCHEDULE WITH THE LANDSCAPE ARCHITECT AND/OR IRRIGATION CONSULTANT VISITS TO THE SITE TO OBSERVE COMPLIANCE TO THE PLAN INTENTIONS.

3.18.2. THE MULTI-EXIT EMITTERS USED ON THIS PROJECT ARE INTENDED AS A MEANS OF POINT SOURCE IRRIGATION IN SPARSE PLANTINGS OR IN SMALL GARDEN AREAS WHERE OVERSPRAY MAY CAUSE A PROBLEM. INSTALLATION, NUMBER AND SPACING OF EMISSION POINTS SHALL BE AS DETAILED.

3.18.3. ALL TUBING CONNECTIONS SHALL BE MADE WITH BARBED FITTINGS MANUFACTURED SPECIFICALLY FOR THE TUBING USED.

3.18.4. INSTALL LATERAL BLOW-OUT VALVES HORIZONTALLY LEVEL AT THE HYDRAULIC TERMINATION POINT(S) IN EACH SYSTEM WITHIN VALVE BOX AS DETAILED. ALL LOCATIONS SHALL BE APPROVED BY THE OWNER'S OR THE MANUFACTURERS REPRESENTATIVE.

3.18.5. INSTALL FILTER AND BALL VALVE IN VALVE BOX DIRECTLY UPSTREAM OF THE REMOTE CONTROL VALVE/PRESSURE REDUCING VALVE ASSEMBLY AS DETAILED.

3.18.6. REFER TO IRRIGATION CONSTRUCTION DETAILS AND MANUFACTURER'S GUIDELINES FOR ADDITIONAL INFORMATION.

3.19. FLUSHING SYSTEMS:

3.19.1. AFTER PIPING AND RISERS ARE IN PLACE, BUT PRIOR TO THE INSTALLATION OF THE SPRINKLER HEADS, A FULL HEAD OF WATER SHALL BE USED TO FLUSH OUT THE SYSTEM. AFTER SYSTEM IS THOROUGHLY FLUSHED, CAP ALL RISERS.

3.20. TESTING:

3.20.1. NOTIFY LANDSCAPE ARCHITECT IN WRITING WHEN TESTING WILL BE CONDUCTED. CONDUCT TESTS IN PRESENCE OF THE LANDSCAPE ARCHITECT.

3.21. PRESSURE TEST:

3.21.1. NOTIFY LANDSCAPE ARCHITECT IN WRITING WHEN PRESSURE TESTING WILL BE CONDUCTED. CONDUCT TESTS IN PRESENCE OF THE LANDSCAPE ARCHITECT AND/OR OWNER'S REPRESENTATIVE.

3.21.2. ALL PRESSURE LINES SHALL BE TESTED UNDER HYDROSTATIC PRESSURE OF 125 LBS. PER SQUARE INCH AND ALL NON PRESSURE LINES SHALL BE TESTED UNDER THE EXISTING STATIC PRESSURE AND BOTH BE PROVEN WATERTIGHT. (CONTRACTOR TO SUPPLY ALL HYDROSTATIC TEST EQUIPMENT NEEDED FOR TESTING.)

3.21.3. PRESSURE SHALL BE SUSTAINED IN THE LINES FOR NOT LESS THAN FOUR HOURS. IF LEAKS DEVELOP, THE JOINTS SHALL BE REPLACED AND THE TEST REPEATED UNTIL THE ENTIRE SYSTEM IS PROVEN WATERTIGHT.

3.21.4. TESTS SHALL BE OBSERVED AND APPROVED BY THE CITIES AND WATER DISTRICT'S INSPECTOR, LANDSCAPE ARCHITECT AND/OR OWNER PRIOR TO BACKFILL. BACKFILLING TRENCHES PRIOR TO INSPECTION WILL NOT BE ALLOWED AND ALL PREMATURELY FILLED TRENCHES SHALL BE SUBJECT TO REOPENING AS DIRECTED BY THE LANDSCAPE ARCHITECT.

3.22. COVERAGE TEST:

3.22.1. NOTIFY LANDSCAPE ARCHITECT IN WRITING WHEN COVERAGE TESTING WILL BE CONDUCTED. CONDUCT TESTS IN PRESENCE OF THE LANDSCAPE ARCHITECT AND OWNER'S REPRESENTATIVE.

3.22.2. COVERAGE TESTING: PERFORM OPERATIONAL TESTING AFTER HYDROSTATIC TESTING IS COMPLETED, BACKFILL IS IN PLACE, AND SPRINKLER HEADS ADJUSTED TO FINAL POSITION.

3.22.3. AFTER COMPLETION OF LANDSCAPE WORK, CAREFULLY ADJUST HEADS SO THEY WILL BE FLUSH WITH LAWN AREAS OR NOT MORE THAN 1/2" ABOVE FINISH GRADE IN GROUNDCOVER AREA.

3.23. SITE OBSERVATION VISITS BY THE ARCHITECT:

3.23.1. IN ALL CASES WHERE SITE OBSERVATION VISITS OF THE IRRIGATION SYSTEM WORK IS REQUIRED AND/OR WHERE PORTIONS OF THE WORK ARE SPECIFIED TO BE PERFORMED UNDER THE DIRECTION AND/OR SITE OBSERVATION OF THE ARCHITECT OR THE OWNER'S REPRESENTATIVE, THE CONTRACTOR SHALL NOTIFY THE CITY INSPECTOR, OWNER'S REPRESENTATIVE AND ARCHITECT AT LEAST THREE (3) WORKING DAYS IN ADVANCE OF THE TIME SUCH SITE OBSERVATION AND/OR WHEN DIRECTION IS REQUIRED.

3.23.2. SITE OBSERVATION WILL BE REQUIRED FOR THE FOLLOWING PARTS OF THE WORK:

3.23.2.1. UPON INSTALLATION AND TESTING OF SLEEVES, MAIN LINES AND LATERAL LINES; WHEN PIPES ARE LAID AND ARE TO BE SUBMITTED TO PRESSURE TESTS. DO NOT COVER ANY LINES UNTIL THEY HAVE BEEN CHECKED AND APPROVED.

3.23.2.2. UPON INSTALLATION AND TESTING OF VALVES, QUICK COUPLERS, DEVICES, AUTOMATIC CONTROLLERS, AND CONTROL VALVES AND WIRES.

3.23.2.3. WHEN THE SPRINKLER SYSTEM IS COMPLETED PRIOR TO PLANTING, THE CONTRACTOR, IN THE PRESENCE OF THE CITY INSPECTOR AND ARCHITECT, SHALL PERFORM A COVERAGE TEST TO DETERMINE IF THE COVERAGE OF WATER AFFORDED THE LAWN AND PLANTING AREAS IS COMPLETE AND ADEQUATE. THE CONTRACTOR SHALL FURNISH ALL MATERIALS AND PERFORM ALL WORK REQUIRED TO CORRECT ANY INADEQUACIES.

3.23.2.4. FINAL SITE OBSERVATION VISIT BY THE ARCHITECT AND PERFORMANCE TEST SHALL BE AT THE SAME TIME AS THE FINAL SITE OBSERVATION OF THE SPECIFIED LANDSCAPE MAINTENANCE PERIOD WORK.

3.24. N/A

3.24.1 N/A

3.24.2 N/A

LICENSED LANDSCAPE ARCHITECT
MICHAEL HOLMES
No. 5185
Signature
04-30-09
Expiration Date
Date
STATE OF CALIFORNIA

IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT
APP03 111734
AC ✓ FLS ✓ SS ✓
DATE APR 2 9 2008

CALL:1-800-227-2600

PINNACLE Civil Engineering, Inc.
2161 Saturn Court, Bakersfield, CA 93308
Phone: (661) 869-0184 Fax: (661) 377-0076

MICHAEL HOLMES	LA 5185 EXP. 4/30/09	
REVISIONS		DATE

SITE GRADING AND IMPROVEMENT PLANS
BCSD-WAYSIDE ELEMENTARY
IRRIGATION SPECIFICATIONS
BAKERSFIELD, CALIFORNIA

JOB No.:	07-320
DWG NO.:	07-320GRBM
DATE:	04/07/08
DRAWN BY:	MAM
CHECKED BY:	MH
SHEET	14
OF 18	SHEETS