SECTION 13121

FOUNTAINS

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes design and complete installation of decorative fountains complete as shown on Drawings and as specified, including:

1. Equipment and accessories indicated on Drawings.
2. Mechanical, electrical, and plumbing work.

B. Related Sections include:

1. Division 03 Section “Cast-in-Place Concrete” for cast-in-place concrete substrates and foundations.
2. Division 04 Sections for material and setting requirements for face brick, cast stone, and CMU components.
3. Divisions 22 and 26 Sections for plumbing and electrical requirements including connections to water supply, sanitary sewer, and electrical power.

1.2 DEFINITIONS

A. Fountains, pools, and water features include concrete fountains and linings, unit masonry basins and cast stone trim, decorative rock work, waterproofing, water pump and filters, sensors and controllers, valves, nozzles, drains, piping, valve and junction boxes, electrical power and lighting, and other incidental work.

1.3 PERFORMANCE REQUIREMENTS

A. Structural Performance: Provide capable of withstanding the effects of gravity loads under conditions indicated.

B. Operational Performance:

1. Design fountain with appropriate overflow drains that prevent water from flowing over pool wall onto adjacent areas.
2. Provide waterproofing for pools that prevents the passage of water from the pool to surrounding areas.
3. Design systems and select components to achieve indicated effects with reliable operation and minimal maintenance.
4. Design for satisfactory operation in ambient temperatures from 35 deg F to 110 deg F.

C. Design Effects: (Describe)

1.4 SUBMITTALS

A. Product Data: For each type of product required. Where applicable, include construction details, material descriptions, dimensions of individual components and profiles, and finishes.

1. For pumps and light fixtures, include wiring diagrams, power requirements, rated capacities, furnished specialties, and accessories.

B. Shop Drawings: Include plans, elevations, sections, details, and attachments to other Work.

1. Include piping layout for plumbing work indicating location of valves, pumps, piping, and nozzles.
2. Include wiring diagrams indicating connections to electrical service and type of service required for electrical components including pumps, sensors, controllers, and lighting.

C. Samples for Initial Selection: For each type of finish material required.

D. Samples for Verification: For each type of finish material required.

E. Maintenance Data: For operating components of fountains, pools, and water features to include in maintenance manuals.

F. Warranties: Special warranties specified in this Section.

1.5 QUALITY ASSURANCE

A. Installer Qualifications: An installer of decorative fountains and pools with not less than 5 years experience executing work of similar scope.

1. Installer's responsibilities include design, fabricating, and installing fountains, pools, and water features and providing professional engineering services needed to assume engineering responsibility.
2. Approved Installers:

a. Monarch Pool Incorporated
b. Patio Pool of Houston Inc.
c. Watts Pool Company

B. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.

C. Product Options: Information on Drawings and in Specifications establishes requirements for system's aesthetic effects and performance characteristics. Aesthetic effects are indicated by dimensions, arrangements, alignment, and profiles of components and assemblies as they relate to sightlines, to one another, and to adjoining construction. Performance characteristics are indicated by criteria subject to verification by one or more methods including field testing, and in-service performance.

1. Do not modify intended aesthetic effects, as judged solely by Landscape Architect, except with Landscape Architect's approval. If modifications are proposed, submit comprehensive explanatory data to Architect for review.

D. Pre-installation Conference: Conduct conference at Project site to comply with requirements in Division 01 Section “Project Management and Coordination.”

1. Review locations for pools, fountains, and water features.
2. Review required coordination with other Work.
3. Review locations and sizes for required utilities including service requirements.

1.6 PROJECT CONDITIONS

A. Field Measurements:

1. Indicate measurements on Shop Drawings.
2. Established Dimensions: Where field measurements cannot be made without delaying the Work, establish dimensions and proceed with fabricating without field measurements. Coordinate plaza construction to ensure that actual dimensions correspond to established dimensions.

1.7 WARRANTY

A. Special Warranty: Installer’s standard form in which Installer agrees to repair or replace fountain and pool components that fail in materials or workmanship within specified warranty period.

1. Failures include, but are not limited to, the following:

a. Structural failures including cracking in cast stone and ceramic tile finishes.
b. Leaking of pools through fountain and pool structure, piping, or waterproof membranes.
c. Faulty operation of nozzles, pumps, filters, and electrical lighting.

2. Warranty Period: 2 years from date of Substantial Completion.

B. Special Warranty for Operating Components: Manufacturer's standard form in which manufacturer agrees to repair or replace components that fail in materials or workmanship within specified warranty period.

1. Components:

a. Pumps.
b. Filters.
c. Electrical light fixtures.

2. Warranty Period: 5 years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 PRODUCTS

A. Basis of Design: Design intent of fountains, pools, and water features is based on products by The Fountain People, Inc. Subject to compliance with requirements, provide products by named manufacturer or comparable products approved by the Landscape Architect.

2.2 PIPES, TUBES, AND FITTINGS

A. PVC Pipe: ASTM D 1785, PVC 1120 compound, Schedule 40.

1. PVC Socket Fittings, Schedule 40: ASTM D 2466.

B. PVC, Pressure-Rated Pipe: ASTM D 2241, PVC 1120 compound, SDR 26.

1. PVC Socket Fittings, Schedule 80: ASTM D 2467.

C. Solvent Cements for Joining PVC Piping: ASTM D 2564. Include primer according to ASTM F 656.

2.3 STONE

A. Provide natural stone and rock approximating sizes indicated for selection by the Landscape Architect.

PART 3 - EXECUTION

3.1 EARTHWORK

A. Refer to Division 31 Earthwork Sections for excavating, trenching, and backfilling.

3.2 PREPARATION

A. Set stakes to identify locations of proposed fountains, pools, and water features. Obtain Architect's approval before excavation.

3.3 INSTALLATION

A. General: Install fountains, pools, and water features in locations indicated in accordance with approved Shop Drawings. Comply with manufacturer's written installation instructions unless more stringent requirements are indicated.

B. Utility Connections: Make water, electrical, and storm sewer connections from lines indicated on the Drawings to equipment and fixtures required for fountains, pools, and water features.

C. In-Ground Vault and Box Installation: Install in approved locations and at approved elevations.

D. Piping Installation:

1. Location and Arrangement: Drawings indicate location and arrangement of piping systems. Install piping as indicated unless deviations are approved on Coordination Drawings.
2. Install piping free of sags and bends.
3. Install fittings for changes in direction and branch connections.
4. Install unions adjacent to valves and to final connections to other components with NPS 2 or smaller pipe connection.
5. Install flanges adjacent to valves and to final connections to other components with NPS 2-1/2 or larger pipe connection.
6. Install underground thermoplastic piping according to ASTM D 2774.
7. Lay piping on solid sub-base, uniformly sloped without humps or depressions.
8. Install PVC piping in dry weather when temperature is above 40 deg F 5 deg C. Allow joints to cure at least 24 hours at temperatures above 40 deg F 5 deg C before testing unless otherwise recommended by manufacturer.
9. Plastic Piping Solvent-Cemented Joints: Clean and dry joining surfaces. Join pipe and fittings according to the following:

    a. Comply with ASTM F 402 for safe-handling practice of cleaners, primers, and solvent cements.
    b. PVC Pressure Piping: Join schedule number ASTM D 1785, PVC pipe and PVC socket fittings according to ASTM D 2672. Join other-than-schedule-number PVC pipe and socket fittings according to ASTM D 2855.
    c. PVC Non-pressure Piping: Join according to ASTM D 2855.

E. Stone Installation: Install selected natural stone and rock in locations indicated and as approved by the Architect. Where required for proper operation or safety, securely attach stones with mechanical fasteners or mortar/grout.

F. Equipment Installation:

1. Install equipment level and plumb, unless otherwise indicated.
2. Install equipment to facilitate service, maintenance, and repair or replacement of components. Connect equipment for ease of disconnecting, with minimum interference with other installations. Extend grease fittings to an accessible location.
3. Install equipment to allow right of way to piping systems installed at required slope.

3.4 DEMONSTRATION

A. Train Owner's maintenance personnel to adjust, operate, and maintain pumps, filters, programmable components, and lighting. Refer to Division 1 Section “Closeout Procedures.”

END OF SECTION 311013