SECTION 02925
LANDSCAPE IRRIGATION

PART I: GENERAL

1.1 GENERAL REQUIREMENTS
- A. Pipe and fittings, valves, sprinkler heads and accessories.
- B. Control system.

1.2 MEASUREMENT AND PAYMENT
- A. Unit Prices:
  1. Payment for landscape irrigation shall be made under this Section on lump sum basis.
  2. Payment for capped irrigation sleeve, for connection to future system expansion, is on linear foot basis.
  3. Refer to Section 01270 – Measurement and Payment.
- B. Stipulated Price (Lump Sum):
  1. If Contract is Stipulated Price Contract, payment for work in this Section is included in Total Stipulated Price.

1.3 REFERENCES
- A. ASTM – American Society for Testing and Materials.
  1. ASTM D2564 – Standard Specification for Solvent Cements for Poly (Vinyl Chloride) (PVC) Plastic Piping Systems.
  2. ASTM D2241 – Standard Specification for Poly (Vinyl Chloride) (PVC) Pressure – Rated Pipe (SDR Series).
- B. CFTS – City of Friendswood Technical Specifications.

1.4 SYSTEM DESCRIPTION
- A. Electric solenoid controlled underground irrigation system.
- B. Source Power: one hundred volt (120 V).

1.5 SUBMITTALS
- A. Conform to requirements of Section 01330 – Submittal Procedures.

1.6 QUALIFICATIONS
- A. Manufacturer: Company specializing in performing work of this Section with a minimum three years (3 Yr) documented experience.

1.7 REGULATORY REQUIREMENTS
- A. Conform to applicable code for piping and component requirements.

1.8 PRE-INSTALLATION CONFERENCE
- A. Convene one week (1 Wk) prior to commencing work of this Section.

1.9 COORDINATION
- A. Coordinate work with site landscape grading and delivery of plant life.

1.10 EXTRA MATERIALS
- A. Furnish extra components under provisions of Section 00300 – Unit Price Form.
  1. Two (2) sprinkler heads of each type and size.
  2. Two (2) valve box keys.
  3. Two (2) wrenches for each type head core and for removing and installing each type head.

PART II: PRODUCTS

2.1 PIPE MATERIALS
- A. Pipe shall be continuously and permanently imprinted with manufacturer's name, size, schedules, type and working pressure.
- B. PVC Pipe ASTM D2241; Two hundred pound per square inch (200 psi) pressure rated upstream from controls, one hundred sixty pounds per square inch (160 psi) downstream; solvent welded sockets rubber gasket joints.
- C. Fittings: Type and style of connection to match pipe.
- D. Solvent Cement: ANSI/ASTM D2564 for PVC pipe and fittings.
- E. Sleeve material: Four inch (4 In) schedule 40 PVC.

2.2 OUTLETS
- A. Manufacturer's or approved equal:
  1. Rainbird Model 1804.
  2. Rainbird Model 1812.
  3. Hunter Model PGP.
- B. Rotary type sprinkler head: Pop-up type with screens; fully adjustable for flow and pressure; size as indicated; with letter or symbol designating degree of arc and arrow indicating center of spray pattern.
- C. Spray Type Sprinkler Head: Pop-up head with full circle, half circle, third circle, quarter circle and square pattern.

2.3 VALVES
- A. Manufacturer's or approved equal:
  1. Rainbird Model PEB Series.
- B. Gate Valves: Bronze construction, non-rising stem and sized to line.
- C. Backflow Preventers: FEBCO 765 Bronze body construction, reduced pressure zone or pressure vacuum breaker type.
- D. Valve Box and Cover: rectangular ten inches by four inches (10 In x 4 In) or nine inches (9 In) round.

2.4 CONTROLLER
- A. Manufacturer's or approved equal:
  1. Rainbird Model RC1260C.

B. Valves: Electric solenoid wiring including required fittings and accessories.
C. Wire conductors: Color coded.

PART III: EXECUTION

3.1 EXAMINATION

A. Verify site conditions under provisions of Section 01315 – Coordination and Meetings.
B. Verify location of existing utilities.
C. Verify that required utilities are available, in proper location and ready for use.

3.2 PREPARATION

A. Piping layout indicated is diagrammatic only. Route piping to avoid plants, ground cover and structures.
B. Layout and stake locations of system components.
C. Review layout requirements with other affected work. Coordinate locations of sleeves under paving to accommodate system.

3.3 TRENCHING

A. Trench and filling as required.
B. Trench size:
    1. Minimum cover over installed supply piping: Eighteen inches (18 In).
    2. Minimum cover over installed branch piping: Twelve inches (12 In).
    3. Minimum cover over installed outlet piping: Twelve inches (12 In).
C. Trench to accommodate grade changes.
D. Maintain trenches free of debris, material or obstructions that may damage pipe.
E. Do not leave trenches open overnight.

3.4 INSTALLATION

A. Install pipe, valves, controls and outlets in accordance with manufacturer's instructions.
B. Connect to utilities.
C. Set outlets and box covers at finish grade elevations.
D. Install control wiring as required. Provide ten inch (10 in) expansion coil at each valve to which controls are connected and at one hundred foot (100 Ft) intervals. Bury wire beside pipe. Mark valves with neoprene valve markers containing locking device. Set valve markers in one hundred pounds per square inch (160 psi) PVC pipe risers exiting from top of valve to finish grade.
E. After piping is installed, but before outlets are installed and filling commences, open valves and flush system with full head of water.

F. Coordinate pipe installation with conduit installation.

3.5 FIELD QUALITY CONTROL

A. Field inspection and testing shall be performed.

B. Prior to filling, test system for leakage for whole system to maintain one hundred pounds per square inch (100 psi) pressure for one hour (1 Hr).

3.6 FILLING

A. Cover with three inches (3 In) of sand over piping; fill trench and compact to subgrade elevation. Protect piping from displacement.

3.7 ADJUSTING

A. Adjust control system to achieve time cycles required.

B. Change and adjust head types for full water coverage as directed.

3.8 DEMONSTRATION

A. Demonstrate system under provisions of Section 01755 – Starting Systems.

B. Instruct City's personnel in operation and maintenance of system, including adjusting of sprinkler heads. Use operation and maintenance material as basis for demonstration.

END OF SECTION