

SECTION 32 84 00 - PLANTING IRRIGATION

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Landscape irrigation system including piping, valves, heads, drip systems, fittings, wiring, and controllers.

B. Refer to Division 31 Section "Earth Moving" for excavating, trenching, and backfilling.

1.2 ADMINISTRATIVE REQUIREMENTS

A. Preinstallation Conference: Conduct a preinstallation conference at Project site or via phone.

1. Attendees: Landscaping installer, irrigation designer, Landscape Architect, manufacturer's representative for Smart Controller, and Contractor.
 - a. Notify Owner at least 1 week in advance of the scheduled preinstallation conference for their elective participation.
2. Minutes: The irrigation designer will record and distribute- meeting minutes via email to all attendees and Owner.

1.3 SUBMITTALS

- A. Product Data: For each type of product indicated. Include rated capacities, operating characteristics, electrical characteristics, and furnished specialties and accessories.
- B. Wiring Diagrams: For power, signal, and control wiring.
- C. As-Built Drawings: Two sets of drawings indicating actual location of piping, valves, sprinkler heads, wiring and zones.
- D. Operation and Maintenance Data: Two complete operations and maintenance manuals with proper winterization and start-up procedures.

1.4 QUALITY ASSURANCE

- A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

1.5 WARRANTY

- A. Special Warranty: Installer agrees to repair or replace planting irrigation components and accessories that fail in materials and workmanship within specified warranty period.
 - 1. Warranty Periods from Date of Store Opening or Final Project Acceptance (whichever is longer): 12 months.

1.6 MAINTENANCE SERVICE

- A. Provide full maintenance by skilled employees of planting irrigation Installer. Maintain as required in Part 3. Maintenance cost to be included in the overall base bid pricing with a breakout amount provided. Include breakout amount in Contractor's Schedule of Values.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. Conform to acceptable industry standards and applicable local, state, and federal codes.
- B. Irrigation zone control shall be automatic operation with controller and automatic control valves.
- C. Location of Sprinklers and Specialties: Design location is approximate. Make minor adjustments necessary to avoid plantings and obstructions such as signs and light standards. Maintain 100 percent irrigation coverage of areas indicated.

2.2 CONTROLLERS

- A. Automatic Smart Controller(s) with appropriate valves, sensors, zones, etc. as indicated on the drawings.
- B. Manufacturer and Mode:
 - 1. Basis-of-Design Product: Baseline Irrigation Inc.; BaseStation 1000 irrigation controller with biSensor soil moisture sensors, surge arrestors, and flow sensors as indicated on Drawings. www.baselinesystems.com/kroger, 866-294-5847.
 - 2. Alternate Controllers listed below may only be used with written approval from the Owner's Site Development Manager or Regional Director of Construction. Ongoing fees for weather information, flow sensing, or monitoring are not supported by the Owner:
 - a. Rain Bird Corporation; ESP_SMTe Series, ESP-LX w/ ET Manager cartridge.
 - b. Hunter Industries, Inc.; I-Core, ACC, or Pro-C with Solar Sync sensor.
 - c. Weathermatic; Smart Line Controllers with SLW Weather Station.

2.3 PIPES, TUBES AND FITTINGS

- A. Pressure Pipe: Comply with requirements in the piping schedule and Drawings for applications of pipe, tube, and fitting materials, and for joining methods for specific services, service locations, and pipe sizes.
 - 1. Polyvinyl chloride PVC plastic pipe complying with ASTM-D 1785, Schedule 40, 200 PSI rating.
 - 2. Polyvinyl chloride PVC plastic pipe complying with ASTM-D-2241, SDR21 Class 200
 - 3. Polyvinyl chloride PVC plastic pipe complying with ASTM-D-2241, SDR 13.5 Class 315 for 1" diameter pipe and smaller.
 - 4. PE (Poly) Pipe with Controlled ID: ASTM D 2239, PE 3408 or PE 4710 compound; SDR 11.5 with 100 PSI pressure rating for branch lines or laterals only.
- B. Fittings.
 - 1. PVC Socket Fittings: ASTM D 2466, Schedule 40.
 - 2. PVC fittings conforming to ASTM D2241, Schedule 40, and molded for SDR piping.
 - 3. PVC Socket Unions: Construction similar to MSS SP-107, except both headpiece and tailpiece shall be PVC with socket or threaded ends.
 - 4. Insert Fittings for PE Pipe: ASTM D 2609, nylon or propylene plastic with barbed ends. Include bands or other fasteners with steel pinch clamps or worm gear clamps including stainless steel screws.
- C. Sleeves (for piping under pavement): ASTM D2241, Schedule 40, per sizes shown on the Drawings, minimum 2 inch (6 mm) diameter or 2 sizes larger than the piping going through the sleeve.

2.4 VALVES

- A. Automatic/Electronic Control Valves:
 - 1. Hunter Industries, Inc; ICV Series electric remote control valves.
 - 2. Rain Bird Corporation; PEB Series electric remote control valves.
 - 3. Toro Company, (The); P220 Series plastic valves.
- B. Drip Valves:
 - 1. Hunter Industries, Inc.; ICZ Drip Zone Control Kit.
 - 2. Rain Bird Corporation; XCZ Drip Control Zone Kit.
 - 3. Toro Company, (The); DZK Drip Zone Valve Kit.
- C. Backflow Preventer: Manufacturers standard to suit project conditions.

2.5 SPRINKLERS AND ACCESSORIES

- A. Pop-Up Fixed Spray Sprinkler Heads.
 - 1. Products:

- a. Hunter Industries, Inc.; PRS30/40 with MP Rotators with check valve.
 - b. Rain Bird Corporation; 1800 Series Sprinklers bodies with Rotary Nozzles, R-Vans, or He-Vans with check valve.
 - c. Toro Company, (The); 570Z PRX Series with Precision Series Spray Nozzles w/ check valve.
- B. Pop-up Gear Driven Rotary Spray Sprinkler Heads:
 1. Products:
 - a. Hunter Industries, Inc.; PGP and PGJ series pop-up rotors, with check valve.
 - b. Rain Bird Corporation; Rain Bird Rotor, 5000 Series plus MPR rotor nozzle with Seal-A-Matic (SAM) check valve.
 - c. Toro Company, (The); Toro Super T5P-COM, with check valve or Toro TR-XTP Series with factory installed check valve, trajectory adjustment, and X Flow Device.
- C. Drip Tubing/Emitters/Accessories: Manufacturers standard, self-cleaning, self-flushing pressure compensating components and polyethylene tubing with 12-inch (305-mm) or 18-inch (457-mm) dripper spacing for broadcast areas.
 1. Broad cast and point source methods can be utilized, but spaghetti type tubing, (typically 1/4 inch (6 mm) in diameter) is not allowed.
 2. Basis-of-Design Product: Netafim Irrigation, Inc.; Techline or a comparable product by one of the following:
 - a. Hunter Industries.
 - b. Rain Bird Corp.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Verify that the water sources, various points of connection (including any pump stations), flow rate, and static/dynamic pressures meet the design criteria. Notify the irrigation designer of any discrepancies.

3.2 INSTALLATION

- A. Run under pavements and walks. Do not cut pavements or walks. All water lines under sidewalks or paving shall be sleeved. All wiring under paving shall be installed in conduit.
- B. Provide minimum cover over top of underground piping according to the following:
 1. Lines or sleeves under vehicular pavement or future vehicular pavement areas: 24 inches (457 mm).
 2. Lines or sleeves under non-vehicular areas:

- a. Irrigation Main Piping: Minimum depth of 18 inches (457 mm) below finished grade.
 - b. Circuit/Branch Piping: 12 inches (457 mm).
 - c. Drain Piping: 12 inches (457 mm).
 - d. Sleeves: 22 inches (457 mm) from the top of the pipe for main line and 16 inches (457 mm) for branch lines/laterals.
- C. As-Built Drawings: As the system is being installed, convert the schematic layout of the contract drawings into precise as-built drawings with locations of piping, valves, heads, and other components dimensioned from fixed locations including buildings and pavements.
- D. Use dielectric fittings whenever dissimilar metals are joined.
- E. Install piping per manufacturer recommendations, free of sags and bends, on solid subbase, uniformly sloped without humps or depressions.
- F. Install sprinklers, drippers, valves, moisture sensors, surge arrestors, and other accessories per manufacturer's recommendations including depth and placement. Heads to be installed perpendicular to the finish grade unless otherwise specified on the Drawings.
- G. Place copy of zone map, with all zone valve locations shown and approved irrigation plan, in protective jacket, with the main control panel.
- H. Use pressure compensating dripper systems or pressure compensating low trajectory nozzles only in locations where water has high iron content and only at areas adjacent to buildings to prevent water spray and rust from staining buildings.

3.3 FIELD QUALITY CONTROL

- A. Observation: Allow irrigation designer, Owner, or Owner's inspector/agent to inspect the ongoing work at any time for proper materials and workmanship.
- B. Tests and inspections by Installer:
 - 1. Perform leak and operational testing with proper adjustments prior to the final designer walk-through. Notify the irrigation designer at least 3 days in advance of testing. Correct deficient work within five days of written notice.
 - 2. Prior to final completion, conduct a walkthrough inspection of the complete irrigation system to allow the irrigation designer to certify that the work meets contract requirements and operates correctly. Utilize the manufacturer's technical support for the proper installation of sensors and programming of the smart controller. The installer will be held responsible for all costs associated with reinspecting work that is not substantially complete at the time of the final walk through.
 - 3. The irrigation designer shall provide written documentation of the final walk through and acceptance via email to the Owner, Contractor, and installer.

3.4 DEMONSTRATION AND TRAINING

- A. The Installer shall conduct a training/demonstration session with the Owner or the Owner's operations personnel, and the irrigation designer. The training must include any required winterization procedures. The Contractor shall document the training session with appropriate minutes and sign-in sheet.

3.5 MAINTENANCE

- A. Winterization: In applicable climates within the warranty period, installer to schedule and perform proper winterization procedure in coordination with Owner's personnel.
- B. Initial Maintenance Service: Beginning at Substantial Completion, maintenance service shall include 12 months' full maintenance by skilled employees of planting irrigation Installer. Include monthly preventive maintenance, repair or replacement of worn or defective components, lubrication, cleaning, and adjusting as required for proper operation. Parts and supplies shall be manufacturer's authorized replacement parts and supplies.
 - 1. Perform maintenance during normal working hours.

END OF SECTION 32 84 00