ITEM 11604.6402 M – HYDRAULIC ACTIVATOR (NYCDPR)

DESCRIPTION

This work shall consist of furnishing and installing a Hydraulic Activator in accordance with the details indicated in the plans at the locations indicated in the plans or where directed by the Engineer.

MATERIALS

Hydraulic Activators: Shall be Hydraulic Activator as manufactured by Vortex Aquatic Structures International, Inc., 403 Saint Roch St., Montreal, Quebec, Canada H3N 1K2, or approved equal by the Engineer.

All Hydraulic Activator construction shall meet or exceed the latest requirements, as published in the Handbook for Public Playground Safety - Volume I and II, issued by the National Bureau of Standards for the Consumer Product Safety Commission and ASTM standards.

Hydraulic Activator shall be constructed of 102mm (4") schedule 10 stainless steel 304/304L pipe. It shall have an overall height of 1.3m (52") and rise 1.04m (41") above final grade. The hydraulic activator shall be mounted on a 9mm (3/8") x 280mm (11") x 280mm (11") stainless steel 304 base plate and anchored with four (4) – 18mm (3/4") x 76mm (3") x 305mm (12") stainless steel 304 anchor bolts. The activation cap shall be constructed of rigid high-density polyethylene and be secured using a tamper-resistant system. The polyethylene shall be UV resistant non-porous and nonflammable. The activator shall operate on hydraulic (No electrical requirements) basis with no visible or moving parts and shall be accessible by removing the polyurethane cap with a special tamper- resistant tool. All welds shall be polished and non-visible. The structure shall be a stainless steel polished finish. There is one Silverflow handle sphere fixed to the post. It is comprised of a molded reinforced composite material that is available in Vortex standard colors.

The Hydraulic Activator manifold shall be installed in a prefabricated mechanical vault. The manifold shall be factory assembled and water pressure tested. The unit shall be equipped with threaded connections for the water inlet and water outlets for each of the spray features. The main inlet 36mm (1½") valve shall be factory connected to Hydraulic Activator.

Drainage Pipe: The winterizing drainage pipe shall be galvanized, meeting ASTM A53, Grade B, Schedule 80. Drainage pipe and fittings are to be connected to the base of each Hydraulic Activator and supply line, as indicated on the approved shop drawings.

Copper Tubing: The water service pipe shall be hard tempered Type 'K' copper tubing meeting the Dept of Purchase Specifications No. 32-T-1.64 and ASTM No. B88-1974. The following materials may apply to the Hydraulic Activator:

Angle Iron: Angle Iron shall be standard Schedule 40 galvanized steel.

Concrete: Shall conform to N.Y.C. Dept. Of Transportation class B-32, Type II A, air entrained, moderate sulphate resistant. The batch shall contain a minimum of six (6) bags of cement per cubic yard of concrete,

maximum of 6¼ gallons of water per bag, a maximum of 76mm (3") slump, and compressive strength of 3200 psi. Large aggregate shall be limited to 25mm (1").

Sand: Sand shall be clean builder's sand, consisting of hard durable, uncoated grains, free from lumps of clay or other deleterious substances, of such size that when dry one hundred percent (100%) shall pass a No. 20 sieve and not more than five percent (5%) by weight shall pass a No. 100 sieve. The sand may be rejected if it contains more than six percent (6%) by volume of silt or loam.

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

Joints: Joints shall be made by soldering, using 95-5 tin antimony solder.

Hardware: All hardware, fittings, and fastenings shall be as indicated on the plans and as may be required to complete installation. Lag bolts shall be of the best quality stainless steel, with side slot flat-type vandal-proof head in the size indicated on the plans. Anchors shall be hot dipped galvanized in the size required.

Reinforcement: Steel fabric shall meet the requirements given for cold drawn steel wire for concrete reinforcement, in the Standard Specifications of the ASTM Serial Designation A-82, latest revision, except that sample shall be taken as directed by the Engineer. All welded steel fabric shall meet ASTM Specification A-185, latest revision.

CONSTRUCTION DETAILS

The contractor shall integrate the Hydraulic Activator with the Removable Spray Shower to provide a complete spray feature. Removable Spray Shower shall be as specified under different Item.

Copper tubing and fittings are to be supplied from globe valves on the water supply line to the Hydraulic Activator, with the connection at the Hydraulic Activator to be made with a dielectric coupling.

Testing: Before backfilling. the entire system shall be pretested and inspected. After paving is completed, all nozzles shall be readjusted for proper operation and spray to the satisfaction of the Engineer.

Excavation for Foundation: All excavation shall be cut accurately to required lines and dimensions for work on drawings and shall be large enough to provide adequate clearance for the proper execution of the work within them. The Contractor shall not proceed with the foundation and concrete work without the approval of the Engineer.

Approvals: An authorized representative of the manufacturer shall inspect and approve the installation before any work is accepted and deemed complete. Such acceptance shall be to the satisfaction of the Engineer. No additional compensation shall be made to the Contractor for any necessary corrective work.

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Spray Equipment and Hydraulic Activators: Shall be installed per manufacturer's instructions and the directions of the Engineer. Vertical components shall be installed plumb and true to line and elevation. Nozzles shall be adjusted as necessary to ensure the desired jetting of water. The Contractor shall pretest all spray equipment components and nozzles before backfilling.

The Contractor shall turn over the entire system in good operating condition, to the satisfaction of the Engineer. The Contractor shall demonstrate the functioning water play unit for the Engineer prior to receiving final approval.

Steel fabric shall consist of longitudinal members with transverse members at right angles thereto. All points of intersection of the members shall be firmly connected in approved manner.

All steel fabric shall be delivered in flat sheets or rolls of such widths as to fit the concrete pavement slabs as shown on the plans.

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

Cast in Place Footings at Sub-slab: Foundation material and concrete shall be installed according to placement in the contract drawings and the directions of the Engineer.

Operation and Maintenance Manual. The Contractor shall furnish (see Submittals) an Operation and Maintenance (O & M) Manual prepared in conjunction with the manufacturers of equipment in this specification. The O & M manual shall contain the following:

1) Description of system operation and operating modes.
2) Start-Up Procedures.
3) Troubleshooting and Repair Guide
4) List of parts with their model numbers.
5) Diagram showing valve and hydraulic activator assembly

Submittals: The Contractor shall submit the following for the Engineer's review and approval prior to manufacturing.

Shop Drawing: The Contractor shall submit Shop Drawings. The Shop Drawings shall indicate, as a minimum: general layout, dimensions, materials, finishes, supports, hardware, fittings, control panels, solenoid valves and accessories. The Shop Drawings shall be submitted on or before the 'Order to Work' date.

Catalog Cuts: Catalog cuts shall include the hydraulic activator and concrete footings indicated.

O & M Manual: The Contractor shall furnish six (6) copies of the Operation & Maintenance Manual.

Tamper Resistant Tool: The Contractor shall furnish two (2) Tamper Resistant tools for the State.

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METHOD OF MEASUREMENT

This work will be measured for payment as the number of Hydraulic Activators (NYCDPR) satisfactorily furnished and installed.

BASIS OF PAYMENT

The unit price bid for Hydraulic Activator shall include the cost of all labor, materials and equipment necessary to satisfactorily perform the work.