

AUTOMATIC BACKWASH FILTERS DUAL MEDIA REPLACEMENT SPECIFICATIONS

The quotation price is to be submitted as a whole unit price (lump sum) for the total media replacement of one (1) dual media filter bed with 16-inch deep media at the Lowell Regional Water Utility's (Owner) Treatment Facility including all costs for transportation, necessary equipment, technical expertise, labor, and disposal of existing media without any additional costs to this project.

New media materials shall be high grade silica sand and durable anthracite coal, both complying with AWWA B100.

General Requirements:

1. Bidder shall supply References and Qualifications for the scope of work to be performed. Bidder shall have a minimum of three (3) similar filter media replacement projects within the past five (5) years.
2. Each bidder shall visit the site and inform themselves of all existing conditions. Proof of site visitation is mandatory and must be attached to bid documents. Failure to comply will be considered nonresponsive and bid will be rejected.
3. Bidder is responsible for supplying the necessary equipment and labor for the removal, replacement and disposal of removed media at no additional cost to the Owner.
4. Bidder is to supply the technical expertise to ensure safe and proper removal and replacement of media.
5. The Owner will provide the water flow for the eduction of the existing media and replacement with new media.
- 6. The start date must be no later than October 1, 2016 and must be completed within sixty (60) days from start date.**
7. The media to be supplied shall contain no soluble inorganic substances in quantities capable of producing deleterious or injurious effects upon the health of those consuming the water.
8. A detailed product data sheet on each proposed media shall be supplied along with the Bid.
9. Supplied media shall meet the requirements of AWWA standard for Filter Material B100.
10. The disposal and tracking of removed media shall become the responsibility of the bidder. Owner shall not be responsible once the removed media leaves the property of the Lowell Regional Water Utility.
11. The Owner reserves the right to reject any or all bids in whole or in part, or to accept the bid deemed most advantageous to the City by the Executive

Director, Superintendent of Operations and Safety and the Superintendent of Maintenance.

12. Payment will not be received until the new media is installed, backwashed and retested in accordance with these specifications.

TECHNICAL SPECIFICATIONS

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PART 1 - GENERAL

1.1 DUAL MEDIA FILTER WITH 16" MEDIA BED

The filter media shall consist of a 7 ¼" layer of high grade silica sand, complying with all applicable Sections of the Standard Specifications for Filtering Material (AWWA Designation: B100), and an equally deep layer of anthracite. The sand shall be well graded and material showing abnormal grading shall be rejected. The anthracite shall also comply with all applicable sections of the Standard Specifications for Filtering Material (AWWA Designation: B100).

The particle size distribution shall be determined by screening through standard U.S. Series sieves. The percent size shall be determined from a plot of the percentage of the material passing each sieve, against the rated opening of the sieve. The 10% size or effective size of the high grade silica sand shall be between 0.45 and 0.55 millimeters. The uniformity coefficient (ratio of 60% size to 10% size) shall not exceed 1.50.

The anthracite shall be durable, clean, crushed-type with a 10% size or effective size of 0.75 to 0.85 millimeters. The uniformity coefficient shall not exceed 1.7.

The filter bed measures approximately 16' x 110'. The Bidder shall be responsible for confirming the dimensions prior to bidding. The media depths specified shall be obtained when the filter is completely submerged and after thorough backwashing to remove all filter fines.

1.2 SAFETY AND SECURITY

All media shall be manufactured in the United States and sold directly to the customer by the manufacturer.

1. Requirements of the media supplier:

- a. Each manufacturer must be a restricted access facility.
- b. The production facilities must be in complete control of manufacturing, milling, loading/packaging, and finished product quality from the time that the raw material enters the plant until the finished product is shipped to the customer.
- c. The supplier must be certified to ANS/NSF Standard 61. The supplier tendering a bid must be the same company listed by UL or NSF under standard 61, with the plant site identified and the raw material specified. (This will ensure proper and regular auditing of the facility as well as independent sampling and analyses of finished products. The integrity of plant Quality Assurances data and tractability of lot number produced are also verified).
- d. The supplier must manufacture potable grade media at their own facility, performing all processes normally associated with the media (including but not limited to screening or milling, package and loading etc.) at the same site, under secured and monitored access. No part of the production process shall be subcontracted or in any way performed outside of the control of the manufacturing facility.
- e. The manufacturer must have a minimum of 10+ years of experience servicing the potable water industry.
- f. Bulk deliveries will take place in trailers sealed by numbered security seals at every trailer opening, allowing the customer to inspect the seals, verify the correct numbers, and ensure that the shipment was not tampered with during transit. Dedicated bulk carriers shall be used for product deliveries:

Utilizing trailers designated for the transport of
media intended for use in potable water

Or

Trailers that have been used for the transport of
food-grade materials and have been triple-washed
prior to the transport of the media.

Media delivered in sealed bulk bags may be acceptable. Supplier
must ensure that shipment is not tampered with during transit.

- g. Each driver shall carry two forms of photographic identification, a commercial driver's license and a company issued ID badge. The bulk

trailer shall be loaded with product and sealed within the production plant.

- h. Detailed specifications and material quality and testing results shall be submitted to the Owner for review and approval prior to delivery and installation. Manufacturer's test reports shall include the following information:
 - i. Manufacturer's name
 - ii. Material source and manufacture plant location
 - iii. Date of sampling
 - iv. Lot or stockpile number identification
 - v. Demonstration of compliance with physical properties and specifications as noted below

PART 2 - TESTING AND APPROVAL

2.1 MATERIAL TESTING

A. Test Reports

1. The supplier shall submit Certificates of Analysis to ensure that the media provided meets the required specifications. Test reports on the representative samples shall contain the following information:
 - a. Particle size distribution
 - b. Sieve Analysis
 - c. Effective Size
 - d. Uniformity Coefficient
 - e. Apparent Density
- B. The supplier will be required to submit a representative sample of each media at least two (2) weeks prior to the contracted delivery date along with a written statement certifying that the samples of the material are representative of each media that will be shipped and installed under this contract.
- C. The samples must be submitted in clean, vapor-proof containers, plainly marked with the name and address of the manufacturer and identified as to the lot number of the contents. Testing materials shall be in accordance with the testing methods of the AWWA Standard Specifications for Filtering Material (AWWA B100) and appropriate ASTM Standards, and shall be NFS 61 approved.

PART 3 – INSTALLATION

3.1 DETERMINATION OF DIMENSIONS:

- A. Contractor shall be responsible for field verification of all dimensions.

3.2 PLACEMENT AND TESTING:

- A. Following removal of the existing media and prior to placement of the new media, Contractor shall inspect the filter internals and underdrain system in the presence of Owner and/or Owner's representative.
- B. Contractor shall coordinate all activities with the Owner.
- C. Media deliveries shall only be accepted when performed in strict accordance with the Safety and Security measures specified.
- D. Install all media in strict accordance with the media and filter equipment manufacturer's recommendations. Avoid bowing the cell sheets during the filling process. Gradually fill several cells simultaneously. Do not fill the cell to the top of the cell sheet.
- E. Water needed for media installation operations shall be potable water provided by the Owner. The supplier shall provide any hoses, sight glasses, piping and appurtenances for using this water. The supplier shall provide the compressed air supply required for the transfer of the media.
- F. All water used in the transfer process shall be discharged to the point on site designated by the Owner. No discharges will be permitted without the Owner's permission.
- G. Bidder shall submit resumes of supervisors capable of performing media exchanges, indicating qualifications, years of experience and location.
- H. Media shall be transported, delivered and placed in a careful manner to exclude all dust, dirt or deleterious material and to prevent physical damage to the particles.
- I. Bidder shall submit a detailed description for exchange procedures.
- J. Media shall be transferred as water slurry whenever possible, using air pressure on the trailer as the motive force. Use of a pump or eductor to transfer the media from the trailer into the filter beds will also be allowed. Bulk bag unloading of the media into a filter will not be permitted.
- K. The supplier and/or the Contractor will be responsible for the cleanup of all media and slurry spills that may occur during the transfer operation.
- L. Disinfection of each filter bed following installation of new media shall be performed in accordance with AWWA C653.

NOTE THAT MIKE V WILL HAVE TO CREATE A BID FORM AS I EXPECT HE IS DOING WITH THE GAC VERSION.