GENERAL DESCRIPTION

A FULLY AUTOMATED SPRINKLER, BUBBLER, AND DRIP IRRIGATION SYSTEM WILL IRRIGATE TURF AREAS, AS WELL AS SHRUB AND TREE PLANTING AREAS. POP-UP SPRAY AND ROTARY SPRINKLERS WILL IRRIGATE TURF AREAS; SINGLE-OUTLET DRIP EMITTERS WILL IRRIGATE SHRUBS AND TREES (EXCEPT PALM TREES) THROUGHOUT THE PROJECT PHASE. PRESSURE COMPENSATING BUBBLERS WILL IRRIGATE PALM TREES. A BOOSTER PUMP AND MAINLINE PIPE HAVE BEEN INSTALLED UNDER A PREVIOUS CONSTRUCTION PHASE TO PROVIDE A CONSTANT OPERATING PRESSURE OF 83 PSI WITHIN ITS PROGRAMMED OPERATION PARAMETERS. MUNICIPAL (POTABLE) WATER WILL BE USED FOR IRRIGATION ON THE PROJECT. THE IRRIGATION CONTROL SYSTEM WILL INTERFACE WITH THE CITY'S RAIN BIRD MAXICOM CENTRAL CONTROL SYSTEM AND WILL BE DESIGNED FOR PHONE MODEM COMMUNICATION AND COMPATIBILITY WITH CONTROL SATELLITES TO BE INSTALLED UNDER THIS CONTRACT.

ISOLATION GATE VALVES PERMIT THE ISOLATION OF MAINLINE SEGMENTS OF THE SYSTEM FOR REPAIRS OR MAINTENANCE.

QUICK COUPLING VALVES HAVE BEEN PROVIDED THROUGHOUT THE SITE FOR INCIDENTAL WATERING.

THE DESIGN ASSUMES AT LEAST 8 VALVES WILL BE OPERATED CONCURRENTLY THROUGHOUT THE SITE AT AN AVERAGE COMBINED FLOW RATE OF 850 GPM TO IRRIGATE THE TURF AREAS WITHIN AN EIGHT HOUR WATER WINDOW. OPERATION AND PROGRAMMING OF BOOSTER PUMP IS DESCRIBED ON DETAIL SHEET "IR-7".

FLAG NOTES

(1) LOCATE, EXCAVATE, CUT AND CONNECT TO EXISTING CAPPED IRRIGATION PIPE AND WIRES AT THIS LOCATION AS REQUIRED TO SERVICE IRRIGATION EQUIPMENT INSTALLED IN PHASE 1A CONTRACT AREA AS SHOWN. CONTAIN WIRE SPLICES WITHIN SPLICE BOX AT THIS LOCATION.

(2) INSTALL QUICK COUPLING VALVE WITHIN TRAFFIC RATED CONCRETE VALVE BOX WITH STEEL LID (CHRISTY MODEL F8 OR APPROVED EQUAL) AT THIS LOCATION. COORDINATE INSTALLATION OF MAINLINE PIPING, VALVE ASSEMBLY AND VALVE BOX WITH APPROPRIATE SUBCONSULTANTS PRIOR TO CONSTRUCTION OF STADIUM STRUCTURAL ELEMENTS AND HARDSCAPE SURFACES. PROVIDE 4-INCH SAND BEDDING COMPLETELY AROUND PIPING WITHIN HARDSCAPE AND COMPACT TO 95% PROCTOR DENSITY. COORDINATE EXACT LOCATION OF QUICK COUPLING VALVES WITH CITY OF LAS VEGAS REPRESENTATIVES PRIOR TO CONSTRUCTION.

(3) EXISTING IRRIGATION SATELLITE CONTROLLER ASSEMBLIES AND BOOSTER PUMP STATION TO REMAIN OPERATIONAL. FIELD VERIFY PROPER OPERATION PRIOR TO CONSTRUCTION AND REPORT ANY DISCREPANCIES IN WRITING TO CONSTRUCTION PROJECT REPRESENTATIVE PRIOR TO CONSTRUCTION.

(4) INSTALL TWO SPARE #12-1 AWG CONTROL WIRES AND ONE SPARE #12-1 AWG COMMON WIRE FROM THE RESPECTIVE CONTROLLER TO EACH OF THE REMOTE CONTROL VALVE ASSEMBLIES INDICATED FOR USE AS SPARE WIRE IN CASE OF CONTROL WIRE FAILURE. PROVIDE A 3-FOOT COILED LENGTH OF ALL SPARE WIRES IN EACH REMOTE CONTROL VALVE BOX ALONG THE ENTIRE WIRE ROUTING FOR THE RESPECTIVE CONTROLLER.

(5) IRRIGATION PIPE AND VALVES MAY BE SHOWN OUTSIDE OF THE PLANTING AREA IN THE HARDSCAPE OR OUTSIDE OF PROPERTY FOR CLARITY ONLY. INSTALL ALL IRRIGATION COMPONENTS IN LANDSCAPED AREA OR THROUGH SLEEVING AND WITHIN THE PROPERTY BOUNDARY.

(5) INSTALL DRIP REMOTE CONTROL VALVE ASSEMBLY AT THIS LOCATION FOR FUTURE USE. WIRE TO CONTROLLER STATION INDICATED. INSTALL 6-FOOT LENGTH OF CAPPED LATERAL PIPE OUTSIDE OF VALVE BOX FOR FUTURE CONNECTION AS SHOWN.

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INSTALLATION GENERAL NOTES

1. THE IRRIGATION SYSTEM DESIGN ASSUMES A STATIC PRESSURE OF 63 PSI AT THE EXISTING WATER METER, AND AN AVAILABLE DYNAMIC PRESSURE OF 50 PSI AT A MINIMUM AVAILABLE DISCHARGE OF 850 GPM AT THE PUMP STATION INLET. VERIFY PRESSURE AND FLOW ON SITE PRIOR TO CONSTRUCTION AND REPORT AND DISCREPANCIES BETWEEN ACTUAL SITE CONDITIONS AND THESE ASSUMPTIONS TO OWNERS REPRESENTATIVE PRIOR TO CONSTRUCTION.
2. A BOOSTER PUMP AND MAINLINE PIPE HAVE BEEN INSTALLED UNDER PREVIOUS CONSTRUCTION PHASE TO PROVIDE THE IRRIGATION SYSTEM WITH THE REQUIRED DYNAMIC PRESSURE TO OPERATE THE IRRIGATION COMPONENTS. THE BOOSTER PUMP ASSUMES AN AVAILABLE DYNAMIC PRESSURE OF 50 PSI AT AN OPERATING FLOW OF 850 GPM AT THE PUMP INLET. THE PUMP VFD IS DESIGNED TO PROVIDE A 32 PSI BOOST AND A CONSTANT OPERATING DISCHARGE PRESSURE OF 83 PSI.
3. READ THOROUGHLY AND BECOME FAMILIAR WITH THE SPECIFICATIONS AND INSTALLATION DETAILS FOR THIS AND RELATED WORK PRIOR TO CONSTRUCTION.
4. COORDINATE LOCATION AND MARKING ("CALL BEFORE YOU DIG") OF UNDERGROUND UTILITIES AND EXISTING WATER AND ELECTRICAL POINTS OF CONNECTION PRIOR TO CONSTRUCTION.
5. DO NOT PROCEED WITH THE INSTALLATION OF THE IRRIGATION SYSTEM WHEN IT IS OBVIOUS IN THE FIELD THAT OBSTRUCTIONS OR GRADE DIFFERENCES EXIST THAT MIGHT NOT HAVE BEEN CONSIDERED IN THE ENGINEERING, OR IF DISCREPANCIES IN CONSTRUCTION DETAILS, LEGEND, NOTES, OR SPECIFICATIONS ARE DISCOVERED. BRING ALL SUCH OBSTRUCTIONS OR DISCREPANCIES TO THE ATTENTION OF THE CONSTRUCTION PROJECT REPRESENTATIVE PRIOR TO PROCEEDING WITH CONSTRUCTION.
6. THE DRAWINGS ARE DIAGRAMMATIC. THEREFORE, THE FOLLOWING SHOULD BE NOTED:
   A. IRRIGATION COMPONENTS MAY BE SHOWN OUTSIDE PLANTING AREAS, OR WITHIN HARDSCAPE, FOR GRAPHIC CLARITY. AVOID CONFLICTS BETWEEN THE IRRIGATION SYSTEM, PLANTING MATERIALS, UTILITIES, HARDSCAPE SURFACES AND ARCHITECTURAL FEATURES. INSTALL IRRIGATION PIPE AND WIRING IN LANDSCAPED AREAS WHENEVER POSSIBLE.
   B. USE ONLY STANDARD TEES AND ELBOW FITTINGS. USE OF CROSS TYPE FITTINGS IS NOT PERMITTED.
7. PROVIDE THE FOLLOWING COMPONENTS TO THE OWNER PRIOR TO THE COMPLETION OF THE PROJECT:
   A. TWO OPERATING KEYS FOR EACH TYPE OF MANUALLY OPERATED VALVE.
   B. TWO WRENCHES FOR REMOVAL OF VALVE BOX LID BOLT-LOCKS.
   C. TWO OF EACH SERVICING WRENCH OR TOOL NEEDED FOR COMPLETE ACCESS, ADJUSTMENT, AND REPAIR OF ALL SPRAY AND ROTARY SPRINKLERS.
   D. FOUR RAIN BIRD 55K-1 QUICK COUPLING KEYS, EACH WITH ATTACHED RAIN BIRD SH-1 SWIVEL HOSE ELL FOR OPERATION OF THE QUICK COUPLING VALVES SHOWN ON THE DRAWINGS.
8. SELECT NOZZLES FOR SPRAY AND ROTARY SPRINKLERS WITH ARC AND RADIUS WHICH PROVIDE COMPLETE AND UNIFORM COVERAGE WITH MINIMUM OVERSPRAY FOR THE SITE CONDITIONS. TO MINIMIZE OVERSPRAY, VARIABLE ARC NOZZLES, PRESSURE COMPENSATING NOZZLES AND PRESSURE COMPENSATING SCREENS MAY BE USED FOR SPRAY SPRINKLERS IF UNIFORM LATERAL PRESSURE CANNOT BE PROVIDED BY FLOW CONTROL ADJUSTMENT AT THE REMOTE CONTROL VALVE. CAREFULLY ADJUST THE RADIUS OF THROW AND ARC OF COVERAGE FOR EACH SPRAY AND ROTARY SPRINKLER TO PROVIDE THE BEST PERFORMANCE.
9. THE IRRIGATION CONTRACTOR IS RESPONSIBLE FOR THE INSTALLATION OF IRRIGATION SLEEVING. SLEEVES ARE TO BE INSTALLED FOR BOTH PIPING AND ELECTRICAL WIRING AT EACH HARDSCAPE CROSSING. COORDINATE INSTALLATION OF SLEEVING WITH OTHER TRADES. ANY PIPE OR WIRE WHICH PASSES BENEATH EXISTING HARDSCAPE WHERE SLEEVING WAS NOT INSTALLED, REQUIRES HORIZONTAL BORING BY THE IRRIGATION CONTRACTOR.
10. INSTALL ALL ELECTRICAL POWER TO THE IRRIGATION CONTROL SYSTEM AND BOOSTER PUMP ASSEMBLY IN ACCORDANCE WITH THE NATIONAL ELECTRIC CODE AND ALL APPLICABLE LOCAL ELECTRIC UTILITY CODES.
11. WITH REGARD TO PIPE SIZING, THE FOLLOWING SHOULD BE NOTED:
    A. IF A SECTION OF UNSIZED LATERAL PIPE IS LOCATED BETWEEN TWO IDENTICALLY SIZED SECTIONS, THE UNSIZED LATERAL PIPE IS THE SAME NOMINAL SIZE AS THE TWO SIZED SECTIONS. THE UNSIZED PIPE SHOULD NOT BE CONFUSED WITH THE DEFAULT PIPE SIZE NOTED IN THE LEGEND.
12. INSTALL IRRIGATION PIPE AND COMPONENTS A MINIMUM OF 8-FEET FROM TREE ROOT BALLS. PIPE ROUTING SHOWN ON DRAWINGS IS DIAGRAMMATIC.
13. INSTALL PRESSURE-REGULATING REMOTE CONTROL VALVES (RAIN BIRD PEB-PRS-D) FOR ALL SPRAY SPRINKLER LATERALS. SET DISCHARGE PRESSURE AT 35 PSI.

LEGEND

- SLEEVING: SCH 40 PVC PIPE (6-INCH SIZE UNLESS OTHERWISE INDICATED)
- MAINLINE PIPE: CLASS 200 PVC (3-INCH SIZE AND LARGER) SCH 40 PVC (2.5-INCH AND SMALLER)
- LATERAL PIPE TO SPRINKLERS: SCH 40 PVC (1-INCH SIZE UNLESS OTHERWISE INDICATED)
- CONDUIT: SCH. 40 (GRAY) PVC CONDUIT WITH SWEEP FITTINGS
- TREE EMITTER LATERAL PIPE: SCH 40 PVC (3/4-INCH SIZE UNLESS OTHERWISE INDICATED) SEE EMITTER PLACEMENT DETAIL FOR EMITTER LATERAL PIPE SIZING AND INSTALLATION
- SHRUB EMITTER LATERAL PIPE: SCH 40 PVC (3/4-INCH SIZE UNLESS OTHERWISE INDICATED) SEE EMITTER PLACEMENT DETAIL FOR EMITTER LATERAL PIPE SIZING AND INSTALLATION
- EMITTER PIPE SIZE TRANSITION NODE
- UNCONNECTED PIPE CROSSING
- CAPPED IRRIGATION PIPE LOCATION FROM PREVIOUS PHASE (FIELD VERIFY LOCATION)
- POINT-OF-CONNECTION (P.O.C.)
- EXISTING BACKFLOW PREVENTION ASSEMBLY (SEE UTILITY DRAWINGS)
- M EXISTING WATER METER
- EXISTING BOOSTER PUMP ASSEMBLY
- EXISTING DUAL FLOW SENSOR AND MASTER VALVE ASSEMBLY
- EXISTING FERTILIZER INJECTOR RECEPTOR ASSEMBLY
- AIR/VACUUM RELIEF VALVE ASSEMBLY
- ISOLATION GATE VALVE ASSEMBLY
- QUICK COUPLING VALVE ASSEMBLY
- REMOTE CONTROL VALVE ASSEMBLY FOR SPRINKLER AND BUBBLER LATERALS (SEE GENERAL NOTE #13)
- POP-UP SPRAY SPRINKLER: RAIN BIRD 1806 W/ 15 SERIES NOZZLE PRESSURE: 30 PSI RADIUS: 15 FEET FLOW (GPM): Q - 0.93 H - 1.05 F - 3.70
- POP-UP SPRAY SPRINKLER: RAIN BIRD 1806 W/ 10 SERIES NOZZLE PRESSURE: 30 PSI RADIUS: 10 FEET FLOW (GPM): Q - 0.39 H - 0.79 F - 1.57
- POP-UP ROTARY FULL CIRCLE SPRINKLER: HUNTER I-20-36S W/ #3 NOZZLE PRESSURE: 60 PSI RADIUS: 40 FEET FLOW: 2.90 GPM
- POP-UP ROTARY PART CIRCLE SPRINKLER: HUNTER I-20-ADS W/ #3 NOZZLE PRESSURE: 60 PSI RADIUS: 40 FEET FLOW: 2.90 GPM
- POP-UP ROTARY PART CIRCLE SPRINKLER: HUNTER I-20-ADS W/ #1.5 NOZZLE PRESSURE: 60 PSI RADIUS: 34 FEET FLOW: 1.80 GPM
- POP-UP ROTARY FULL CIRCLE SPRINKLER: HUNTER I-20-36S W/ #3 SR NOZZLE PRESSURE: 60 PSI RADIUS: 26 FEET FLOW: 3.10 GPM
- POP-UP ROTARY PART CIRCLE SPRINKLER: HUNTER I-20-ADS W/ #3 SR NOZZLE PRESSURE: 60 PSI RADIUS: 26 FEET FLOW: 3.10 GPM
- POP-UP ROTARY FULL CIRCLE SPRINKLER: HUNTER I-20-ADS W/ #1.5 SR NOZZLE PRESSURE: 60 PSI RADIUS: 26 FEET FLOW: 1.60 GPM
- REMOTE CONTROL VALVE ASSEMBLY FOR DRIP LATERALS
- FLUSH CAP ASSEMBLY
- (A) EXISTING IRRIGATION CONTROLLER ASSEMBLY
- (CC) EXISTING CLUSTER CONTROL UNIT (CCU) ASSEMBLY

C4 —INDICATES CONTROLLER AND CONTROLLER STATION NUMBER
114 —INDICATES LATERAL DISCHARGE IN GPM
2" —INDICATES REMOTE CONTROL VALVE SIZE IN INCHES
SPK —SPK=SPRINKLER LATERAL
T=TREE EMITTER LATERAL
S=SHRUB EMITTER LATERAL
BUB=PALM BUBBLER LATERAL

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IRRIGATION NOTES AND LEGEND
CONTRACTOR RECORD DRAWINGS

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