

NEW JERSEY WATER SUPPLY AUTHORITY

TECHNICAL SPECIFICATIONS FOR

Refurbishing of a Single Stage Vertical Pump (Pump No. 1)

Located at

The Water Treatment Plant of the Manasquan Water Supply System

2061 Hospital Road

Wall Township

Monmouth County, New Jersey

WSA-B25017W

September 2024

SECTION IV – SCOPE OF WORK/TECHNICAL SPECIFICATIONS

REFURBISHING OF A SINGLE STAGE VERTICAL PUMP
LOCATED AT THE WATER TREATMENT PLANT OF THE
MANASQUAN WATER SUPPLY SYSTEM WALL TOWNSHIP
MONMOUTH COUNTY, NEW JERSEY

WSA-B25017W

SECTION IV - SPECIFICATIONS

General Requirements

1. Project Location

The Manasquan Water Treatment Plant, owned by Southeast Monmouth Municipal Utilities Authority and operated by the New Jersey Water Supply Authority, is located near the Manasquan River at 2061 Hospital Road in Wall Township, Monmouth County, New Jersey.

2. Project Background

The work required by the Contract Documents is comprised of refurbishing Pump Number 1, a single stage vertical pump.

The pump rotates at 1800 rpm and delivers 2.2 MGD. The pump to be refurbished was manufactured by Peerless Pumps and was originally installed in 1990 with a 14MC single stage pump.

The existing pump and motor has less than 1 mil vibration in all locations and degrees, is currently functional and is to be the same when returned refurbished.

3. Project Scope of Work

Provide all labor, material and equipment to remove, refurbish the same as specified further, furnish and install new bowl and impeller to meet conditions specified below, and reinstall the existing pump with the replacement bowl. The work includes, but is not limited to:

- Lock out 40 HP motor. Remove motor and set on wood blocks in nearby location.
- Lockout discharge valve, remove pump.
- Disassemble and inspect pump unit and supply inspection report to NJWSA.
- Replace entire bowl assembly with new bowl assembly from a made in America manufacturer that shall meet conditions of BEP at 100 ft. TDH at 1100 gpm, at greater than or equal to 75% efficiency so that existing 40 HP motors can be reused and bolt onto the 14 MC Peerless shaft and columns. 20 ft NPSHr or less, and bronze impeller.
- Owner recommends providing a Goulds VIT - BAF 13CLC two stage bowl assembly Operating at 1800 rpm. Or Equal. Pump should attach to a 10" flanged column, with 1-1/2" threaded line shaft.

- 13 and $\frac{3}{4}$ inch O.D. diameter bowl assembly or less must supplied.
- Pump curve showing impeller diameter and conditions must be submitted with the returned quote.
- Remove and do not replace vortex suppressor.
- Replace column pipe section that connects to the bowl assembly discharge. Paint this section of pipe inside and out with minimum of 2 coats of 5 mils DFT each of NSF certified epoxy paint. Recommended painting system shall be Pota-Pox Plus Series N140, as manufactured by the Tnemec Company Inc., Kansas City, MO, or Amerlock 2 High Solids Epoxy paint, as manufactured by PPG Industries, Inc., Pittsburg, PA, or approved equal.
- For the remaining sections of column pipe, sand blast and build up with weld or Belzona 1111 (Super Metal) any pitted areas on column pipe. Belzona shall be applied according to manufacturer's instructions and smoothed down to original ID/OD. If deemed more economical, it may be allowed to replace column pipe sections with new, painted column of same material and same 0.279" nominal wall thickness. New or reused existing column(s) shall be painted inside and out with minimum of 2 coats of 5 mils DFT each of NSF certified epoxy paint. Recommended painting system shall be Pota-Pox Plus Series N140, as manufactured by the Tnemec Company Inc., Kansas City, MO, or Amerlock 2 High Solids Epoxy paint, as manufactured by PPG Industries, Inc., Pittsburgh, PA, or approved equal.
- Replace the head shaft and lowest line shaft.
- Metalize flame spray any remaining stainless steel shafts at location of bearing and journal surfaces and stuffing box.
- Replace all bolts, nuts, washers and gaskets throughout the entire pumping unit including the ring bearing retainer and stuffing box glands with new and of identical material.
- Replace all 416 SS shaft couplings as needed with same.
- Replace all Item No. 061.298 Neoprene shaft bearings
- Replace all Item 205 or 351 parts.
- Straighten all shafts.
- True up faces of column pipe and flanges, pump head and bowl assembly.
- Cleanup and rethread any column or shaft threads as needed.

- When reassembling pump and column pipe replace bolts with Grade 8 Yellow Zinc Finish as needed.
- Replace entire packing container assembly including stuffing box bearing, packing etc.
- Sleeve or repair pump head if packing box spinning caused any damage to discharge head.
- Replace each bearing with identical material to original whether it be Neoprene, Bronze, etc.
- Provide photos of cleaned, used impeller to NJWSA.
- Reinstall Pump and reconnect and install motor.
- Testing and Startup unit. One year warranty on all workmanship.

If the pumping conditions of the new bowl assembly requires the existing vertical hollow shaft 40 HP 1780 RPM motor to be replaced with a different or larger motor. Include the cost of the new motor and new starter in the bid price.

4. Progress Schedule

The Contractor shall, within seven (7) days after the award of the Contract, prepare and submit to the Engineer for approval, a schedule, showing the order in which the Contractor proposes to carry out the work, the date on which he will start salient features (including initial inspection, procurement of materials, removal and installation of pump assembly) and the contemplated dates for completing the same. The Contractor shall revise the schedule as per the actual progress at the end of each week or at such intervals as directed by the Engineer.

The Contractor shall have overall responsibility for the satisfactory operation of the pump. The contractor shall provide all necessary engineering, installation, calibration, start-up, and checkout assistance to provide a complete operation.

The Contractor shall not remove the existing pump until the replacement bowl assembly is at the shop and the lowest intermediate shaft and column assembly have been constructed.

5. Site Investigation and Representations

The Contractor acknowledges that he has satisfied himself as to the nature and location

of the work, the general and local conditions, particularly those bearing upon transportation, disposal, handling and storage of materials, availability of labor, water, electric power, roads and uncertainties of weather, floods or similar physical conditions at the site, the conformation and conditions of the ground, the character of equipment and facilities needed preliminary to and during the execution of the work, and all other matters upon which information is reasonably obtainable and which can in any way affect the work or the cost thereof under this Contract. The Contractor further acknowledges that he has satisfied himself as to the character, quality and quantity of information regarding the above that is reasonably ascertainable from an inspection on the site, including all exploratory work done by the Authority or the Engineer, as well as information contained in the Specifications forming a part of this Contract. The Contractor further acknowledges that he has satisfied himself as to the accessibility of equipment and material, etc. both as to quality and quantity required to execute the work. Any failure by the Contractor to acquaint himself with all the available information will not relieve him from responsibility for estimating properly the difficulty or cost to successfully perform the work.

The Contractor's attention is drawn to the fact that certain details and dimensions shown on the Contract Drawings have been estimated. All dimensions shall be field checked by the Contractor.

6. Limitation of Operations

Access to the project site can be gained through the main entrance gate to the Manasquan Administration Building on Hospital Road in Wall Township.

The Contractor shall maintain access for the Authority's maintenance and operations staff throughout construction.

Vehicles and other heavy equipment will only be permitted on the site when essential for construction work. All damage to the surface caused by vehicular access or construction work shall be repaired at the Contractor's expense.

Upon completion of the work, the Contractor shall return all the areas which were disturbed during construction activities to their original condition.

In preparing their bid, the Contractor shall make allowance for all specific areas that may require restoration due to his operations. No extra compensation will be considered.

The Contractor shall take pre-construction color photographs, which clearly indicate the existing conditions of the work area prior to any construction activity. Areas photographed shall include the access roads, and operational areas.

The Contractor shall give the Manager approximately one week's notice prior to starting work.

7. Temporary Utilities during Construction

The Authority will provide temporary utilities, such as bathrooms, electricity and overhead crane for 60 days after the contractor removes the pump for service.

8. Bidders/Contractor's Qualifications

Each Bidder shall be experienced in the type of pump work to be undertaken and shall have the necessary equipment and sufficient capital to properly execute the work within the time allowed. Bids received from Bidders who have previously failed to complete contracts within the time required, or who have previously performed similar work in an unsatisfactory manner, may be rejected. A Bid may be rejected if the Bidder cannot show that he has the necessary ability, plant, and equipment to commence the work at the time prescribed and thereafter to prosecute and complete the work within the time specified. A Bid may also be rejected if the Bidder is already obligated for the performance of other work that would delay the commencement, prosecution, or completion of the work.

The Authority may make such investigations as it deems necessary to determine the ability of the Bidder to perform the work and the Bidder shall furnish to the Authority all such information and data for this purpose as the Authority may request. The Authority reserves the right to reject any Bid if the evidence submitted by or investigation of such Bidder fails to satisfy it that such Bidder is properly qualified to carry out the obligations of the Contract and to complete the work contemplated therein.

Bidders may be asked to furnish additional data to demonstrate competency to complete the Contract.

For safety plan requirements to be undertaken, lockout and tagout is required. A hot work permit and standby person is needed for any onsite burning or cutting.

There is a motorized overhead crane available for removing the pump and motor.

SECTION IV - SPECIFICATIONS **Refurbishing and Pump Installation**

The Contractor shall perform all Work specified here and required to complete the rebuilding of pump Number 1, a single stage vertical pump. Provide all labor, material and equipment to remove the existing pump, disassemble, refurbish, furnish and install new bowl and impeller assembly, reinstall pump, and reinstall motor and all appurtenances.

1. Refurbishing

See Project Scope of Work under General Specifications for Most Refurbishing Requirements

The pump is open line shaft, vertical turbine type, suspended in the wet-well from the floor slab of the operating level.

2. Installation

Service by qualified contractor's employees or representatives shall be provided during installation including but not be limited to setting and leveling the assembly, piping and electrical connections. Upon completion of the installation, the services of the representative shall be provided for the purpose of equipment start-up and adjustment and instructing the operating personnel in the usage and maintenance.

End of Section