



HOPKINSVILLE WATER ENVIRONMENT AUTHORITY

Bid Packet:

FY 2023 - 2024
Sealed Bid # 2324-23
North & South Quarry Pump & Column Assembly

Bid Opening:

Thursday, July 11, 2024 @ 2:00 P.M. CST
401 East 9th Street, Hopkinsville, KY, 42240
HWEA Boardroom

BID PACKET

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IMPORTANT: In the event any of the documents are not enclosed, please advise the Purchasing Officer immediately.



INVITATION TO BID

Sealed bids for furnishing and delivering the following:

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North & South Quarry Pump & Column Assembly

will be received at HWEA's Main Office, 401 East 9th Street, P. O. Box 628, Hopkinsville, Kentucky, until 2:00 pm, CST, on Thursday July 11, 2024, at which time the bids will be opened and read aloud publicly in the HWEA Board Room, at the same address.

The Bid Packet contains the Invitation to Bid, General Conditions, Specifications, and Detailed Specifications.

GENERAL CONDITIONS

1. INSTRUCTIONS, SPECIFICATIONS AND FORMS

Instructions, specifications, and forms may be obtained via the HWEA website, in person, or by email from the HWEA Purchasing Officer at 401 East 9th Street, Hopkinsville, KY, 42240. Telephone number 270-887-2782, email jrenshaw@hwea-ky.com, or see our website at www.hwea-ky.com.

- (a) All bids shall be submitted on and in accordance with the attached Bid Form. The form shall be signed and dated in the appropriate space.
- (b) Each bid shall be submitted in a sealed envelope and clearly marked on the outside of the envelope with the following:

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North & South Quarry Pump & Column Assembly

- (c) If forwarded by mail, the sealed envelope containing the proposal must be enclosed in another envelope: FY 2023 - 2024 - SEALED BID # 2324-23 - NORTH & SOUTH QUARRY PUMP & COLUMN ASSEMBLY and shall be mailed to the HWEA Purchasing Officer, P.O. Box 628 Hopkinsville, KY 42241, allowing sufficient time for such mailing to reach this address prior to the scheduled closing time for receipt of bids.
- (d) Additional information or clarifications of any of the instructions or information contained herein may be obtained from the Purchasing Officer.
- (e) Any bidder or bidders finding any discrepancy in or omission from the specifications, in doubt as to their meaning, or believing that the specifications are discriminatory, shall notify the Purchasing Officer in writing within 5 days of the scheduled opening of bids. Exceptions as taken in no way obligates HWEA to change the specifications. The Purchasing Officer will notify all bidders in writing, of any interpretations made of specifications or instructions.
- (f) HWEA will assume no responsibility for oral instructions or suggestions. All official correspondence in regard to the specifications should be directed to and will be issued by the Purchasing Officer.

- (g) The successful bidder may have to purchase a City of Hopkinsville vendor's license prior to the official award of the bid, in order to meet the requirements of City of Hopkinsville ordinances.
- (h) Any bidder may withdraw their bid either in person or in writing at any time prior to the scheduled time for the receipt for bids. Withdrawals after the scheduled time for the receipt of bids will not be permitted.

2. AWARD OF CONTRACTS

- (a) The HWEA Board may award the contract to the bidder it finds to be the most responsive (considering price, time of delivery, compliance with specifications and past experiences) and not necessarily the lowest price. HWEA reserves the right to reject any and all bids.
- (b) All bids will be awarded based on the most current edition of HWEA's Purchasing Policy, as amended.
- (c) All bids will be judged on the basis of best buy to HWEA and compliance with the General Conditions and conformance with the bid specifications. HWEA reserves the right to reject any and all bids.
- (d) Any other considerations or basis for judgment will be stated in the specifications.
- (e) Unless otherwise stated, the Purchasing Officer reserves the right to award contracts or place orders to a single source or divide awards and orders or enact such combination which in his judgment, shall be in the best interest of HWEA.

3. DELIVERY

- (a) Item(s) shall be delivered F.O.B. destination with delivery costs and applicable charges to be included in the bid.

4. COMPETITION

In order to assure fair competition and to permit determination of the best bid:

- (a) The Detailed Specifications, which may include a name of any manufacturer, trade name, or manufacturer or vendor catalog number mentioned in the specifications or Bid Form is to designate a standard of quality and type and for no other reason.
- (b) Bids which show any omission, irregularity, alteration of forms, additions not called for, conditional or unconditional unresponsive bids, or bids obviously unbalanced may be rejected.
- (c) All bids shall be accompanied by such descriptive literature and documents as may be called for by the specifications or Bid Form.
- (d) Specifications provided are based on HWEA needs and uses, estimated costs of operation and maintenance, and other significant and / or limiting factors to meet HWEA requirements and shall be consistent with HWEA's policies. Minimum or maximum specifications where included, are not established arbitrarily to limit competition or to exclude otherwise competitive bidders.

5. DISPUTES

In cases of disputes, as to whether or not an item or service quoted or delivered meets specifications, the decision of the Purchasing Officer, or authorized representative shall be final and binding on all parties. The Purchasing Officer may request written recommendation of the head of the Department using the item.

6. EXCEPTIONS

The submission of a bid shall be considered an agreement to all the terms, conditions and specifications provided herein as listed in the various bid documents, unless specifically noted otherwise in the space provided on the Bid Form.

7. BID BINDING

Unless otherwise specified, all formal bids submitted shall be firm and irrevocable for a period of sixty (60) calendar days from the date of opening.

8. UNIT PRICING

Unless clearly shown on the Bid Form that it is the intent of the bidder that a reduced total price is being offered on the basis of receiving an award of all items covered by the total, any totals should be the actual sum of the extension of unit price(s), extended price(s), and/or total price(s). If a mistake is observed in arithmetic, unit prices govern and the bid will be refigured accordingly.

9. DELIVERY TIME

The bidder is to indicate on the Bid Form the approximate lead time on delivery.

10. WARRANTY

All materials provided by the winning bidder shall be warranted for a period of at least one (1) year from the date of final certificate of payment.

SPECIFICATIONS

1. GENERAL SPECIFICATIONS

- (a) All pump, column assembly and equipment furnished under this contract shall be factory equipped with safety equipment and in conformance with OSHA, EPA, U/L Listing, ASTM Rating and all other regulations applicable at time of delivery.
- (b) All equipment is to be equipped with all manufacturer's standard equipment as listed in the manufacturer's literature.
- (c) The equipment shall manufacture in production and shall be of good listed quality as to workmanship and materials used.

2. INFORMATION TO BE FURNISHED BY BIDDER

- (a) Each bid shall have attached the following information:
 - 1. A copy of manufacturer's warranty.
 - 2. A copy of the complete descriptive literature to include operation, installation and maintenance instructions.
 - 3. A copy of shop drawings on pump and motor, pump performance curve data sheet and pump performance data sheet

Failure to provide any of the above information could result in dismissal of bid.

3. EXCEPTIONS

- (a) Major exceptions to these specifications or failure to submit requested information may be considered cause for rejection of the bid.

DETAILED SPECIFICATIONS

The following are minimum specifications for;

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North & South Quarry Pump & Column Assembly

BIDDER SPECIFICATIONS

If "Exception" is written, please indicate in the space providing the deviation or include a detailed "EXCEPTIONS PAGE" with the bid packet.

ANY AND ALL BIDS WHICH ARE RETURNED MUST HAVE THE FOLLOWING PAGES COMPLETED AND RETURNED OR BID MAY NOT BE CONSIDERED.

DETAILED SPECIFICATIONS

Specifications for

North Quarry Vertical Turbine Pump Oil Lubricated & Column Assembly

A. Scope

This specification covers a deep well lineshaft turbine pump with above ground discharge, arranged for oil lubrication of the lineshaft bearing by an electric assembly and furnished with suitable driver and accessories as specified herein. The pumping unit shall be designed and furnished in accordance with the latest Hydraulic Institute and AWWA specifications for lineshaft turbine pumps.

B. Service Conditions

The pump shall be designed and constructed to operate satisfactorily with a reasonable service life, when installed in a typical continuous turbine pump application. The pump shall be the product of Xylem, Fairbanks – Morse or Peerless. Other manufacturers will be considered providing the unit offered is an approved equal in all respects to the brand and model preferred by the owner. Factory pump performance curves and material specifications for alternate pumps shall be submitted to the engineer for approval ten days prior to the date set for receiving bids.

C. Operating Conditions for 350 HP Motor

Design Conditions	5600	Gallons Per Minute
Design Head	186'	Feet Total Dynamic Head (TDH)
Impellor Size	11.75	Inches
Minimum Pump Efficiency of:	85%	Percent at Design Point
Shut-off Head Shall not Exceed:	359	Feet Total Dynamic Head (TDH)
Maximum Allowable Speed	1790	RPM
Liquid to be Pumped	Water	
Pump Bowl Setting	110	Feet
Pump Bowl Elevation	426.88	

D. Pump Construction

1. Bowl assembly: The intermediate bowls, suction bowl, and discharge adapter shall be flanged type constructed from close grained cast iron, and shall conform to ASTM designation A48, class 30. They shall be free from sand holes, blow holes, or other faults and must be accurately machined and fitted to close tolerances. The intermediate bowls shall have Scotch Kote lined waterways for maximum efficiency and wear protection. All intermediate bowls shall be of identical design for interchangeability. An oil lubricated adapter with drain ports and adapter bearing shall be used to connect the intermediate bowl to the shaft enclosing tube. An extra long bronze throttle bushing shall be used in the top intermediate bowl and oil lube adapter to minimize the amounts of water leakage through the drain ports. Drain ports are to be provided with sufficient area and shape and angle to permit a non-horizontal escape of water that passes through the throttle bushing.

A discharge adapter shall be used to connect bowls to the discharge column pipe. Threaded intermediate bowls will be allowed on bowl sizes 8" and smaller. To ensure quality and consistency of product, cast iron components must be produced in a foundry controlled by the pump manufacturer.

2. Impellers:
The impellers shall be constructed from ASTM B584 Silicon Bronze and shall be the enclosed type. They shall be free from defects and must be accurately cast, machined, balanced and filed for optimum performance and minimum vibration. Impellers are to be standard product of the pump manufacturer and not contain special workmanship to temporarily increase efficiency. They shall be securely fastened to the bowl shaft with a 416 stainless steel key. Tapered collets will not be approved. The impellers shall be adjustable by means of a top shaft adjusting nut.
3. The suction bowl shall be provided with a non-soluble grease packed bronze bearing, and a bronze sand collar shall be incorporated in the pump design to protect this bearing from abrasives. The bearing housing shall have sufficient opening at the bottom for easy removal of the bearing.

4. Wear rings:
Pumps 6" and larger shall be fitted with replaceable wear rings of bronze material in the suction bowl and intermediate bowls. Wear rings shall have the minimum practical clearance to the mating cylindrical surface of the impeller to provide adequate sealing independent of vertical positioning of the impellers.
5. The bowl shaft shall be constructed from ASTM A582 type 416 stainless steel. It shall be precision turned, ground and polished and shall be supported by water lubricated bronze bearings.

E. Column Assembly-Oil Lubricated

1. Column pipe: The column pipe shall be grade A steel pipe with the ends machined with 8 threads per inch with 3/16 taper and faced parallel to butt against subsequent column pipes. Inside diameter of the pipe shall be such that the head losses shall not be over 5 feet per 100 feet of pipe and shall weigh not less than 62.58 lbs./ft. Pipe shall be connected using flanges with 416 stainless steel fasteners.
2. The shaft enclosing tube shall be of sufficient diameter to provide adequate lubrication under any operating conditions. The enclosing tube shall be, ASTM A120 extra heavy weight, continuous weld prime line pipe. Both ends of each tube length shall be bored, faced, and inside threaded with left hand threads. The ends of the tube shall be square with the axis and shall butt to ensure accurate alignment. The lengths shall be interchangeable with the exception of the top section which shall be designed for applying proper tension to the tube. The tube shall be of such overall assembled length to properly match the length of the discharge column. The enclosing tube shall be stabilized in the column pipe by rubber centering spider spaced 10 feet from the top and bottom, and 40 feet intervals throughout the balance of the column length.
3. The lineshaft bearing which serves as a coupling for the shaft tubing shall be spaced at each tube length, to maintain alignment of pump shafting and to prevent excessive vibration. They shall be of bronze material and machined, threaded and grooved for proper lubrication.

4. Lineshaft shall be of ample size to operate the pump without distortion or vibration. Diameter of the shaft shall be such that it does not exceed the horsepower limitation indicated in the engineering section of the Xylem catalog. Shaft shall be furnished in interchangeable lengths to properly match the length of the shaft enclosing tube and discharge column and shall be coupled with extra-strong threaded steel couplings machined from solid bar steel. Lineshaft shall be C1045 steel.

F. Discharge Head Assembly-Oil Lubricated

1. Discharge head shall be of the high profile type and be of high grade fabricated steel. It shall be provided for mounting the motor with a discharge elbow having an above ground flanged discharge outlet for 16-inch standard pipe. The design shall have sufficient capacity to carry the combined weight of the column assembly. The design shall allow the top shaft to couple above the tension box assembly. The head shall have a 1/2" NPT connection for a pressure gauge.
2. A tension plate and tension nut assembly shall be installed in the discharge head to allow proper tension to be placed on the shaft enclosing tube. The tension plate and tension nut shall be of cast iron with a bronze bushing included in the assembly to allow for positive alignment and support for the head shaft. An o-ring or other suitable provisions must be made for sealing off the threads at the tension nut.

G. Strainer

There will be furnished a cone strainer which shall be of 316 stainless steel and having a free area of at least five times the flow area of the suction pipe.

H. Existing Motors

HWEA currently has two 350 HP motors in stock, the bidder shall show evidence that their pump and column assembly will work with HWEA's existing motors. Spec plates of the motor are attachments to this bid packet.

Specifications for South Quarry Vertical Turbine Pump Oil Lubricated & Column Assembly

A. Scope

This specification covers a deep well lineshaft turbine pump with above ground discharge, arranged for oil lubrication of the lineshaft bearing by an electric assembly and furnished with suitable driver and accessories as specified herein. The pumping unit shall be designed and furnished in accordance with the latest Hydraulic Institute and AWWA specifications for lineshaft turbine pumps.

B. Service Conditions

The pump shall be designed and constructed to operate satisfactorily with a reasonable service life, when installed in a typical continuous turbine pump application. The pump shall be the product of Xylem, Fairbanks – Morse or Peerless. Other manufacturers will be considered providing the unit offered is an approved equal in all respects to the brand and model preferred by the owner. Factory pump performance curves and material specifications for alternate pumps shall be submitted to the engineer for approval ten days prior to the date set for receiving bids.

C. Operating Conditions for 250 HP Motor

Design Conditions	6950	Gallons Per Minute
Design Head	123'	Feet Total Dynamic Head (TDH)
Impellor Size	13.25	Inches
Minimum Pump Efficiency of:	86.4%	Percent at Design Point
Shut-off Head Shall not Exceed:	195	Feet Total Dynamic Head (TDH)
Maximum Allowable Speed	1180	RPM
Liquid to be Pumped	Water	
Pump Bowl Setting	54.64	Feet
Pump Bowl Elevation	482.00	

D. Pump Construction

1. Bowl assembly: The intermediate bowls, suction bowl, and discharge adapter shall be flanged type constructed from close grained cast iron, and shall conform to ASTM designation A48, class 30. They shall be free from sand holes, blow holes, or other faults and must be accurately machined and fitted to close tolerances. The intermediate bowls shall have Scotch Kote lined waterways for maximum efficiency and wear protection. All intermediate bowls shall be of identical design for interchangeability. An oil lubricated adapter with drain ports and adapter bearing shall be used to connect the intermediate bowl to the shaft enclosing tube. An extra long bronze throttle bushing shall be used in the top intermediate bowl and oil lube adapter to minimize the amounts of water leakage through the drain ports. Drain ports are to be provided with sufficient area and shape and angle to permit a non-horizontal escape of water that passes through the throttle bushing.

A discharge adapter shall be used to connect bowls to the discharge column pipe. Threaded intermediate bowls will be allowed on bowl sizes 8" and smaller. To ensure quality and consistency of product, cast iron components must be produced in a foundry controlled by the pump manufacturer.

2. Impellers:
The impellers shall be constructed from ASTM B584 Silicon Bronze and shall be the enclosed type. They shall be free from defects and must be accurately cast, machined, balanced and filed for optimum performance and minimum vibration. Impellers are to be standard product of the pump manufacturer and not contain special workmanship to temporarily increase efficiency. They shall be securely fastened to the bowl shaft with a 416 stainless steel key. Tapered collets will not be approved. The impellers shall be adjustable by means of a top shaft adjusting nut.
3. The suction bowl shall be provided with a non-soluble grease packed bronze bearing, and a bronze sand collar shall be incorporated in the pump design to protect this bearing from abrasives. The bearing housing shall have sufficient opening at the bottom for easy removal of the bearing.

4. Wear rings:
Pumps 6" and larger shall be fitted with replaceable wear rings of bronze material in the suction bowl and intermediate bowls. Wear rings shall have the minimum practical clearance to the mating cylindrical surface of the impeller to provide adequate sealing independent of vertical positioning of the impellers.
5. The bowl shaft shall be constructed from ASTM A582 type 416 stainless steel. It shall be precision turned, ground and polished and shall be supported by water lubricated bronze bearings.

E. Column Assembly-Oil Lubricated

1. Column pipe: The column pipe shall be grade A steel pipe with the ends machined with 8 threads per inch with 3/16 taper and faced parallel to butt against subsequent column pipes. Inside diameter of the pipe shall be such that the head losses shall not be over 5 feet per 100 feet of pipe and shall weigh not less than 62.58 lbs./ft. Pipe shall be connected using flanges with 416 stainless steel fasteners.
2. The shaft enclosing tube shall be of sufficient diameter to provide adequate lubrication under any operating conditions. The enclosing tube shall be, ASTM A120 extra heavy weight, continuous weld prime line pipe. Both ends of each tube length shall be bored, faced, and inside threaded with left hand threads. The ends of the tube shall be square with the axis and shall butt to ensure accurate alignment. The lengths shall be interchangeable with the exception of the top section which shall be designed for applying proper tension to the tube. The tube shall be of such overall assembled length to properly match the length of the discharge column. The enclosing tube shall be stabilized in the column pipe by rubber centering spider spaced 10 feet from the top and bottom, and 40 feet intervals throughout the balance of the column length.
3. The lineshaft bearing which serves as a coupling for the shaft tubing shall be spaced at each tube length, to maintain alignment of pump shafting and to prevent excessive vibration. They shall be of bronze material and machined, threaded and grooved for proper lubrication.

4. Lineshaft shall be of ample size to operate the pump without distortion or vibration. Diameter of the shaft shall be such that it does not exceed the horsepower limitation indicated in the engineering section of the Xylem catalog. Shaft shall be furnished in interchangeable lengths to properly match the length of the shaft enclosing tube and discharge column and shall be coupled with extra-strong threaded steel couplings machined from solid bar steel. Lineshaft shall be C1045 steel.

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1. Discharge head shall be of the high profile type and be of high grade fabricated steel. It shall be provided for mounting the motor with a discharge elbow having an above ground flanged discharge outlet for 16-inch standard pipe. The design shall have sufficient capacity to carry the combined weight of the column assembly. The design shall allow the top shaft to couple above the tension box assembly. The head shall have a 1/2" NPT connection for a pressure gauge.
2. A tension plate and tension nut assembly shall be installed in the discharge head to allow proper tension to be placed on the shaft enclosing tube. The tension plate and tension nut shall be of cast iron with a bronze bushing included in the assembly to allow for positive alignment and support for the head shaft. An o-ring or other suitable provisions must be made for sealing off the threads at the tension nut.

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H. Existing Motors

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RECEIPT OF BID PACKET

FY 2023 - 2024
Sealed Bid # 2324-23
North & South Quarry Pump & Column Assembly

I hereby acknowledge receipt of the subject bid packet.

Company Authorized Signature

Date

BID FORM

Qty	Description	Bidder Description	Cost
1	North Quarry 350hp Vertical Turbine Pump		
1	North Quarry Column Assembly for 350hp Vertical Turbine Pump		
1	South Quarry 250hp Vertical Turbine Pump		
1	South Quarry Column Assembly for 250hp Vertical Turbine Pump		

Total Lump Sum Bid \$ _____

NORTH QUARRY

Lead Time 350hp Pump: _____

Lead Time Column Assembly: _____

SOUTH QUARRY

Lead Time 250hp Pump: _____

Lead Time Column Assembly: _____



BID FORM

FY 2023 - 2024
Sealed Bid # 2324-23
North & South Quarry Pump & Column Assembly

Company Name: _____

Address: _____

Telephone: _____ Email: _____

I, the undersigned, do hereby certify that I am a duly authorized representative of _____ and I have carefully examined the Invitation to Bid, General Conditions, Specifications and Bid Form and agree to all terms and conditions as set forth therein.

Signature: _____

Title: _____

Acknowledged before me this _____ day of _____, 2024

NOTARY PUBLIC: _____

My Commission Expires: _____