Booster Pumping Station 115
Booster Pump Pump Procurement

**Bid Due: 1 P.M., January 9, 2015**
Madison Water Utility Offices
110 East Olin Avenue
Madison, WI 53713

<table>
<thead>
<tr>
<th>Bid Item</th>
<th>Quant.</th>
<th>Description</th>
<th>Bid Price</th>
<th>Total extended price</th>
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<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>2,100 gpm split case centrifugal booster pump complete ready to install and delivered to the project site</td>
<td>$ _____________ each</td>
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**Grand Total Bid** $

Utility reserves the right to make an award based on the Grand Total Bid or reject all bids whatever is deemed to be in the best interests of Madison Water Utility.

____________________________________
Company Name (Printed)

____________________________________
Address

____________________________________
City, State, Zip

____________________________________
Phone

____________________________________
email

____________________________________
Bidder’s Signature and Date
SECTION 01 33 01

SUBMITTALS

PART 1 - GENERAL

1.1 SUMMARY

A. Make submittals required by the Contract Documents, and revise and resubmit as necessary to establish compliance with the specified requirements, all as described in this Section.

B. Work not included:
   1. Unrequired submittals will not be reviewed by the Engineer.
   2. The Contractor may require his subcontractors to provide drawings, setting diagrams, and similar information to help coordinate the Work, but such data shall remain between the Contractor and his subcontractors and will not be reviewed by the Engineer unless specifically called for within the Contract Documents.

1.2 SUBMITTALS

A. Make submittals of Shop Drawings, Samples, progress schedules and other items in accordance with the provisions of this Section.

B. All submittals shall be submitted in electronic format. Following approval, two paper copies in three ring binders shall be provided to the Owner.

1.3 QUALITY ASSURANCE

A. Coordination of submittals:
   1. Prior to each submittal, carefully review and coordinate all aspects of each item being submitted.
   2. Verify that each item and the submittal for it conform in all respects with the specified requirements.
   3. By affixing the Contractor's signature and his certification stamp to each submittal, certify that this coordination has been performed.

B. Resubmittals and reimbursement of Engineer's costs.
   1. The Engineer will record all time used by the Engineer in the review of any third and subsequent submittals.
   2. The Owner will reimburse the Engineer at the Engineer's standard hourly rate for all time spent in such third and subsequent reviews and deduct such costs from payments due the Contractor.
PART 2 - PRODUCTS

2.1 SHOP DRAWINGS

A. Make Shop Drawings accurately to a scale sufficiently large to show all pertinent aspects of the item and its method of connection to the Work.

B. Submit the number of copies which are required to be returned, plus five copies which will be retained by the Engineer.
   1. Collate each copy of the required number of shop drawing sets to be submitted and include one of each item for that current submittal.

C. Collate each copy of the required number of shop drawing sets to be submitted and include one of each item for that current submittal.

2.2 MANUFACTURERS' LITERATURE

A. Where contents of submitted literature from manufacturers includes data not pertinent to the submittal, clearly show which portion of the contents is being submitted for review.

B. Submit the number of copies which are required to be returned, plus five copies which will be retained by the Engineer.

2.3 SAMPLES

A. Provide Sample or Samples identical to the precise article proposed to be provided. Identify as described under "Identification of submittals" below.

B. Number of Samples required:
   1. Unless otherwise specified, submit Samples in the quantity which is required to be returned, plus one which will be retained by the Engineer.
   2. By prearrangement in specific cases, a single Sample may be submitted for review and, when approved, be installed in the Work at a location agreed upon by the Engineer.

2.4 COLORS AND PATTERNS

A. Unless the precise color and pattern is specifically called out in the Contract Documents, and whenever a choice of color or pattern is available in the specified products, submit accurate color and pattern charts to the Engineer for selection.
2.5 MANUFACTURERS’ RECOMMENDED INSTALLATION PROCEDURES

A. Maintain in a safe place at the site one copy of manufacturers' recommended installation procedures for all equipment and materials.
   1. Make these installation procedures readily available to the Engineer for reference.

B. When the manufacturers’ recommended installation procedures are submitted as part of the shop drawings required by the Contract Documents, approval of such installation procedures by the Engineer will not be required.

PART 3 - EXECUTION

3.1 IDENTIFICATION OF SUBMITTALS

A. Consecutively number all submittals.
   1. When material is submitted for any reason, transmit under a new letter of transmittal and with a new transmittal number.
   2. On resubmittals, cite the original submittal number for reference.

B. Accompany each submittal with a letter of transmittal showing all information required for identification and checking.

C. On at least the first page of each submittal, and elsewhere as required for positive identification, show the submittal number in which the item was included.

D. Submittal log:
   1. Maintain an accurate submittal log for the duration of the Work, showing current status of all submittals at all times.
   2. Make the submittal log available to the Engineer for the Engineer's review upon request.

3.2 GROUPING OF SUBMITTALS

A. Unless otherwise specified, make submittals in groups containing all associated items to assure that information is available for checking each item when it is received.
   1. Partial submittals may be rejected as not complying with the provisions of the Contract.
   2. The Contractor may be held liable for delays so occasioned.
   3. Do not submit unrelated items in group submittals.

3.3 TIMING OF SUBMITTALS
A. Make submittals far enough in advance of scheduled dates for installation to provide time required for reviews, for securing necessary approvals, for possible revisions and resubmittals, and for placing orders and securing delivery.

B. In scheduling, allow at least ten working days for review by the Engineer following the Engineer's receipt of the submittal.

END OF SECTION
ATTACHMENT 01 33 01

CONTRACTOR'S SUBMITTAL TRANSMITTAL FORM

TO: BAXTER & WOODMAN, INC.                  DATE: _________________________________

2801 COHO STREET, SUITE 204
MADISON, WI 53713

ATTN: __________________________________

PROJECT NAME: ____________________________________________

FROM: _____________________________   SPEC NO. _____________________________

________________________________________ ENGR. DWG. NOS. _____________________________

________________________________________ TRANSMITTAL NO. _____________________________

1. The following submittals are forwarded for your review:

<table>
<thead>
<tr>
<th>No. of Copies</th>
<th>Manufacturer</th>
<th>Description</th>
<th>Drawing No.</th>
<th>Date</th>
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2. Have all field measurements, field construction criteria, materials, dimensions, catalog numbers, and similar data been determined and verified? Yes ___ No ___

3. Has work indicated in this submittal been coordinated with all trades? Yes ___ No ___

4. Is work by all trades being provided as necessary to accommodate this submittal? Yes ___ No ___

5. Contractor has approved submittal and has affixed his certification stamp. Yes ___ No ___

6. Contractor's description and justification for deviations from Contract Documents. (Use additional sheet if necessary.)

__________________________________________________________________________________

__________________________________________________________________________________

7. Remarks: ____________________________________________________________

__________________________________________________________________________________

Signature: ________________________________
10/00

SUBMITTALS
ATTACHMENT 01 33 01-2 (120581.40)
SECTION 01 66 11

STORAGE AND PROTECTION OF MATERIAL AND EQUIPMENT

PART 1 - GENERAL

1.1 SUMMARY

A. Protect products scheduled for use in the Work by means including, but not necessarily limited to, those described in this Section.

B. Related work:
   1. Additional procedures also may be prescribed in other Sections of these Specifications.

1.2 QUALITY ASSURANCE

A. Include within the Contractor's quality assurance program such procedures as are required to assure full protection of work and materials.

1.3 MANUFACTURERS' RECOMMENDATIONS

A. Except as otherwise approved by the Engineer, determine and comply with manufacturers' recommendations on product handling, storage, and protection.

1.4 PACKAGING

A. Deliver products to the job site in their manufacturer's original container, with labels intact and legible.
   1. Maintain packaged materials with seals unbroken and labels intact until time of use.
   2. Promptly remove damaged material and unsuitable items from the job site, and promptly replace with material meeting the specified requirements, at no additional cost to the Owner.

B. The Engineer may reject as non-complying such material and products that do not bear identification satisfactory to the Engineer as to manufacturer, grade, quality, and other pertinent information.
1.5 STORAGE AND PROTECTION

A. Comply with the requirements of this Section for off-site storage.
   1. The Engineer reserves the right to inspect the off-site storage areas.

B. Store equipment and materials in accordance with the manufacturer's instructions.

C. Provide temporary weather-tight enclosures to protect products from damage by the elements.

D. Protect finished surfaces through which equipment and materials are handled.

E. Provide protection for finished floor surfaces in traffic areas prior to allowing equipment or materials to be moved over such surfaces.

F. Maintain finished surfaces clean, unmarred, and suitably protected until accepted by the Owner.

G. Do not store equipment on site until they are needed by the Owner or for progress of work.

1.6 REPAIRS AND REPLACEMENTS

A. In event of damage, promptly make replacements and repairs to the approval of the Engineer and at no additional cost to the Owner.

B. Additional time required to secure replacements and to make repairs will not be considered by the Engineer to justify an extension in the Contract Time of Completion.

END OF SECTION
PART 1 - GENERAL

1.1 SUMMARY

A. To aid the continued instruction of operating and maintenance personnel, and to provide a positive source of information regarding products incorporated into the Work, furnish and deliver the manuals described in pertinent Sections of these Specifications.

1.2 SUBMITTALS

A. Comply with pertinent provisions of Section 01 33 01.

B. Submit five copies of the required manuals for each item of equipment to the Engineer no later than 30 days following the Engineer's approval of shop drawings for said item of equipment.

C. All operation and maintenance manuals shall be submitted in electronic format.

1.3 QUALITY ASSURANCE

A. Use only personnel who are thoroughly trained and experienced in operation and maintenance of the described items, completely familiar with the requirements of this Section, and skilled in technical writing to the extent needed for communicating the essential data.

PART 2 - PRODUCTS

2.1 OPERATION AND MAINTENANCE MANUALS

A. Where operation and maintenance manuals are required to be submitted under other Sections of these Specifications, prepare in accordance with the provisions of this Section.

B. Format:

1. Size: 8-1/2” x 11”

2. Paper: White bond, at least 20 lb weight

3. Text: Neatly written or printed

4. Drawings: 11” in height preferable; bind in with text; foldout acceptable; larger drawings acceptable but fold to fit within the manual and provide a drawing pocket inside rear cover or bind in with text.

5. Flysheets: Separate each portion of the manual with neatly prepared
flysheets briefly describing contents of the ensuing portion; flysheets may be in color.

6. Binding: Use heavy-duty plastic or fiberboard covers with binding mechanism concealed inside the manual; 3-ring binders will be acceptable.

7. Measurements: Provide all measurements in U.S. standard units such as feet-and-inches, lbs, and cfm; where items may be expected to be measured within ten years in accordance with metric formulas, provide additional measurements in the "International System of Units" (SI).

C. Provide front and back covers for each manual, using durable material, and clearly identified on or through the cover with at least the following information:

1. OPERATING AND MAINTENANCE MANUALS
   (name and address of Work)
   (name of Contractor)
   (general subject of this Manual)
   (Engineer, and approval date)

D. Contents: Include at least the following:
1. Neatly typewritten index near the front of the manual, giving immediate information as to location within the manual of all emergency information regarding the installation.
2. Complete instructions regarding operation and maintenance of all equipment involved including lubrication, disassembly, and reassembly.
3. Complete nomenclature of all parts of the equipment.
4. Complete nomenclature and part number of all replaceable parts, name and address of nearest vendor, and all other data pertinent to procurement procedures.
5. Manufacturers' bulletins, cuts, and descriptive data, where pertinent, clearly indicating the precise items included in this installation and deleting, or otherwise clearly indicating, all manufacturers' data with which this installation is not concerned.
6. Such other data as required in pertinent other Sections of these Specifications.

PART 3 - EXECUTION

3.1 TIMING AND PAYMENT

A. Make submittals far enough in advance of scheduled dates for equipment installation to provide at least ten (10) working days for review by the Engineer following the Engineer's receipt of the submittal.
B. Payment for the fabrication, delivery, or installation of any equipment will be withheld until the Engineer has received the required operation and maintenance manual(s).

END OF SECTION
PART 1 - GENERAL

1.1 SUMMARY

A. This Section describes the Contractor's general equipment requirements for facility start-up.

1.2 SUBMITTALS

A. Submit a detailed plan and schedule for start-up of the facility at least thirty (30) days prior to the scheduled start-up of the facility.

PART 2 - PRODUCTS

No products are required in this Section.

PART 3 - EXECUTION

3.1 CONTRACTOR’S REQUIREMENTS

A. In addition to the services required to comply with Section 01 61 01, Articles 3.2 and 3.3, provide the services of a qualified and experienced factory employed field service engineer from each equipment manufacturer:

1. Ascertain that equipment has been installed in accordance with the manufacturer’s recommended procedures.
2. Ascertain that equipment is operational and ready for start-up.
3. Make necessary repairs, corrections, and/or modifications prior to the scheduled start-up.

B. Coordinate efforts of various equipment field service engineers with construction activities including painting and facility disinfection.

C. Perform the above services at least two weeks prior to the scheduled start-up.

D. Perform the facility start-up procedures in the presence of the Owner and Engineer.

E. Operate the facility without problems for a period of fourteen (14) consecutive days prior to Owner’s acceptance of the facility.

END OF SECTION
PART 1 - GENERAL

1.1 SUMMARY

A. Provide Base Bid water booster pumping equipment for two 2,100 gpm horizontal split case water booster pumps as specified herein, and as needed for a complete and functioning package, with installation of the water booster equipment by the Installation General Contractor. The water booster pumping equipment Provider will deliver, confirm installation, and perform final field testing.

B. Alternate booster pumps may be submitted as allowed per Bidding Documents and these Specifications, with pre-approval from the Owner at least 7 calendar days prior to Bid Procurement submittal date.

1.2 SUBMITTALS

A. Submit shop drawings in compliance with pertinent provisions of Section 01 33 01 including pump dimension drawings, motor data sheet, and manufacturer's detailed specifications.

B. Submit certified pump capacity-head curve based on factory test in accordance with Hydraulic Institute (HI) methods, Grade 1U. Pumps not meeting HI standards shall not be approved.

C. Submit operation and maintenance manuals in compliance with pertinent provisions of Section 01 78 26.

1.3 DELIVERY, STORAGE, AND HANDLING

A. Comply with pertinent provisions of Section 01 66 11.

B. Deliver booster pumping equipment to the project site complete and ready for installation within 16 weeks of execution of contract to purchase. This time includes all submittal and approval requirements.

1.4 START UP SERVICES

A. Comply with pertinent provisions of Section 01 91 58 regarding acceptance of installation and field start-up.

1.5 WARRANTY
A. Provide two year warranty against defective equipment in compliance with pertinent provisions of Supplementary Conditions.

PART 2 - GENERAL

2.1 WATER SERVICE PUMPS

A. Provide two horizontal, flexible coupled, split-case, double suction, single stage, centrifugal type pumps mounted with the motor on a common rigid steel frame base.
   1. Capacity of each pump: 2,100 gpm when operating against a total head of 190 feet at a maximum nominal speed of 1,800 rpm.
   2. Provide pumps to meet rotation shown on drawings.
   3. Available net positive suction head at worst case design is 30 feet with normal available net positive suction head at 40 feet.
   4. Equip each pump with single mechanical seals with adequate flushing (either with internal or through external brass ¼" piping) GR 4140 carbon steel shaft, stainless steel sleeves, bronze impeller with renewable wear rings, bronze or cast iron wear rings, and grease lubricated ball bearings.
   5. Provide 1/4-inch NPT gauge taps on suction and discharge flange openings.
   6. Provide low zinc silicon bronze impellers bronze alloy impeller meeting NSF/ANSI 372 meeting the Lead Free Act requirements and suitable for continuous contact with water containing 2 milligrams per liter free chlorine.
   7. Provide a one piece bent form steel base plate, with provisions for anchoring to concrete base and grouting in place.
   8. Provide with manufacturer’s prime coat paint on all metallic surfaces to accept an exterior non-immersion, Tnemec System Series 1075 Endura-Shield final coat, with Omnithane and Hi-build Epoxyl 1st and 2nd coats.
   9. Connect pump to motor with a flexible coupling.
      a. Acceptable manufacturer:
         (1) Woods Sure-Flex, or equal.
         b. Non-metallic elements.
         c. Provide OSHA approved coupling guard.

B. Provide continuous duty rated motor with inverter duty grade insulation system, suitable to use with a VFD and meeting NEMA MG-1 Part 31, with sealed grease lubricated bearings, copper wound for 480 volt, 3 phase, 60 Hertz A.C., with Class F non-hygrosopic insulation for 40 degree C temperature rise over 40 degree C. ambient temperature, and a service factor of 1.15. Efficiency rating shall be premium efficient. Provide 3 normally closed over-temperature switches embedded in the windings.
   1. Motor to be TEFC design with 120 volt space heater.
   2. Provide motor with manufacturer’s prime and final coatings with no field painting required.
   3. Provide adequate horsepower to be non-overloading throughout the pump capacity-head curve, minimum 150 Hp.

C. Base Bid pump manufacturers:
   1. Fairbanks Morse; Model 1824, 6x5x16.5.
   2. Deming Pumps; Model 5063, 8x6x17.
   3. Patterson HSC 1800, 8x6 MI-G.
   4. Or Pre-approved equal.

D. Alternate pump manufacturers/providers must meet the following criteria:
   1. Pre-approved by Owner as allowed in Bidding Documents.
   2. Nominal 1,800 rpm speed, only.
   3. Published pump efficiency greater than nominal 79% at full speed and greater than 75% at a reduced speed to obtain a minimum flow rate of 1,000 gpm at 140 feet.
   4. Maximum run-out operating head (at maximum pump output at far right hand side of curve within Allowable Operating Region) of 160 feet.
   5. Minimum shut off head (at 0 gpm) of 250 feet.
   6. Ability to pump within Allowable Operating Region to at least 500 gpm or less at 130 feet of head.
   7. Proof of equal materials of construction, quality, durability, appearance, strength and design characteristics.
   8. Nationally recognized pump manufacturer with satisfactory installation and performance record within US and Wisconsin.
   9. Local and responsive service within 90 miles of installation.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Installation of water booster pumping equipment, including concrete bases, grout, anchorment, final alignment, piping and electrical connections, pressure gauges, and isolation valves, shall be by General Contractor, not Pump Provider.

B. Pump Provider shall deliver water booster pumps and motors on frame to job site for installation by General Contractor. Coordinate delivery per General Contractor's construction schedule. Delivery shall include shipment to site and safe off-loading from delivery vehicle.

C. Pump Provider shall provide General Contractor (and General Contractor's designated mechanical and electrical subcontractors) with manufacturer's recommendations for proper installation.

D. Pump Provider shall provide inspection of final installation and prepare an installation report prior to final field testing and acceptance of pumping units by Owner.
E. Pump Provider shall provide an extended 2 year warranty covering defective parts on booster pumping equipment to Owner at time of delivery.

END OF SECTION