ITEM 615.0116XX39 – WATER PLAY FEATURE - NYCDPR

DESCRIPTION
This work will consist of furnishing and installing a complete water play feature in accordance with the contract documents and as directed by the Engineer.

Each water feature includes the following components:
- Concrete footings (including reinforcement),
- Water Play Feature System:
  - Decorative steel spray fixtures,
  - Activators (bollard and in-ground),
  - Flow distribution manifold,
  - Plumbing equipment,
  - Hardware and fittings, and
- Operation and maintenance manuals.

Optional system components include electrical equipment for water play features with electrical controls, such as:
- automatic water make-up assembly w/solenoid valves,
- programmable control panel,

Refer to the contract documents for a complete list of water play feature components.

Installation work includes the following:
- Excavation, backfill and compaction,
- Installation of all materials and equipment,
- Field plumbing, including connections (performed by a licensed Plumber),
- Testing, and
- Operation and maintenance training and demonstration.

Optional installation work includes electrical work performed by a licensed Electrician (for water play features with electrical controls).

Refer to the contract documents for installation work associated with this payment item.

Refer to the contract documents (including plans, notes, details and tables) for additional information regarding this specification. Any associated special note(s), if included, is titled, “Item 615.0116XX39 – Water Play Feature – NYCDPR”.

MATERIALS
The following sections of the standard specifications apply:

  Structural Concrete  555-2.01
  Electric Utilities    661-2
  PVC Plastic Drain Pipe System  706-15
  Wire Fabric for Concrete Reinforcement  709-02
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| Epoxy-Coated Bar Reinforcement | 709-04Water Service |
| Pipe, Service Valves and Fittings | 722-06 |
| Rigid Plastic Conduit | 723-19 |
| Single Conductor Cable | 723-70 |
| Ground Wire | 723-75 |

The following ASTM standards shall apply:

- Standard Specification for Chromium and Chromium-Nickel Stainless Steel Plate, Sheet and Strip for Pressure Vessels and for General Applications ASTM A240
- Standard Specifications for Copper Alloy Sand Castings For Valve Applications ASTM B763
- Standard Specification for Poly (Methyl Methacrylate) Acrylic Plastic Sheet ASTM D4802

Concrete:
Concrete: Shall be Class A concrete, 3,200 psi, as described in §501-2.

Forms: Forms for footings shall be lined with exterior grade plywood. The formwork shall be coated with an approved oil or lacquer.

Reinforcement: Shall meet the requirements of §709-02.

Water Play Feature System Components: shall be entirely from one of the following manufacturers:

  1709 Montee Sainte Julie 328 Avro St.
  Sainte-Julie, Quebec, Canada Pointe-Claire, Quebec, Canada
  888.441.2040 888.586.7839
  www.aquajeux.com www.vortex-intl.com

Water Odyssey by Fountain People, Inc.
4600 Highway 123
San Marcos, TX 78666
512.392.1155
http://waterodyssey.com

or equal as approved by Engineer.

Decorative Steel Spray Fixtures: Unless otherwise indicated in the contract documents, decorative steel spray fixtures, including, but not limited to, jets, sprays and nozzles shall be constructed of schedule 10, Type 304/304L stainless steel to form various features of varying sizes
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and configurations as shown in the contract documents. Fixtures shall include all necessary stainless steel hardware and stainless steel fasteners according to manufacturer’s instructions.

Polyester powder coating may be required for some fixtures. Refer to the contract documents to determine if polyester powder coating is required.

Activators (Bollard and in-Ground): Shall be as described in the contract documents.

Flow Distribution Manifold: Shall be as described in the contract documents.

Programmable Control Panel: Shall be as described in the contract documents.

Plumbing Equipment:
Water service pipe: shall meet the requirements of §722-06., Type "K" copper tubing. Copper tubing and fittings are to be supplied from valves on the water supply line to the post, with the connection at the fixture to be made with a dielectric coupling.

Fittings: Fittings shall be approved red brass Class “A” treadles type, containing no less than eighty five (85%) percent copper, adaptable for copper tubing.

Hardware: All hardware, fittings, and fastenings shall be as indicated on the shop drawings, manufacturer’s instructions and as required to complete the installation. Lag bolts shall be of best quality stainless steel with side-slot flat type vandal-proof head in the sizes indicated on the plans. Anchors shall be stainless steel in the sizes required. Tamper-proof hardware shall be stainless steel.

All hardware specified as galvanized in the contract documents shall be per §719-01.

Electrical Equipment:
Refer to the contract documents to determine if electrical components are specified.

Electrical equipment shall be per §661-2, and the following:

Exterior Control Wires: Control wires shall be 24- volt solid wires U.L. approved for installation in conduit. Minimum wire size: 14 gauge; 12 gauge for common wire.

PVC Conduit for Control Wiring: All underground exterior 24 volts control wiring for activation bollard shall be installed in PVC rigid (non-metallic) conduit with fittings. The conduit shall be per §723-19.

Sleeves for Control Wires: Sleeves for control wires shall be installed under all walks and paving and where indicated in the contract documents. Sleeves shall be PVC schedule 40 or galvanized heavy wall steel pipe conduit as indicated in the contract documents.
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**Miscellaneous Materials:**
M & O Manual: The Contractor shall furnish six (6) copies (see Submittals) of the Maintenance & Operation Manual (M&O Manual) for the spray shower system and the associated mechanical system. The manual shall include:

a. Description of system operation and operating modes.
b. Start-up procedures.
c. Troubleshooting and repair guide
d. List of part with their model numbers.
e. Plumbing diagram showing all pipes, valves, hydraulic activator assembly and other water feature elements.
f. Electrical diagram showing the valve assembly, the controller, the activation bollard, the power supply, and all operating switches.

**CONSTRUCTION DETAILS**
The following sections of the standard specifications apply:

- Excavation and Embankment 203-3.01
- Structural Concrete 555-3.03
- Electric Utilities 661-3
- Water Supply Utilities 663-3

**Concrete:**
**Excavating for Foundation:** All excavation shall be cut accurately to required lines and dimensions and shall be large enough to provide adequate clearance for the proper execution of the work within them.

**Cast-in-Place Footings Inspection:** When the excavation has been carried to the required lines and dimensions, the Contractor shall do no more work until after the inspection excavation has been approved, including any further excavation, if directed based on field conditions.

**Curing:** All finished concrete shall be protected and kept moist continuously for three (3) days.

**Water Play Feature System Components** (including decorative steel spray fixtures, activators, control panels, valves, manifolds, plumbing and, if specified, electrical): All water play feature system components shall be installed in accordance with the contract documents and manufacturers’ instructions.

Entire assemblies shall be installed:
- in accurate locations,
- square and plumb on concrete footings,
- in required locations to surrounding finished grade, as shown in the contract documents, and
- vertical components shall be installed plumb and true to line and elevation.
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Anchor bolts shall be accurately set, plumb and true, in concrete footings, using templates supplied by the manufacturer.

Decorative Spray Fixtures: Decorative spray fixtures shall be installed per manufacturer’s instructions and the contract documents.

Nozzles shall be secured to the spray fixtures using any special securing tool(s) provided by the manufacturer. Nozzle shall be adjusted as necessary to ensure the desired jetting of water.

Hardware: Use specified hardware, fittings, and fastenings per shop drawings and as otherwise required per manufacturer’s instructions to complete installation.

Anchor bolts shall be accurately set, plumb and true, in concrete footings, using templates supplied by the manufacturer.

Plumbing: All field connections to be made by a Licensed Plumber.

Electrical Work: When electrical work is required, a licensed Electrician shall perform all electrical work. This includes the connection of the power supply and floor-mounted activation device to the controller. All field wiring shall be waterproof with heat shrink-wrapping.

Testing: Before backfilling, the entire system (including decorative spray fixtures) shall be pretested and inspected. This shall include maintaining full pressure on the entire system for no less than one hour. Following the pressure test, it is imperative that all components be flushed by running the water supply through all fixtures for a period of time to ensure all debris has been removed from the entire system prior to installation of any nozzles and in the presence of the Engineer. After paving is completed, all nozzles shall be adjusted and secured for proper operation and spray patterns.

M & O Training and Demonstration: After testing is completed and approved, a training and demonstration session shall be held for the M&O staff. The installed spray feature system shall be demonstrated for the district M & O Staff. The demonstrations shall include manual and automatic operations. The demonstration shall also include identification and operation of each component, trouble shooting for each component, winterizing the system, removal and replacement of defective components, general and specific requirements for system maintenance, and a check list for frequent attention of components. Highlights of the demonstration, including identification of components shall be videotaped for future M&O training.

Basis of Acceptance: The Contractor shall:
- demonstrate a functioning water play feature,
- provide the O&M manual and videotape,
- provide M & O training and demonstration, and,
- turn over the entire system in good operating condition.
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Submittals:
Shop Drawings/catalog cuts: The Contractor shall provide catalog cuts and specifications for the water play feature plumbing and electrical connections form the manufacturer for approval prior to construction. The shop drawings shall include a complete listing of sizes and quantities of lag bolts, anchors and tamper-proof hardware as well as the sizes, materials, and quantities of all other hardware, fittings, and fastenings required to complete the installation based on the contract documents and manufacturer’s recommendations.

O & M Manual & Videotape: The Contractor shall furnish six (6) copies (see Submittals) of the O & M Manual (Operation & Maintenance Manual) for the spray shower system and the associated mechanical system. The manual shall include a checklist for trouble shooting and corrective measures in addition to operation and maintenance instructions. The Contractor shall also furnish an instructional video (VHS or DVD) of highlights of the M & O Training and Demonstration, including identification of components of the water play system.
1) Description of system operation and operating modes.
2) Start-Up Procedures.
3) Troubleshooting and Repair Guide
4) List of part with their model numbers.
5) Diagram showing valve and mechanical activator assemblies.

METHOD OF MEASUREMENT
This work will be measured for payment as a lump sum for a water play feature furnished and installed.

BASIS OF PAYMENT
The lump sum price bid for the water play feature shall include the cost of all labor, materials, and equipment necessary to satisfactorily complete the work.

Backflow preventer and electric service to the panel, where applicable, shall be paid for separately. The work shall be paid under the following payment items:

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Unit</th>
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<tbody>
<tr>
<td>615.01160139</td>
<td>Water Play Feature – without Electronic Controls</td>
<td>LS</td>
</tr>
<tr>
<td>615.01160239</td>
<td>Water Play Feature – with Electronic Controls</td>
<td>LS</td>
</tr>
<tr>
<td>615.01160339</td>
<td>Water Play Feature – controls as specified</td>
<td>LS</td>
</tr>
</tbody>
</table>

Progress payments will be made at the unit price bid for seventy-percent (70%) of the lump sum for the water play feature installed after the Contractor has installed all water feature components. The remaining thirty (30%) will be paid once the Contractor completes the acceptance criteria.