April 27, 2022

To Whom It May Concern:

The City of LaGrange will receive sealed bids until **2 P.M. EST, FRIDAY, MAY 27, 2022** in the Office of the Purchasing, Third Floor, City Hall, 200 Ridley Avenue, Lagrange, Georgia 30240 to furnish materials for **THE WALT WILLIAMS WTP FILTER REHAB PROJECT** in accordance with the following conditions and specifications.

1. The City of LaGrange is exempt from sales and excise taxes. All bids shall be free of sales and excise taxes. This does not relieve the contractor from any obligation to pay sales and excise tax to suppliers.

3. All work shall be done in accordance with the bid documents, specifications, and drawing(s) as provided by the City. Bids shall be submitted on the forms provided in the bid documents. All bids shall be held valid for a period of THIRTY (30) days after the opening date

3. The City of LaGrange reserves the right to accept or reject any and/or all bids and to accept the bid which City personnel consider the most advantageous to the City. The City further reserves the right to waive informalities and minor irregularities in all bids received in the bidding process.

4. Bidders will submit their pricing for the materials on the provided schedule of values sheet listed here within the bid documents.

5. The City reserves the right to increase or decrease the final unit quantities.

6. All deliveries will be FOB destination freight prepaid.

7. This quote will be awarded on an itemized basis. Different companies could be awarded separate parts of the materials requested.

Questions concerning these conditions and specifications should be addressed to Jeremy Andrews, Procurement Officer, at 706-883-2046. To avoid being inadvertently opened by City Personnel, all bids should be clearly marked "**BID OPENING, WALT WILLIAMS WTP FILTER REHAB PROJECT, 2 P.M. EST, FRIDAY, MAY 27, 2021**

Sincerely,

Jeremy Andrews

Jeremy Andrews
Purchasing Agent

Tag No.	Number	Type, General	Type, Specific	Process Fluid	Operator	Position	Valve Size (inch)	Unit Price	Total Price	Delivery Time
Structure 49 - 1949 Building										
FV-4911/21/31/41	4	BUTTERFLY VALVE, FLANGED	Type V500	SETTLED (FILTER INFLUENT)	ELECTRIC	OPEN/CLOSE	16			
FCV-4912/22/32/42	4	BUTTERFLY VALVE, FLANGED	Type V500	FILTERED (FILTER EFFLUENT)	ELECTRIC	MODULATING	8			
FV-4912/23/33/43	4	BUTTERFLY VALVE, FLANGED	Type V500	BACKWASH (WASH)	ELECTRIC	OPEN/CLOSE	18			
FV-4914/24/34/44	4	BUTTERFLY VALVE, FLANGED	Type V500	DRAIN (WASTE)	ELECTRIC	OPEN/CLOSE	18			
FV-4915/25/35/45	4	BUTTERFLY VALVE, FLANGED	Type V500	REWASH (WASTE)	ELECTRIC	OPEN/CLOSE	4			
FV-4916/26/36/46	4	BUTTERFLY VALVE, FLANGED	Type V500	SURFACE SWEEP	ELECTRIC	OPEN/CLOSE	4			
Structure 69 - 1969 Building										
FV-6951/61/71/81	4	BUTTERFLY VALVE, FLANGED	Type V500	SETTLED (FILTER INFLUENT)	ELECTRIC	OPEN/CLOSE	20			
FCV-6952/62/72/82	4	BUTTERFLY VALVE, FLANGED	Type V500	FILTERED (FILTER EFFLUENT)	ELECTRIC	MODULATING	12			
FV-6953/63/73/83, FV-6953A/63A/73A/83A & FV-6953B/63B/73B/83B	12	BUTTERFLY VALVE, FLANGED	Type V500	BACKWASH (WASH)	ELECTRIC	OPEN/CLOSE	16			
FV-6954/64/74/84	4	BUTTERFLY VALVE, FLANGED	Type V500	DRAIN (WASTE)	ELECTRIC	OPEN/CLOSE	20			
FV-6955/65/75/85	4	BUTTERFLY VALVE, FLANGED	Type V500	REWASH (WASTE)	ELECTRIC	OPEN/CLOSE	6			
FV-6956A/66A/76A/86A & FV-6956B/66B/76B/86B	8	BUTTERFLY VALVE, FLANGED	Type V500	SURFACE SWEEP	ELECTRIC	OPEN/CLOSE	8			
FCV-6900	1	BUTTERFLY VALVE, FLANGED	Type V500	BACKWASH (WASH)	(ELECTRIC - EXISTING)	MODULATING	20			
FV-6900	1	PLUG VALVE, FLANGED	Type V201	BACKWASH (WASH)	MANUAL	OPEN/CLOSE	12			
FV-6902	1	PLUG VALVE, FLANGED	Type V201	SURFACE SWEEP	MANUAL	OPEN/CLOSE	6			

Part 1 General

1.1 Scope

A. The work under this Section includes submittal to the Engineer of shop drawings, product data and samples required by the various Sections of these Specifications.

B. Submittal Contents: The submittal contents required are specified in each Section.

C. Definitions: Submittals are categorized as follows:

1. Shop Drawings

a. Shop drawings shall include technical data, drawings, diagrams, procedure and methodology, performance curves, schedules, templates, patterns, test reports, calculations, instructions, measurements and similar information as applicable to the specific item for which the shop drawing is prepared.

b. Provide newly-prepared information with graphic information at accurate scale (except as otherwise indicated) with name or preparer (firm name) indicated. The Contract Drawings shall not be reproduced by any method for use as or in lieu of detail shop drawings. Show dimensions and note dimensions that are based on field measurement. Identify materials and products in the work shown. Indicate compliance with standards and special coordination requirements. Do not allow shop drawings to be used in connection with the Work without appropriate final "Action" markings by the Engineer.

c. Drawings shall be presented in a clear and thorough manner. Details shall be identified by reference to sheet and detail, Specification Section, schedule or room numbers shown on the Contract Drawings.

d. Minimum assembly drawings sheet size shall be 11 x 17-inches.

e. Minimum detail sheet size shall be 8-1/2 x 11-inches.

f. Minimum Scale:

i. Assembly Drawings Sheet, Scale: 1-inch = 30 feet.

ii. Detail Sheet, Scale: 1/4-inch = 1 foot.

2. Product Data

a. Product data includes standard published information on materials, products and systems, not specially prepared for this Project, other than the designation of selections from among available choices printed therein.

b. Collect required data into one submittal for each unit of work or system, and mark each copy to show which choices and options are applicable to the Project. Include manufacturer's standard published recommendations for application and use, compliance with standards, application of labels and seals, notation of field measurements which have been checked and special coordination requirements.

3. Miscellaneous submittals related directly to the work (non-administrative) include warranties, maintenance agreements, workmanship bonds, project photographs, survey data and reports, physical work records, statements of applicability, quality testing and certifying reports, copies of industry standards, record drawings, field measurement data, operating and maintenance materials, overrun stock, security/protection/safety keys and similar information, devices and materials applicable to the work but not processed as shop drawings, product data or samples.

1.2 Specific Category Requirements

A. General: Except as otherwise indicated in the individual work sections, comply with general requirements specified herein for each indicated category of submittal. Submittals shall contain:

1. The date of submittal and the dates of any previous submittals.

2. The Project title.

3. Numerical submittal numbers, starting with 1.0, 2.0, etc. Revisions to be numbered 1.1, 1.2, etc.

4. The Names of:

   a. Contractor

   b. Supplier

   c. Manufacturer

5. Identification of the product, with the Specification Section number, permanent equipment tag numbers and applicable Drawing No.

6. Field dimensions, clearly identified as such.

7. Relation to adjacent or critical features of the work or materials.

8. Applicable standards, such as ASTM .

9. Notification to the Engineer in writing, at time of submissions, of any deviations on the submittals from requirements of the Contract Documents.

10. Identification of revisions on resubmittals.

11. An 8 x 3-inch blank space for Contractor and Engineer stamps.

12. Contractor's stamp, initialed or signed, certifying to review of submittal, verification of products, field measurements and field construction criteria and coordination of the information within the submittal with requirements of the work and of Contract Documents.

13. Submittals showing more than the particular item under consideration shall have all but the pertinent description of the item for which review is requested crossed out.

1.3 Routing of Submittals

A. Submittals and routine correspondence shall be routed as follows:

1. Supplier to Contractor (through representative if applicable)

2. Contractor to Engineer

3. Engineer to Contractor and Owner

4. Contractor to Supplier

Part 2 Products

2.1 Shop Drawings

A. Unless otherwise specifically directed by the Engineer, make all shop drawings accurately to a scale sufficiently large to show all pertinent features of the item and its method of connection to the work.

B. Submit all shop assembly drawings, as a digital image, pdf format, scanned at the original scale.

C. Submit all shop drawings as a digital image, pdf format, scanned at the original scale.

2.2 Manufacturer's Literature

A. Where content of submitted literature from manufacturers includes data not pertinent to this submittal, clearly indicate which portion of the contents is being submitted for the Engineer's review.

Part 3 Execution

3.1 Contractor's Coordination of Submittals

A. Prior to submittal for the Engineer's review, the Contractor shall use all means

necessary to fully coordinate all material, including the following procedures:

1. Determine and verify all field dimensions and conditions, catalog numbers and similar data.

2. Coordinate as required with all trades and all public agencies involved.

3. Submit a written statement of review and compliance with the requirements of all applicable technical Specifications as well as the requirements of this Section.

4. Clearly indicate in a letter or memorandum on the manufacturer's or fabricator's letterhead, all deviations from the Contract Documents.

B. Each and every copy of the shop drawings and data shall bear the Contractor's stamp showing that they have been so checked. Shop drawings submitted to the Engineer without the Contractor's stamp will be returned to the Contractor for conformance with this requirement.

C. The Owner may backcharge the Contractor for costs associated with having to review a particular shop drawing, product data or sample more than two times to receive a "No Exceptions Taken" mark.

D. Grouping of Submittals

1. Unless otherwise specifically permitted by the Engineer, make all submittals in groups containing all associated items.

2. No review will be given to partial submittals of shop drawings for items which interconnect and/or are interdependent. It is the Contractor's responsibility to assemble the shop drawings for all such interconnecting and/or interdependent items, check them and then make one submittal to the Engineer along with Contractor's comments as to compliance, non-compliance or features requiring special attention.

E. Schedule of Submittals

1. Within 30 days of Contract award and prior to any shop drawing submittal, the Contractor shall submit a schedule showing the estimated date of submittal and the desired approval date for each shop drawing anticipated. A reasonable period shall be scheduled for review and comments. Time lost due to unacceptable submittals shall be the Contractor's responsibility and some time allowance for resubmittal shall be provided. The schedule shall provide for submittal of items which relate to one another to be submitted concurrently.

3.2 Timing of Submittals

A. Make all submittals far enough in advance of scheduled dates for installation to provide all required time for reviews, for securing necessary approvals, for possible revision and resubmittal, and for placing orders and securing delivery.

B. In scheduling, allow sufficient time for the Engineer's review following the receipt of the submittal.

3.3 Reviewed Shop Drawings

A. Engineer Review

1. Allow a minimum of 30 days for the Engineer's initial processing of each submittal requiring review and response, except allow longer periods where processing must be delayed for coordination with subsequent submittals. The Engineer will advise the Contractor promptly when it is determined that a submittal being processed must be delayed for coordination. Allow a minimum of two weeks for reprocessing each submittal. Advise the Engineer on each submittal as to whether processing time is critical to progress of the work, and therefore the work would be expedited if processing time could be foreshortened.

2. Acceptable submittals without any comments will be marked "No Exceptions Taken".

3. Submittals containing comments for clarification will be marked "Exceptions Noted".

4. Submittals marked "Revise and Resubmit" must be revised to reflect required changes and the initial review procedure repeated.

5. The "Rejected" notation is used to indicate products which are not acceptable. Upon return of a submittal so marked, the Contractor shall repeat the initial review procedure utilizing acceptable products.

B. No work or products shall be installed without a drawing or submittal bearing the "No Exceptions Taken" notation. The Contractor shall maintain at the job site a complete set of shop drawings bearing the Engineer's stamp.

C. Substitutions: In the event the Contractor obtains the Engineer's approval for the use of products other than those which are listed first in the Contract Documents, the Contractor shall, at the Contractor's own expense and using methods approved by the Engineer, make any changes to structures, piping and electrical work that may be necessary to accommodate these products.

D. Use of the "No Exceptions Taken" notation on shop drawings or other submittals is general and shall not relieve the Contractor of the responsibility of furnishing products of the proper dimension, size, quality, quantity, materials and all performance characteristics, to efficiently perform the requirements and intent of the Contract Documents. The Engineer's review shall not relieve the Contractor of responsibility for errors of any kind on the shop drawings. Review is intended only to assure conformance with the design concept of the Project and compliance with the information given in the Contract Documents. The Contractor is responsible for dimensions to be confirmed and correlated at the job site. The Contractor is also responsible for information that pertains solely to the fabrication processes or to the

technique of construction and for the coordination of the work of all trades.

3.4 Resubmission Requirements

A. Shop Drawings

1. Revise initial Drawings as required and resubmit as specified for initial submittal, with the resubmittal number shown.

2. Indicate on Drawings all changes which have been made other than those requested by the Engineer.

B. Project Data and Samples: Resubmit new data and samples as specified for initial submittal, with the resubmittal number shown.

END OF SECTION

Part 1 General

1.1 Scope

A. The Contractor shall provide transportation of all equipment, materials and products furnished under these Contract Documents to the work site. In addition, the Contractor shall provide preparation for shipment, loading, unloading, handling and preparation for installation and all other work and incidental items necessary or convenient to the Contractor for the satisfactory prosecution and completion of the work.

B. All equipment, materials and products damaged during transportation or handling shall be repaired or replaced by the Contractor at no additional cost to the Owner prior to being incorporated into the work.

1.2 Transportation

A. All equipment shall be suitably boxed, crated or otherwise protected during transportation.

B. Where equipment will be installed using existing cranes or hoisting equipment, the Contractor shall ensure that the weights of the assembled sections do not exceed the capacity of the cranes or hoisting equipment.

C. Small items and appurtenances such as gauges, valves, switches, instruments and probes which could be damaged during shipment shall be removed from the equipment prior to shipment, packaged and shipped separately. All openings shall be plugged or sealed to prevent the entrance of water or dirt.

1.3 Handling

A. All equipment, materials and products shall be carefully handled to prevent damage or excessive deflections during unloading or transportation.

B. Lifting and handling drawings and instructions furnished by the manufacturer or supplier shall be strictly followed. Eyebolts or lifting lugs furnished on the equipment shall be used in handling the equipment. Spreader bars or lifting beams shall be used when the distance between lifting points exceeds that permitted by standard industry practice.

C. Under no circumstances shall equipment or products such as pipe, structural steel, castings, reinforcement, lumber, piles, poles, etc., be thrown or rolled off of trucks onto the ground.

D. Slings and chains shall be padded as required to prevent damage to protective coatings and finishes.

Part 2 Products

(NOT USED)

Part 3 Execution

(NOT USED)

END OF SECTION

Part 1 General

1.1 Section Includes

A. Eccentric Plug Valves for Liquid Service.

1.2 Related Sections

A. Section 09 90 15 – Paints.

B. Section 40 05 51 - Common Requirements for Process Valves.

C. Section 40 05 57 - Actuators for Process Valves and Gates.

Part 2 Products

2.1 Eccentric Plug Valves for Liquid Service

A. Type 201, Eccentric Plug Valve, 3-inch thru 12-inch

1. Nonlubricated type eccentric valves, 3 inch thru 12 inch, shall be rated for 175 psig service at 140 degrees F. Valves shall have drip-tight shutoff with pressure from either direction, and cast iron bodies. Exposed service valves shall have flanged ends in accordance with ASME B16.1 flanged end connections.

2. Plug shall be all metal, matching body with round or rectangular port with no less than 80% of connecting pipe area and coated with Buna-N, welded nickel seats, self-lubricating stainless steel stem bearings, and stem seal multiple V-rings or U-cups with O-rings of nitrile rubber, with grit seals on both upper and lower bearings. Valves shall be equipped with totally enclosed, geared, manual operator with handwheel. Size operator for 1.5 times the maximum shutoff pressure differential for direct and reverse pressure, whichever is higher.

3. Manufacturers and Products:

   a. DeZurik Style PEC,

   b. Valmatic Style 5800R,

   c. Pratt Ballcentric,

Part 3 Execution

3.1 Examination

A. After becoming familiar with all details of the work, verify all dimensions in the field, and advise the Engineer of any discrepancy before performing the work.

END OF SECTION

Part 1 General

1.1 Section Includes

A. AWWA Resilient-Seated Butterfly Valves

1.2 Related Sections

A. Section 09 90 15 – Paints.

B. Section 40 05 51 - Common Requirements for Process Valves.

C. Section 40 05 57 - Actuators for Process Valves and Gates.

Part 2 Products

2.1 AWWA Resilient-Seated Butterfly Valves

A. General

1. Butterfly valves for liquid service shall be in full compliance with AWWA C504 and the following requirements:

    a. Valves shall be suitable for throttling operations and for infrequent operations after periods of inactivity.

    b. Valves shall be bubble-tight with rated pressure applied from either site. Test valves with pressure applied in both directions.

    c. Provide self-adjusting V-type or O-ring shaft seals.

    d. Isolate metal-to-metal thrust bearing surfaces from flow stream.

    e. Provide traveling nut or worm gear with electric actuator. Valve actuators shall meet all requirements of AWWA C504.

B. Type V500 AWWA Resilient Seated Butterfly Valve, 3" to 24"

1. Butterfly valves shall have ASTM A126 cast iron or ductile iron bodies, short-body style with ASME B16.1 flanged end connections. Valves shall conform to AWWA C504 Class 150B. Discs shall be contoured ASTM A436 Type 1 Ni-resist cast iron with maximum lead content of 0.003 percent or ASTM A536 Grade 65-45-12 ductile iron. The valve shafts shall be stainless steel with self-lubricating, corrosion-resistant sleeve type bearings. Valve seats for 24 inch and smaller valves shall be attached to either the valve body or the disc and shall be constructed of Buna-N rubber.

2. Manufacturers and Products:

   a. DeZurik.

   b. Pratt Triton XR-70,

   c. Valmatic Series 2000,

Part 3 Execution

3.1 Examination

A. After becoming familiar with all details of the work, verify all dimensions in the field, and advise the Engineer of any discrepancy before performing the work.

3.2 Preparation

A. Protection: Openings shall be closed with caps or plugs during installation. Equipment shall be protected from dirt, water, and chemical or mechanical damage.

END OF SECTION

Part 1 General

1.1 Section Includes

A. This specification covers the requirements for actuators, both manual and electric, for above and below grade liquid process valves located both inside and outside of treatment plants.

B. Valve manufacturer shall be responsible for mounting actuators on valves supplied under other sections. Valve manufacturer shall be responsible for coordinating the orientation and mounting of the actuators.

1.2 Related Sections

A. Section 40 05 62 - Plug Valves.

B. Section 40 05 63 - Ball Valves.

C. Section 40 05 64 - Butterfly Valves.

1.3 Submittals

A. Submit in accordance with Section 01 33 00.

B. Shop Drawings:

1. Complete catalog information, descriptive literature, specifications, and identification of materials of construction.

2. Power and control wiring diagrams, including terminals and numbers.

3. For each power actuator provided, Manufacturer's standard data sheet, with application specific features and options clearly identified.

4. Sizing calculations for open-close / throttle and modulating valves.

C. Manufacturer's Certificate: Submit Manufacturer's Certificate of Compliance for:

1. Electric actuators: full compliance with AWWA C542.

D. Operations and Maintenance Data: As specified in Section 01 78 23.

1. Submit 6 copies each of operation and maintenance manuals in indexed booklet form. Detail in the Operation Manuals the step-by-step procedures required for specialized startup, operation and shutdown of piping systems, and include the manufacturer's name, model number, parts list and brief description of piping equipment such as valves and other appurtenances and their basic operating features.

2. List in the Maintenance Manuals routine maintenance procedures and troubleshooting guides for the equipment.

Part 2 Products

2.1 Materials and Equipment

A. Provide valve actuators as specified and as shown on the drawings, and suitable for the service intended.

B. All actuator components shall be identical products of the same manufacturer.

C. Standard Products

1. Provide material and equipment which are the standard products of a manufacturer regularly engaged in the manufacturing of the products and that essentially duplicate items that have been in satisfactory use for at least 2 years.

2.2 Actuators

A. Operator Schedule: Requirements relative to this paragraph are shown on the Operator Schedule located in the contract drawings.

B. Manual Operators:

1. The force in a manual operator shall not exceed 40 pound under any operating condition, including initial breakaway. The operator shall be equipped with gear reduction when force exceeds 40 pound. The manual operator shall be a self-locking type or shall be equipped with a self-locking device. A position indicator shall be supplied on quarter-turn valves. Worm and gear operators shall be a one-piece design with worm-gears of gear bronze material. Worm shall be hardened alloy steel with the thread ground and polished. Traveling nut type operators shall have threaded steel reach rods with an internally threaded bronze or ductile iron nut.

2. Exposed Operators: Exposed operators shall have galvanized and painted handwheels. Cranks shall be supplied on gear type operators. If located off of the operator floor, chain wheel operator with tiebacks, extension stem, floor stands, and other accessories shall be provided to permit operation from normal operation level. Valve handles shall be capable of padlocking, and wheels shall be lockable with a chain and padlock.

C. Electric Motor Operators

1. Electric operators shall be provided complete with actuators, speed controls and accessories. Actuators shall comply with AWWA C542. The actuators shall operate on 460V, 3phase, 60 Hz with a 75 percent duty cycle and shall be equipped with an AC thermal overload protector with automatic rest, reversing (bi-directional) operation for use with quarter-turn valves, or rotating equipment to full rotation. Gearing shall be a two-stage planetary, permanently lubricated

self-locking gear train with self-lubricating bearings, connections via male output staff. A side mounted hand turn wheel shall be provided for a manual override. The actuators shall have a NEMA 250 Type 4 enclosure with a corrosion resistant, baked epoxy finish as standard. The actuator shall operate in a temperature range of -40 to plus 150 degrees F. Actuators shall fail in last position unless otherwise indicated. Electric operators shall be furnished with features noted on the Valve Schedule in the contract drawings.

2. Positioners. The positioners for modulating actuators shall control valve positions as a function of the input signals. The positioner shall operate on 120 VAC, 60 Hz. voltage. The mode of operation shall be direct acting. Modulating valve positioners shall operate on a 4 to 20 mA input signal unless otherwise indicated. Corrosion-resistant enclosures for positioners shall be splash-and moisture-proof with gasketed covers.

3. Acceptable Manufacturers/Products:

   a. Rotork Controls IQ or IQT,

   b. EIM M2CP,

   c. Limitorque QX

Part 3 Execution

3.1 Examination

A. After becoming familiar with all details of the work, verify all dimensions in the field, and advise the Engineer of any discrepancy before performing the work.

3.2 Preparation

A. Protection: Openings shall be closed with caps or plugs during installation. Equipment shall be protected from dirt, water, and chemical or mechanical damage.

END OF SECTION

Part 1 General

1.1 Related Sections

A. Section 09 90 15 - Paints

B. Section 40 05 57 - Actuators for Process Valves and Gates.

C. Section 40 05 62 - Plug Valves.

D. Section 40 05 63 - Ball Valves.

E. Section 40 05 64 - Butterfly Valves.

1.2 System Description

A. This specification covers the requirements for above and below grade liquid process valves and accessories located both inside and outside of treatment plants.

B. Performance Requirements

1. Flanges, valves, fittings, and appurtenances shall have a pressure rating no less than that required for the system in which they are installed.

1.3 Submittals

A. Submit in accordance with Section 01 33 00.

B. Shop Drawings:

1. Product data sheets for each make and model of valve. Indicate valve Type number, applicable Tag number, and facility name/number or service where used.

2. Complete catalog information, descriptive literature, specifications, and identification of materials of construction.

3. Sizing calculations for open-close/throttle and modulating valves.

C. Manufacturer's Certificate: Submit Manufacturer's Certificate of Compliance for:

1. Valves used in Potable Water: Compliance with NSF 61 and Federal lead-free requirements.

2. Butterfly valves: full compliance with AWWA C504.

D. Operations and Maintenance Data: As specified in Section 01 78 23.

1. Submit 6 copies each of operation and maintenance manuals in indexed booklet form. Detail in the Operation Manuals the step-by-step procedures required for

specialized startup, operation, and shutdown of piping systems, and include the manufacturer's name, model number, parts list and brief description of piping equipment such as valves and other appurtenances and their basic operating features.

2. List in the Maintenance Manuals routine maintenance procedures and troubleshooting guides for the equipment and include piping layout and valve locations.

1.4 Delivery, Storage, and Handling

A. Materials delivered and placed in storage shall be stored with protection from the weather, excessive humidity variation, excessive temperature variation, dirt, dust and/or other contaminants.

B. Proper protection and care of material before, during and after installation is the Contractor's responsibility. Any material found to be damaged shall be replaced at the Contractor's expense. During installation, piping shall be capped to keep out dirt and other foreign matter.

C. Materials shall be stored with protection from puncture, dirt, grease, moisture, mechanical abrasions, excessive heat, ultraviolet (UV) radiation damage, or other damage. Valves shall be handled and stored in accordance with the manufacturer's recommendation.

1.5 Maintenance

A. Service: Services for automatic valve systems shall be provided by a manufacturer's representative who is experienced in the installation, adjustment and operation of the equipment specified. The representative shall inspect the installation and supervise the adjustment and testing of the equipment.

B. Extra Materials

1. Submit the manufacturer's installation recommendations or instructions for each material or procedure to be utilized, including materials preparation. Concurrent with delivery and installation, spare parts for each different item of material and equipment specified that is recommended by the manufacturer to be replaced any time up to 1 year of service shall be furnished. Extra materials shall include 2 of the following spare parts for each type and size of valve: gaskets, all elastomer parts, stem packing.

Part 2 Products

2.1 Materials and Equipment

A. Provide valves and appurtenances as specified and as shown on the drawings, and suitable for the service intended. Valves, appurtenances, and equipment supplied as

part of this contract shall be of equal material and ratings as the connecting pipe, new and unused except for testing equipment.

B. Components that serve the same function and are the same size shall be identical products of the same manufacturer.

C. Standard Products

1. Provide material and equipment which are the standard products of a manufacturer regularly engaged in the manufacturing of the products and that essentially duplicate items that have been in satisfactory use for at least 2 years prior to bid opening.

D. Identification and Tagging:

1. Valves shall be marked in accordance with MSS SP-25 and shall bear an identification tag securely attached using No. 12 AWG copper wire, stainless steel wire, chrome-plated beaded chain or plastic straps designed for that purpose. Identification tags shall be 1.5 inch minimum diameter, made of engraved anodized aluminum or stamped stainless steel. Indentations shall be black for reading clarity. The service, valve identification number shown on the Valve Schedule in the contract drawings, the manufacturer's name, and the valve model number shall be displayed.

2.2 Valves

A. General Requirements for Valves

1. Valves shall include operator, actuator, handwheel, chain wheel, extension stem, floor stand, worm and gear operator, operating nut, chain, wrench, and all other accessories required for a complete operation from the intended operating level.

2. The valves shall be suitable for the intended service. Renewable parts are not to be of a lower quality than those specified.

3. Valves shall be the same size as adjoining pipe, unless otherwise noted.

4. Valve ends shall be compatible with adjacent piping system.

5. An operator shall be sized to operate the associated valve for the full range of pressures and velocities.

6. Valves will open by turning counterclockwise.

7. Operators, actuators, and accessories shall be factory mounted.

8. All exterior nuts, bolts, fasteners, etc. shall be stainless steel or other non-corrosive material.

B. Valve Schedule: Submit a list of valve materials, pressure ratings, valve operator materials, electrical service, location, source of supply, and reference identification as indicated in the contract drawings. Provide a list of any special tools necessary for each valve type and appurtenances furnished for adjustment, operation, maintenance, and disassembly. Requirements relative to this paragraph are shown on the Valve Schedule located in the contract drawings.

C. Factory Finishing: Valves shall have an epoxy coating in accordance with AWWA C550 unless otherwise specified. The epoxy shall be either a two-part liquid material or a heat-activated (fusion) material except that only a heat-activated material shall apply if a valve coating is specified as "fusion" or "fusion bonded" epoxy. The epoxy shall have a minimum 7.0 mils dry film thickness except where it is limited by valve operating tolerances. Exposed valves shall be finished in accordance with Section 09 90 15 – Paints.

2.3 Materials

A. Bronze and brass valve components and accessories that have surfaces in contact with water to be alloys containing less than 16 percent zinc and 2 percent aluminum.

1. Approved alloys are of the following ASTM designations: B61, B62, B98/B98M (Alloy UNS No. C65100, C65500, or C66100), B139 (Alloy UNS No. C51000), B584 (Alloy UNS No. C90400 or C94700), B164, B194, and B127.

2. Stainless steel alloy 18-8 may be substituted for bronze.

B. Valve materials in contact with or intended for drinking water service to meet the following requirements:

1. Comply with requirements of the Safe Drinking Water Act, including lead free requirements, and other applicable federal, state, and local requirements.

2. Coatings materials to be formulated from materials deemed acceptable to NSF61.

Part 3 Execution

3.1 Examination

A. After becoming familiar with all details of the work, verify all dimensions in the field, and advise the Engineer of any discrepancy before performing the work.

3.2 Preparation

A. Protection: Openings shall be closed with caps or plugs during installation. Equipment shall be protected from dirt, water, and chemical or mechanical damage.

B. Valve Locations

1. Valves shall be located in accordance with the contract drawings. Valves shall be located and oriented to permit easy access to the valve operator and or

actuator, and to avoid interferences.

3.3 Valve Installation

A. Flanged valve bolt holes shall be installed so as to straddle the vertical centerline of pipe. Flanged faces shall be cleaned prior to inserting the gasket and bolts, and then the nuts shall be tightened progressively and uniformly. Threaded ends shall have the threads cleaned by wire brushing or swabbing prior to installation.

B. Valve Orientation

1. The operating stem of a manual valve shall be installed in a vertical position when the valve is installed in horizontal runs of pipe having centerline elevations 4.5 feet or less above finished floor, unless otherwise shown on contract drawings. The operating stem of a manual valve shall be installed in a horizontal position in horizontal runs of pipe having centerline elevations between 4.5 feet and 6.75 feet above finish floor, unless otherwise shown on contract drawings. Automatic valves shall be installed in accordance with the manufacturer's instructions and approved drawings.

2. Butterfly Valves: Orientation of butterfly valves shall take into account changes in pipe direction. Valve shafts shall be oriented so that unbalanced flows caused by pipe direction changes or other disturbances are equally divided to each half of the disc.

3. Plug Valves: If a plug valve seat position is not shown in the contract drawings, locate the seat position as follows: for horizontal flow, the flow shall produce an "unseating" pressure, and the plug shall open into the top half of valve; and for vertical flow, the seat shall be installed in the highest portion of the valve.

C. Chain Wheel and Guide: Chain wheel and guide assemblies or chain lever assemblies shall be installed on manually operated valves located over 6.5 feet above finished floor elevation. Where chains hang in normally traveled areas, appropriate "L" type tie-back anchors shall be used.

3.4 Valve Testing

A. Submit copies of all field test reports within 24 hours of the completion of the test.

B. Valves may either be tested while testing pipelines, or as a separate step.

C. Demonstrate that valves open and close smoothly with operating pressure on one side and atmospheric pressure on the other, and in both directions for two-way valve applications.

D. Count and record the number of turns required to open and close each valve, and account for any discrepancies with manufacturer's data.

END OF SECTION

Part 1 General

1.1 Project Maintenance and Warranty

A. Maintain and keep in good repair the work covered by these Drawings and Specifications until acceptance by the Owner.

B. The Contractor shall warrant all work for a period of time as stated in the General Conditions. The Owner will give notice of observed defects with reasonable promptness.

C. The Contractor shall not be obligated to make replacements which become necessary because of ordinary wear and tear, or as a result of improper operation or maintenance, or as a result of improper work or damage by another Contractor or the Owner, or to perform any work which is normally performed by a maintenance crew during operation.

D. In the event of multiple failures of major consequences prior to the expiration of the Correction Period described in the General Conditions, the affected unit shall be disassembled, inspected and modified or replaced as necessary to prevent further occurrences. All related components which may have been damaged or rendered non-serviceable as a consequence of the failure shall be replaced. A new warranty and Correction Period, as described in the General Conditions, against defective or deficient design, workmanship, and materials shall commence on the day that the item is reassembled and placed back into operation. As used herein, multiple failure shall be interpreted to mean two or more successive failures of the same kind in the same item or failures of the same kind in two or more items. Major failures may include, but are not limited to, cracked or broken housings, piping, or vessels, excessive deflections, bent or broken shafts, broken or chipped gear teeth, premature bearing failure, excessive wear or excessive leakage around seals. Failures which are directly and clearly traceable to operator abuse, such as operations in conflict with published operating procedures or improper maintenance, such as substitution of unauthorized replacement parts, use of incorrect lubricants or chemicals, flagrant over- or under-lubrication and using maintenance procedures not conforming with published maintenance instructions, shall be exempted from the scope of the one-year warranty. Should multiple failures occur in a given item, all products of the same size and type shall be disassembled, inspected, modified or replaced as necessary and rewarranted for one year from the date of reassembly.

E. The Contractor shall, at Contractor's own expense, furnish all labor, materials, tools and equipment required and shall make such repairs and removals and shall perform such work or reconstruction as may be made necessary by any structural or functional defect or failure resulting from neglect, faulty workmanship or faulty materials, in any part of the work performed by the Contractor. Such repair shall also include refilling of trenches, excavations or embankments which show settlement or erosion after backfilling or placement.

F. Except as noted on the Drawings or as specified, all structures such as embankments and fences shall be returned to their original condition prior to the completion of the Contract. Any and all damage to any facility not designated for removal, resulting from the Contractor's operations, shall be promptly repaired by the Contractor at no cost to

the Owner.

G. The Contractor shall be responsible for all road and entrance reconstruction and repairs and maintenance of same for the duration of the Correction Period, as defined in the General Conditions. In the event the repairs and maintenance are not made immediately and it becomes necessary for the owner of the road to make such repairs, the Contractor shall reimburse the owner of the road for the cost of such repairs.

H. In the event the Contractor fails to proceed to remedy the defects upon notification within 15 days of the date of such notice, the Owner reserves the right to cause the required materials to be procured and the work to be done, as described in the Drawings and Specifications, and to hold the Contractor and the sureties on Contractor's bond liable for the cost and expense thereof.

I. Notice to Contractor for repairs and reconstruction will be made in the form of a registered letter addressed to the Contractor at Contractor's home office.

J. Neither the foregoing paragraphs nor any provision in the Contract Documents, nor any special guarantee time limit implies any limitation of the Contractor's liability within the law of the place of construction.

Part 2 Products

(NOT USED)

Part 3 Execution

(NOT USED)

END OF SECTION