

SECTION 02602 - VALVES

PART 1 – GENERAL

1.1 DESCRIPTION

- A. The WORK under this Section includes providing all labor, materials, tools and equipment necessary for furnishing and installing valves and valve boxes; thrust blocks; and for raising or lowering existing valve boxes to conform to the final grade, as shown on the Drawings and in conformance with the Standard Details.

1.2 SUBMITTALS

- A. Gate Valves: Catalogue cuts.
- B. Butterfly Valves: Catalogue cuts.
- C. Valve Boxes: Catalogue cuts.

PART 2 – MATERIALS

2.1 GATE VALVES

- A. Gate valves for water pipes 12 inches and smaller shall be of the iron body, non-rising bronze stem, resilient-seated wedge-type. Valve shall be American Flow Ductile, Clow, Kennedy, M & H, or Mueller and shall meet or exceed the requirements of AWWA C509 and the specific requirements outlined in these Specifications.
- B. Gate valves shall open counter-clockwise and be provided with two inch square wrench nuts, except that when installed within vault structures a hand wheel shall be provided for each valve.
- C. End connections shall be mechanical joint, unless otherwise indicated on the Drawings.
- D. All internal ferrous metal surfaces shall be fully coated, holiday free, to a minimum thickness of four mils with a two part thermosetting epoxy coating. Said coating shall be non-toxic, impart no taste to water, protect all seating and adjacent surfaces from corrosion and prevent buildup of scale or tuberculation.
- E. Gate valves, when attached to a restrained joint, shall have tie rods and one retainer gland for each joint. The size and number of tie rods shall conform to the requirements of Section 02601 – Water Pipe.
- F. The CONTRACTOR shall provide four detailed repair manuals for the gate valves supplied; and a letter of certification from the supplier verifying that all requirements of AWWA C509 and these Specifications have been met.
- G. The CONTRACTOR shall provide one standard packing kit for every group of ten (and fraction thereof) of each size of gate valve.

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2.2 BUTTERFLY VALVES

- A. Butterfly valves shall be used with water pipe sizes larger than 12 inches and shall be manufactured to equal or exceed the latest revision of AWWA C504 and the specific requirements outlined in these Specifications.
- B. Butterfly valves shall open counter-clockwise and be provided with two inch square wrench nuts, except that when installed within vault structures, a hand wheel shall be provided for each valve.
- C. End connections shall be mechanical joint, unless otherwise indicated on the Drawings.
- D. All internal ferrous metal surfaces shall be fully coated, holiday free, with a minimum of two coats of asphalt varnish approved by the ENGINEER. Said coating shall be non-toxic, impart no taste to water, protect all seating and adjacent surfaces from corrosion and prevent build-up of scale or tuberculation.
- E. Butterfly valves, when attached to a restrained joint, shall have tie rods and a retainer gland for each joint.
- F. The CONTRACTOR shall provide four detailed repair manuals for the butterfly valves supplied; and a letter of certification from the supplier verifying that all requirements of AWWA C504 and the Specifications have been met.

2.3 VALVE BOXES

- A. Valve boxes for valves four inches or larger shall be of cast iron and be not less than 5¼-inch diameter, with an extension piece adjustable for elevation and with a cover marked "Water" or "W." The valve box shall be sufficient length to be adjusted and equal amount above and below the finished grade as shown on the Standard Details. Boxes shall be dipped in coal tar pitch. The valve box shall be Kejriwal Pacific 940 B 18" (top section) and Kejriwal Pacific D-24 (bottom section), or approved equal whose parts are demonstrated to be interchangeable with Kejriwal Series.

2.4 UTILITY MARKERS

- A. Utility markers for water valves shall be "Utility Marker CUM-375" as manufactured by Carsonite Division of AMETEK, blue in color, six feet in length including anchor kits and decals with each marker. Decals shall denote "WATER VALVE."

2.5 VALVE ACCESS PADS

- A. Valve access pads shall consist of materials corresponding to those shown on the Drawings and as specified for Hydrant Access Pads.

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PART 3 – EXECUTION

3.1 VALVES

- A. Valves shall be inspected upon delivery in the field in both open and closed positions prior to installation. Careful inspection shall be made for injury to the outer protective coatings. At all places where the coating has been ruptured or scraped off, the damaged area shall be cleaned to expose the iron base, and then re-coated with two or more field coats of approved protective coating.
- B. Valves shall be set on a firm base.
- C. Valves shall be installed, in an open position, in the vertical plane passing through the pipe axis, in conformance with the manufacturer's recommendations and the AWWA Standards. Valve interiors shall be cleaned of all foreign matter.
- D. After installation, all valves shall be subjected to field-testing and disinfected as outlined in Section 02601 – Water Pipe. Should defects in design, materials, or quality of work appear during these tests, the CONTRACTOR shall remove and replace the valve, or correct such defects, with the least possible delay, to the satisfaction of the ENGINEER.
- E. All valve clusters consisting of a tee and one or more valves, including fire hydrant legs, shall be monolithically restrained with EBBA Iron "Mega-lug System" fittings, or approved equal. Each connecting pipe to the valve cluster or tee will be restrained to the cluster or tee.

3.2 VALVE BOXES

- A. A valve box shall be installed over each valve, with the base section centered over the valve and resting on well-compacted backfill. The top section shall be set to allow equal movement of the telescoping section above and below finished grade, as shown on the Standard Details, unless otherwise directed by the ENGINEER. The top of the base section shall be on line with the nut at the top of the valve stem and the entire assembly shall be perpendicular to the water pipe.
- B. Construct a concrete collar around each valve box within the roadway pavement limits. Sawcut through the total pavement depth following final paving and construct the concrete collar in accordance with CBJ Standard Detail 126 – Concrete Collar. No backfilling, except with concrete, will be permitted. Seal all sawcut grooves beyond the edge of concrete.

3.3 REPLACE VALVE BOXES

- A. Replace Valve Boxes will include removal of the existing valve box down to the valve and replacing with a new valve box assembly conforming to Article 2.3 of this Section. The new valve box shall be installed in accordance with Article 3.2 of this Section.

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3.4 ADJUST EXISTING VALVE BOXES

- A. Adjust by raising or lowering to conform to the final grade, in accordance with the locations and details shown on the Drawings. The existing case iron valve box and cover shall be salvaged and reused. Where the valve box is of the adjustable-type construction, it shall be adjusted with adaptable extension pieces. Where the valve box is constructed with steel pipe, additional steel pipe shall be welded to the valve box to raise the cover; lowering shall be accomplished by cutting the existing steel pipe.
- B. Where the existing valve box is tilted and/or far enough off center on the valve nut to make valve operation difficult, the CONTRACTOR shall plumb and center the valve box over the valve nut prior to strengthening or placement of base course material.

3.5 UTILITY MARKERS

- A. Utility markers for water valves shall be installed at main line valve boxes at locations indicated on the plans and as directed by the ENGINEER. The position of the marker shall be as shown on the detail Drawing, or as directed by the ENGINEER.

END OF SECTION