



INVITATION FOR BID

DEWATERING CENTRIFUGE CONTROL PANEL AND BACK DRIVE UPGRADE

HOPEWELL REGIONAL WASTEWATER TREATMENT FACILITY CITY OF HOPEWELL

BID: **#12-14**

DATE: **MAY 7, 2014**

Sealed Bids, subject to the general conditions and specifications hereby attached, will be received at the Office of the City Clerk, Second Floor, Municipal Building, 300 North Main Street, Hopewell, Virginia 23860 until, but not later than 11:00 a.m. **TUESDAY, May 27, 2014** and then publicly opened in the Council Chambers, Municipal Building, 300 North Main Street, Hopewell, Virginia on the aforementioned date and time for furnishing the solicited supplies or services.

1. All bids must be submitted in a sealed envelope.
2. Regardless of delivery method of bid, the **outside** of each envelope must clearly indicate the following: *(if bid is delivered by Federal Express, UPS, USPS Priority, etc. or any other means, the outside of **each** envelope **must also** clearly indicate):*

**Office of the City Clerk
Second Floor
Municipal Building
300 North Main Street
Hopewell, Virginia 23860**

Closing Date of Bid: May 27, 2014

**Commodity Name: Dewatering Centrifuge Control Panel and Back Drive Upgrade
Bid # 12-14**

FOR YOUR BID TO BE CONSIDERED, IT MUST BE SUBMITTED ON THIS INVITATION FOR BID IN THE PLACES PROVIDED. BIDDERS SHALL SIGN THIS FORM (PAGE 3) WITHOUT DETACHING FROM REST OF BID AND MUST RETURN BID IN ITS ENTIRETY.

ANY BID RECEIVED AFTER THE ANNOUNCED TIME AND DATE OF OPENING, WHETHER BY MAIL OR OTHERWISE, WILL NOT BE CONSIDERED AND WILL BE RETURNED UNOPENED.

The right is reserved to reject any or all Bids submitted and also to place the order where it appears it will be to the best interest of the city. All quoted prices shall be FOB locations.

If you desire not to bid on this invitation, please forward your acknowledgement of NO BID.

FAILURE TO COMPLY WITH THIS REQUIREMENT WILL BE CAUSE FOR REMOVAL OF YOUR COMPANY'S NAME FROM THE BID LIST.

All bid quotations are subject to general terms and conditions hereby attached and will be rejected if not properly executed.

Individual contractors must provide their social security numbers and other types of firms must provide their federal employer identification numbers in the payment clauses to be included in contracts.

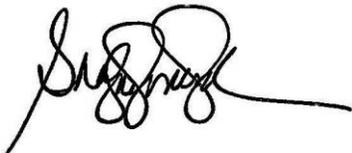
Quantities indicated herein are estimates of anticipated usage. It is understood and agreed to between the parties of a resulting contract that the City may increase or decrease quantities at the quoted price. Furthermore, it is agreed to between the parties of a resulting contract that the City shall not be obligated to purchase or pay for materials by such contract unless and until they are ordered and delivered.

The City reserves the right to be sole judge and to make the award in accordance with its own judgement as to what will best meet its requirements and be in the best interest of the City. The City reserves the right to reject any or all bids, to waive all informalities, and to reject any or all items of any bid.

AVAILABILITY OF FUNDS: It is understood and agreed between the Bidder and the City that the City shall be bound hereunder only to the extent of the funds available or which may hereafter become available for the purpose of this quotation or agreement.

WITHDRAWAL OF BID: No bid may be withdrawn for a period of thirty (30) days from the date of bid opening unless the bidder has made a clerical error. The bidder shall give notice in writing of his claim of right to withdraw his bid within two (2) business days after the conclusion of the bid opening procedure and shall submit original work papers substantiating the error with such notice.

Bidding and contracting procedure shall conform to all applicable regulations and provisions of the *City of Hopewell Procurement Ordinance* effective July 1, 2005; a copy of which is available for inspection at the Office of the City Clerk.

A handwritten signature in black ink, appearing to read 'Shayna J. Johnson', with a long horizontal line extending to the right.

Shayna J. Johnson, Purchasing Agent

Please return the bids to the Office of the City Clerk, Second Floor, Municipal Building, 300 North Main Street, Hopewell, Virginia 23860. Regardless of delivery method of bid, the **outside** of each envelope must clearly indicate the following: *(if bid is delivered by Federal Express, UPS, USPS Priority, etc. or any other means, the outside of **each** envelope **must also** clearly indicate):*

**Office of the City Clerk
Second Floor
Municipal Building
300 North Main Street
Hopewell, Virginia 23860**

Closing Date of Bid: May 27, 2014

**Commodity Name: Dewatering Centrifuge Control Panel and Back Drive Upgrade
Bid # 12-14**

In compliance with Invitation for Bid **#12-14** and subject to all conditions thereof and attached thereto, the undersigned offers and agrees if the bid price and conditions will be accepted within sixty (60) calendar days from the date of opening to evaluate, to furnish any and all of the items upon which the prices are quoted, at the price set opposite each item, delivered at the points as specified and as scheduled.

NAME OF ORGANIZATION	EMAIL ADDRESS
STREET ADDRESS	TELEPHONE NUMBER
CITY, STATE, ZIP CODE	FAX NUMBER
NAME (TYPE OR PRINT)	OFFICIAL TITLE
SIGNATURE	DATE
STATE CORPORATION COMMISSION ID#	IRS I.D. #

GENERAL TERMS AND CONDITIONS

- A. **APPLICABLE LAWS AND COURTS:** This solicitation and any resulting contract shall be governed in all respects by the laws of the Commonwealth of Virginia and the City of Hopewell, Virginia; any litigation with respect thereto shall be brought in the courts of the City. The contractor shall comply with all applicable federal, state and local laws, rules and regulations. This compliance includes obtaining a Hopewell business license, if required, before work is performed.
- B. **EMPLOYMENT DISCRIMINATION/DRUG-FREE WORKPLACE BY CONTRACTOR:** By submitting the bids/proposals, the bidders/offerors certify to the City that they will conform to the provisions of the Federal Civil Rights Act of 1964, as amended, as well as the Virginia Fair Employment Contracting Act of 1975, as amended, where applicable, the Virginians With Disabilities Act, the Americans With Disabilities Act and §2.2-4311 of the *Virginia Public Procurement Act*. If the award is made to a faith-based organization, the organization shall not discriminate against any recipient of goods, services, or disbursements made pursuant to the contract on the basis of the recipient's religion, religious belief, refusal to participate in a religious practice, or on the basis of race, age, color, gender or national origin and shall be subject to the same rules as other organizations that contract with the City to account for the use of the funds provided; however, if the faith-based organization segregates public funds into separate accounts, only the accounts and programs funded with public funds shall be subject to audit by the City. (Code of Virginia, § 2.2-4343.1E).

Every contract over Ten Thousand Dollars (\$10,000) shall include the provisions below. During the performance of this contract, the contractor agrees as follows:

1. The contractor will not discriminate against any employee or applicant for employment because of race, religion, color, sex, national origin, age, disability or other basis prohibited by state law relating to discrimination employment, except where there is a bona fide occupational qualification reasonably necessary to the normal operation of the contractor. The contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices setting forth the provisions of this non-discrimination clause.
2. The contractor, in all solicitations or advertisements for employees placed by or on behalf of the contractor, will state that such contractor is an equal opportunity employer.
3. Notices, advertisements and solicitations placed in accordance with federal law, rule or regulation shall be deemed sufficient for the purpose of meeting these requirements of this section.
4. To provide a drug-free workplace for the contractor's employees.
5. To post in conspicuous places, available to employees and applicants for

employment, a statement notifying employees that the unlawful manufacture, sale, distribution, dispensation, possession, or use of a controlled substance or marijuana is prohibited in the contractor's workplace and specifying the actions that will be taken against employees for violations of such prohibition.

6. To state in all solicitations or advertisements for employees placed by or on behalf of the contractor that the contractor maintains a drug-free workplace.

For the purposes of this section, "drug-free workplace" means a site for the performance of work done in connection with a specific contract awarded to a contractor, the employees of whom are prohibited from engaging in the unlawful manufacture, sale, distribution, dispensation, possession or use of any controlled substance or marijuana during the performance of the contract.

The contractor will include the provisions of the foregoing paragraphs 1, 2, 3, 4, 5 and 6 in every subcontract or purchase order over Ten Thousand Dollars (\$10,000) so that the provisions will be binding upon each subcontractor or vendor.

- C. **DIRECT TAXES:** All bids/proposals shall be submitted exclusive of direct Federal, State, and local taxes. However, if the bidder/offeror believes that certain taxes are properly payable by the City, he may list such taxes separately in each case directly below the respective item bid/proposal price. Tax exemption certification will be furnished on request.
- D. **INDEMNITY:** The contractor agrees to defend, indemnify and hold harmless, the City of Hopewell and its members, officers, directors, employees, agents, and representatives from and against any and all claims, damages, demands, losses, costs and expenses, including attorney's fees, and any other losses of any kind or nature whatsoever including claims for bodily injuries, illness, disease, or death and physical property loss or damage in favor of contractor, its sub-contractors, their employees, agents, and third parties arising during the performance of services and resulting from tort, strict liability, or negligent acts or omissions of contractor, its sub-contractors and their employees or agents under the agreement, or resulting from breaches of contract, whatever by statute or otherwise.
Each contractor shall assume the responsibility for damage to or loss of its material, equipment or facilities located at the site and, in order to effect this limitation of liability, the contractor agrees to insure or self-insure such property against any such risk.
- E. **SALES TAXES:** The City is exempt from payment of State sales and use tax on all tangible personal property purchased or leased for its use or consumption. Certificate of Exemption will be furnished upon request.
- F. **QUOTATION FORM:** The bidder/offeror must sign and properly fill out all forms in this Bid/Proposal or be subject to being declared unresponsive. If unable to submit a Bid/Proposal, please sign and return this solicitation form, advising reason for no Bid/Proposal.

- G. **CONTRACTOR'S DEFAULT:** In case of default of the contractor, the City may procure the articles of service from other sources and hold the contractor responsible for any excess cost incurred thereafter.
- H. **COMPUTATION OF TIME FOR DISCOUNTS:** Time in connection with discount offered, will be computed from date of delivery of the supplies or materials to carrier when final inspection and acceptance are at those points or from date correct invoice is received if latter is later than the date of delivery.
- I. **ETHICS IN PUBLIC CONTRACTING:** By submitting the bids/proposals, the bidders/offerors certify that the bids/proposals are made without collusion or fraud and that they have not offered or received any kickbacks or inducements from any other bidder/offeror, supplier, manufacturer or subcontractor in connection with the bid/proposal, and that they have not conferred on any public employee having official responsibility for this procurement transaction any payment, loan, subscription, advance, deposit of money, services or anything of more than nominal value, present or promised, unless consideration of substantially equal or greater value was exchanged.
- J. **GOVERNMENTAL RESTRICTIONS:** In the event any governmental restrictions may be imposed which would necessitate alteration of the materials, quality, workmanship, or performance of the items offered in this Bid/Proposal prior to their delivery, it shall be the responsibility of the successful bidder/offeror to notify this office at once, indicating in his letter the specific regulation which requires such alterations. The City reserves the right to accept any such alterations, including any price adjustments occasioned thereby, or to cancel the contract.
- K. **IMMIGRATION REFORM AND CONTROL ACT OF 1986:** By entering into a written contract with the City of Hopewell, the Contractor certifies that the Contractor does not, and shall not during the performance of the contract for goods and services in the City, knowingly employ an unauthorized alien as defined in the federal Immigration Reform and Control Act of 1986.
- L. **DEBARMENT STATUS:** By submitting the bids/proposals, the bidders/offerors certify that they are not currently debarred by the Commonwealth of Virginia from submitting bids or proposals on contracts for the type of goods and/or services covered by this solicitation, nor are they an agent of any person or entity that is currently so debarred.
- M. **ANTITRUST:** By entering into a contract, the contractor conveys, sells, assigns, and transfers to the City of Hopewell, Virginia all rights, title and interest in and to all causes of action it may now have or hereafter acquire under the antitrust laws of the United States and the Commonwealth of Virginia, relating to the particular goods or services purchased or acquired by the City of Hopewell, Virginia under said contract.
- N. **PAYMENT:** Payment by the City is due thirty days (30) after delivery is made to the City of Hopewell and inspection unless otherwise specifically provided: subject to any

discounts allowed.

To Prime Contractor:

Invoices for items ordered, delivered and accepted shall be submitted by the contractor directly to the payment address shown on the purchase order/contract. All invoices shall show the contract number and/or purchase order number, social security number (for individual contractors) or the federal employer identification number (for proprietorships, partnerships, and corporations).

All goods or services provided under this contract or purchase order, that are to be paid for with public funds, shall be billed by the contractor at the contract price, regardless of which public agency is being billed.

The following shall be deemed to be the date of payment: the date of postmark in all cases where payment is made by mail, or the date of offset when offset proceedings have been instituted as authorized.

Unreasonable Charges: Under certain emergency procurements and for most time and material purchases, final job costs cannot be accurately determined at the time orders are placed. In such cases, contractors should be put on notice that final payment in full is contingent on a determination of reasonableness with respect to all invoiced charges. Charges, which appear to be unreasonable, will be researched and challenged, and that portion of the invoice held in abeyance until a settlement can be reached. Upon determining that invoiced charges are not reasonable, the City shall promptly notify the contractor, in writing, as to those charges, which it considers unreasonable, and the basis for the determination. A contractor may not institute legal action unless a settlement cannot be reached within thirty (30) days of notification.

To Subcontractors:

A contractor awarded a contract under this solicitation is hereby obligated:

1. To pay the subcontractor(s) within seven (7) days of the contractor's receipt of payment from the City for the proportionate share of the payment received for work performed by the subcontractor(s) under the contract; or
2. To notify the City and the subcontractor(s), in writing, of the contractor's intention to withhold payment and the reason.
3. The contractor is obligated to pay the subcontractor(s) interest at the rate of one percent per month (unless otherwise provided under the terms of the contract) on all amounts owed by the contractor that remain unpaid seven (7) days following receipt of payment from the City, except for amounts withheld as stated in (2) above. The date of mailing of any payment by U. S. Mail is deemed to be payment to the addressee. These provisions apply to each sub-tier contractor performing under the

primary contract. A contractor's obligation to pay an interest charge to a subcontractor may not be construed to be an obligation of the City.

- O. **PRECEDENCE OF TERMS**: Paragraphs A-N of these General Terms and Conditions shall apply in all instances. In the event there is a conflict between any of the other General Terms and Conditions and any Special Terms and Conditions in this solicitation, the Special Terms and Conditions shall apply.
- P. **TESTING AND INSPECTION**: The City reserves the right to conduct any test/inspection it may deem advisable to assure goods and services conform to the specifications.
- Q. **ASSIGNMENT OF CONTRACT**: A contract shall not be assignable by the contractor in whole or in part without the written consent of the City.
- R. **CHANGES TO THE CONTRACT**: Changes can be made to the contract in any of the following ways:
1. The parties may agree in writing to modify the scope of the contract. An increase or decrease in the price of the contract resulting from such modification shall be agreed to by the parties as a part of their written agreement to modify the scope of the contract.
 2. The Purchasing Department may order changes within the general scope of the contract at any time by written notice to the contractor. Changes within the scope of the contract include, but are not limited to, things such as services to be performed, the method of packing or shipment, and the place of delivery or installation. The contractor shall comply with the notice upon receipt. The contractor shall be compensated for any additional costs incurred as the result of such order and shall give the Purchasing Department a credit for any savings. Said compensation shall be determined by one of the following methods:
 - a. By mutual agreement between the parties in writing; or
 - b. By agreeing upon a unit price or using a unit price set forth in the contract, if the work to be done can be expressed in units, and the contractor accounts for the number of units of work performed, subject to the Purchasing Department's right to audit the contractor's records and/or to determine the correct number of units independently; or
 - c. By ordering the contractor to proceed with the work and keep a record of all costs incurred and savings realized. A markup for overhead and profit may be allowed if provided by the contract. The same markup shall be used for determining a decrease in price as the result of savings realized. The contractor shall present the Purchasing Department with all vouchers and records of expenses incurred and savings realized. The Purchasing Department shall have the right to audit the

records of the contractor, as it deems necessary to determine costs or savings. Any claim for an adjustment in price under this provision must be asserted by written notice to the Purchasing Department within thirty (30) days from the date of receipt of the written order from the Purchasing Department. If the parties fail to agree on an amount of adjustment, the question of an increase or decrease in the contract price or time for performance shall be resolved in accordance with the procedures for resolving disputes provided by the Disputes Clause of this contract or, if there is none, in accordance with the disputes provisions of the Virginia Public Procurement Act. Neither the existence of a claim nor a dispute resolution process, litigation or any other provision of this contract shall excuse the contractor from promptly complying with the changes ordered by the Purchasing Department or with the performance of the contract generally.

- S. **DEFAULT:** In case of failure to deliver goods or services in accordance with the contract terms and conditions, the City, after due oral or written notice, may procure them from other sources and hold the contractor responsible for any resulting additional purchase and administrative costs. This remedy shall be in addition to any other remedies, which the City may have.
- T. **AUTHORIZATION TO CONDUCT BUSINESS IN THE COMMONWEALTH:** A contractor organized as a stock or non-stock corporation, limited liability company, business trust, or limited partnership or registered as a registered limited liability partnership shall be authorized to transact business in the Commonwealth as a domestic or foreign business entity if so required by Title 13.1 or Title 50 of the Code of Virginia or as otherwise required by law. Any business entity described above that enters into a contract with the City pursuant to the Virginia Public Procurement Act shall not allow its existence to lapse or its certificate of authority or registration to transact business in the Commonwealth, if so required under Title 13.1 or Title 50, to be revoked or cancelled at any time during the term of the contract. The City may void any contract with a business entity if the business entity fails to remain in compliance with the provisions of this section.
- U. **INSURANCE:** The contractor shall secure and maintain in force, at his/her own expense all required forms of insurance and payment bonds to insure the completion for the work under contract to the satisfaction of the City and without damage to, or claims against the City. The contractor shall provide satisfactory evidence of bonds and insurance on behalf of the sub-contractors, before entering into an agreement to sublet any part of the work to be done under this contract.

The following performance and payment bonds and forms of insurance shall be secured by the contractor to cover all work under contract and to protect the contractor, the City, and general public against any damage of claims in connections with the performance of the contract. The bonds and insurance shall be by companies duly authorized to do business in the State of Virginia. Certificates of Insurance, naming the City as an additional insured for each type of coverage shall be required.

At the discretion of the purchasing agent, bidders/offerors may be required to submit with their bid/proposal a bid/proposal bond, or a certified check, in an amount to be determined by the purchasing agent, which shall be forfeited to the City as liquidated damage upon the bidder's/offeror's failure to execute a contract awarded to him/her or upon the bidder's/offeror's failure to furnish any required performance or payment bonds in connection with a contract awarded to him/her.

At the discretion of the purchasing agent, the winning contractor(s) may be required to submit a performance and payment bond to the City which shall be evoked upon contractor's failure to execute a contract awarded or the failure to satisfactorily complete work for which a contract or purchase order was awarded. Performance bond and payment bond in the amount of one hundred (100) percent of contract price is required as security of contract, or security for payment of all persons performing labor and furnishing materials in connection with the contract, and protecting the City from all damages or claims resulting from, or in connection with the performance of the contract or purchase order.

The performance bond and payment bond shall and does bind the surety company to protect the City from damages, claims or costs by failure of the contractor to make corrective action due to his financial solvency or for any other cause whatever.

INSURANCE COVERAGES AND LIMITS REQUIRED:

1. Worker's Compensation - Statutory requirements and benefits; require that the City of Hopewell, Virginia be added as an additional named insured on contractor's policy.
2. Employers Liability - \$500,000.
3. Comprehensive general liability for bodily injury liability and property damage liability shall be provided as to limits specified.
4. Contractor's protective liability shall be provided for bodily injury liability and property damage liability.
5. Fire and extended coverage shall be provided on the completed builder risk form if specified in bid specifications.
6. The contractor shall require each of his subcontractors to carry Workmen's Compensation Insurance and public liability and property damages liability.
7. Commercial General Liability - \$1,000,000 combined single limit. The City of Hopewell, Virginia is to be named as an additional named insured with respect to the services being procured. This coverage is to include Products and Completed

Operations Coverage.

8. Automobile Liability – bodily injury and property damage shall be provided as to limits set forth in the specifications.

The contractor shall have executed and delivered to the City copies of all insurance certificates.

Executed copies of the performance bond shall become a part of all copies of the contract.

SPECIAL TERMS AND CONDITIONS

- A. **ADVERTISING**: In the event a contract is awarded for supplies, equipment, or services resulting from this bid/proposal, no indication of such sales or services to the City of Hopewell, Virginia will be used in product literature or advertising. The contractor shall not state in any of its advertising or product literature that the City of Hopewell, Virginia or any department or institution of the City has purchased or uses its products or services.
- B. **AUDIT**: The contractor shall retain all books, records, and other documents relative to this contract for five (5) years after final payment, or until audited by the City of Hopewell, whichever is sooner. The agency, its authorized agents, and/or state auditors shall have full access to and the right to examine any of said materials during said period.
- C. **AWARD OF CONTRACT**: An award will be made to the lowest responsive and responsible bidder/offeror. Evaluation will be based on net prices. Unit prices, extensions and grand total must be shown. In case of arithmetic errors, the unit price will govern. If cash discount for prompt payment is offered, it must be clearly shown in the space provided. Discounts for prompt payment will not be considered in making awards. The City reserves the right to reject any and all bids/proposals in whole or in part, to waive any informality, and to delete items prior to making an award.
- D. **BID/PROPOSAL ACCEPTANCE PERIOD**: Any bid/proposal in response to this solicitation shall be valid for 120 days. At the end of the 120 days the bid/proposal may be withdrawn at the written request of the bidder/offeror. If the bid/proposal is not withdrawn at that time it remains in effect until an award is made or the solicitation is canceled.
- E. **CANCELLATION OF CONTRACT**: The Purchasing Department reserves the right to cancel and terminate any resulting contract, in part or in whole, without penalty, upon 30 days written notice to the contractor. In the event the initial contract period is for more than 12 months, the resulting contract may be terminated by either party, without penalty, after the initial 12 months of the contract period upon 30 days written notice to

the other party. Any contract cancellation notice shall not relieve the contractor of the obligation to deliver and/or perform on all outstanding orders issued prior to the effective date of cancellation.

- F. **EXTRA CHARGES NOT ALLOWED:** The bid/proposal price shall be for complete installation ready for the City's use, and shall include all applicable freight and installation charges; extra charges will not be allowed.
- G. **MINORITY/WOMEN-OWNED BUSINESSES SUBCONTRACTING AND REPORTING:** Where it is practicable for any portion of the awarded contract to be subcontracted to other suppliers, the contractor is encouraged to offer such business to minority and/or women-owned businesses. Names of firms may be available from the buyer and/or from the Division of Purchases and Supply. When such business has been subcontracted to these firms and upon completion of the contract, the contractor agrees to furnish the purchasing office the following information: name of firm, phone number, total dollar amount subcontracted and type of product/service provided.
- H. **PREPARATION AND SUBMISSION OF BIDS/PROPOSALS:** Bids/proposals must give the full business address of the bidder/offeror and be signed by him/her with his/her usual signature. Bids/proposals by partnerships must furnish the full name of all partners and must be signed in the partnership name by one of the members of the partnership or any authorized representative, followed by the designation of the person signing. Bids/proposals by corporations must be signed with the legal name of the corporation followed by the name of the State in which it is incorporated and by the signature and designation of the president, secretary, or other person authorized to bind it in the matter. The name of each person signing shall also be typed or printed below the signature. A bid/proposal by a person, who affixes to the signature the word "President," "Secretary," "Agent" or other designation without disclosing the principal, may be held to be the bid/proposal of the individual signing. When requested by the City, satisfactory evidence of the authority of the officer signing in behalf of the corporation shall be furnished.
- I. **WITHDRAWAL OR MODIFICATION OF BIDS/PROPOSALS:** Bids/proposals may be withdrawn or modified by written notice received from bidders/offerors prior to the deadline fixed for bid/proposal receipt. The withdrawal or modification may be made by the person signing the bid/proposal or by an individual(s) who is authorized by him on the face of the bid. Written modifications may be made on the bid/proposal form itself, on the envelope in which the bid/proposal is enclosed, or on a separate document. Written modifications, whether the original is delivered, or transmitted by facsimile, must be signed by the person making the modification or withdrawal.
- J. **RECEIPT AND OPENING OF BIDS/PROPOSALS:** It is the responsibility of the bidder/offeror to assure that his bid/proposal is delivered to the place designated for receipt of bids/proposals and prior to the time set for receipt of bids/proposals. Bids/proposals received after the time designated for receipt of bids/proposals will not be considered. Bids/proposals will be opened at the time and place stated in the

advertisement, and their contents made public for the information of bidders/offerors and others interested who may be present either in person or by representative. The officer or agent of the City, whose duty it is to open them, will decide when the specified time has arrived. No responsibility will be attached to any officer or agent for the premature opening of a bid/proposal not properly addressed and identified.

K. NEGOTIATION WITH THE LOWEST BIDDER: Unless all bids are cancelled or rejected, the City of Hopewell reserves the right granted by §2.2-4318 of the *Code of Virginia* to negotiate with the lowest responsive, responsible bidder to obtain a contract price within the funds available to the agency whenever such low bid exceeds the city's available funds. For the purpose of determining when such negotiations may take place, the term "available funds" shall mean those funds which were budgeted by the agency for this contract prior to the issuance of the written Invitation for Bids. Negotiations with the low bidder may include both modifications of the bid price and the Scope of Work/Specifications to be performed. The city shall initiate such negotiations by written notice to the lowest responsive, responsible bidder that its bid exceeds the available funds and that the agency wishes to negotiate a lower contract price. The times, places, and manner of negotiating shall be agreed to by the city and the lowest responsive, responsible bidder.

**DEWATERING CENTRIFUGE CONTROL PANEL
AND BACK DRIVE UPGRADE**

PART 1 GENERAL

1.1 SUMMARY

- A. Section Includes: Requirements for the furnishing, testing and placing in satisfactory operation (2) new control panel sub-systems with ancillary equipment for the (2) existing DS706 Sharples centrifuges. The work also includes supplying (2) new back drive sub-panels, (2) 25 HP 2500/2900 rpm, TEFC centrifuge duty back drive motors, field start-up services of a qualified representative during the installation start-up and field-testing period, a field operating performance test of the control panels, and training sessions for the operations personnel.

1.2 SYSTEM DESCRIPTION

- A. General: The upgraded centrifuge control panels shall operate and control the existing DS706 Sharples centrifuges.
- B. Design Requirements: The modified control panels to be compatible with the existing centrifuges and centrifuge motors as follows:

Centrifuge:

Model No. DS706
Bowl Speed: 2600 RPM
Temperature Rating: 210 deg F max.
Specific Gravity of Solids: 1.7

Main Drive Motor – WYE / Delta start / running operation:

Horsepower: 250	Voltage: 460v 3 ph 60 hz	Frame:
Type: P	Design: A	R.P.M. 1780
Amps.: 163	S.F.: 1.15	Code: A
Amb.: 40 deg. C	Duty: Cont.	Enclosure: TEFC
Insulation: F		

Lube Oil Pump:

Horsepower: 1/4	Voltage: 460V / 60 hz	Frame:
Amps.: 1.4/1.3/.65	S.F.: 1.15	R.P.M. 1740
Amb.: 55 deg. C	Duty: Cont.	Code: F
		Enclosure: TEFC

1.3 SUBMITTALS

- A. General: Provide all submittals as specified.
- B. Shop Drawings: Submit wiring diagrams, schematic control diagrams and complete description of the control systems and equipment operating characteristics.
- C. Operation and Maintenance Manuals: Provide (4) operation and maintenance manuals.

1.4 QUALITY ASSURANCE

- A. Design, fabricate, and assemble the centrifuge control panel sub-systems, back drive sub-panels, and ancillary equipment in accordance with the latest modern engineering and shop practices. Centrifuge control panel modifications to be the product of a supplier regularly engaged in the design and manufacture of centrifuge control panels to insure compatibility of all components with the existing centrifuges. The provider of the panel sub-systems and ancillary equipment must have technical help readily available to resolve potential centrifuge control questions as well as process problems.

PART 2 PRODUCTS

2.1 MANUFACTURERS

- A. Acceptable centrifuge control panel manufacturers are listed below. Other manufacturers of equivalent products must be pre-qualified.
1. Alfa Laval, Inc.
 2. Kontrol Automation, Inc.

2.2 MATERIALS

- A. General: A new sub-system shall be provided for each of the (2) existing NEMA 12 free standing enclosures, along with a new back drive sub-panel. Each new door shall fit precisely onto each existing panel enclosure and be painted the matching color. A new 25 HP AC 2500 / 2900 rpm TEFC centrifuge duty back drive motor shall also be provided for each centrifuge.
- B. Control Panel Section: The new control panel door shall include, at a minimum, a backlight color 10 inch minimum touch screen TFT operator interface unit with interactive screens for indication and control of all major components.
1. All components in the control panel door and sub-panel shall be completely factory wired. All external control connection points shall terminate on terminal blocks.
 2. The back drive shall be controlled by the PLC with programmable logic for integral automatic back drive control, which controls delta rpm in the speed control mode, and scroll torque in the automatic control mode. The programmable logic shall contain algorithms to provide control under various process conditions and enhance performance through the use of high resolution digital I/O, speed monitoring, and advanced PID Auto-tuning. In the automatic mode, back drive speed is automatically adjusted to maintain constant torque, thereby compensating for varying feed characteristics while optimizing residence time and separation for improved cake dryness. The unit also provides digital display of bowl speed, pinion speed, delta rpm, and torque. Applicable set point values are entered via a numeric keypad.
 3. The operator interface unit shall consist of a backlight color 10 inch minimum touch screen TFT display and shall provide a continuous digital indication of bowl speed, differential speed, and torque, as well as other operational parameters such as vibration. It shall also show a system layout displaying the status of each component within the system. All

operator device functions described below shall be provided through menus and function keys on the operator interface unit.

4. The operator interface functions described below shall be provided through icons, menus and soft function keys. The operator interface unit shall be supplied with battery back-up capability so all programs and settings are retained if a power supply failure occurs. The PLC and associated operator interface unit shall operate off an internal 24VDC power supply.
 5. The operator interface unit shall be capable of automatic or manual start/stop operations via the system displays, as well as provide display readings of the following: centrifuge drive motor amps, fault monitoring, and pre-set and actual timing operations, local/remote control status, and auto/manual control status, back drive torque, back drive speed, differential speed, bowl speed and vibration as described in this specification.
 6. Control wire shall be #16 AWG minimum, shall conform to UL standards, and shall be type THHN, THW or MTW. Power wiring shall be black and sized as required. AC control wiring shall be red. The AC neutral shall be white. The ground shall be green. AC control wiring shall be blue. Shield cable shall be #18 AWG minimum.
 7. A ground lug shall be supplied on the panel. The panel door shall have a ground strap to the main panel. All customer interface contacts are provided through isolated 10 amp interposing relays. Contacts shall be suitable for 24 VDC or 120 VAC control. The PLC shall provide 24 V DC control voltage for all external inputs. All inputs and outputs shall be electrically isolated.
 8. The PLC shall be Allen Bradley SLC 505 and Panel View 1000 Plus, or ABB 800M controller and Process Panel 245.
- C. AC Back Drive Section: The Adjustable Frequency Drive for controlling the back drive motor shall be an Allen Bradley Powerflex 753 or an ABB ACS 800 drive for an AC motor with encoder that includes the following features:
1. Displacement power factor ranges between 1.0 and 0.95, lagging, over the entire speed range.
 2. An efficiency of the drive is a minimum of 97% at full load and speed.
 3. Output voltage adjustable from 0 to rated motor voltage up to 690V.
 4. Output frequency range adjustable from 0 to 420 Hz.
 5. Inverter section using latest generation IGBTs.
 6. Software to limit the reflected wave due to long cable lengths to a maximum of 2.25 times the bus voltage or 1600V, whichever is less, up to cable lengths of 600ft (183m). Diode or fully gated bridge on the input.

7. DC bus inductor on all ratings
8. Switching logic power supply operating from the DC bus.
9. Microprocessor based inverter logic isolated from power circuits.
10. MOV protection - phase to phase and phase to ground
11. Internal Common Mode Cores on the drive output
12. Gold plated plug-in connections on printed circuit boards.
13. Optimized for 4kHz carrier frequency.
14. Capability of Operating the drive with motor disconnected.
15. Adjustable PWM carrier frequency within a range of 2-10 kHz.
16. Rated Current continuously
17. 150% Overload capability for up to 1 minute
18. 200% Overload capability for up to 3 seconds
19. Accel/Decel settings provide separate adjustments to allow either setting to be adjusted from 0.0 seconds to 3600.0 seconds. A second set of remotely selectable Accel/Decel settings accessible through digital inputs.
20. Drive must operate from 480V, 3PH, 60Hz with voltage variations plus 10% or minus 20%.
21. Interface to the drive provided via a removable Human Interface Module (HIM) with integral display. HIM is a 7 line by 21-character backlit LCD display with graphics capability. It is used to display drive operating conditions, fault / alarm indications and programming information with full text support
22. Capability to be programmed and display all speed values in either Hertz or RPM.
23. All settings and adjustments are stored in nonvolatile memory (EEPROM). No potentiometer adjustments are used.
24. DC Bus regulation to reduce the possibility of drive over voltage trips due to regenerative conditions.
25. Programmable current limit from .1 amps to 150% of drive rated amps.

2.3 CENTRIFUGE SYSTEM CONTROL SCHEME

- A. General: Functional control strategies for the centrifuge system are described herein. Provide all accessories and appurtenances required for the proper operation of the system as described.
- B. Minimum Required Controls: Provide as a minimum the following local controls:
 1. Lube Oil Pump - START/STOP, control of lube oil pump. Interlock the lube oil pump and main drive such that the main drive cannot run unless the lube oil pump is running and there is lube oil flow.
 2. Modes of Operation – SPEED/AUTO TORQUE

3. Centrifuge Unit - START/EMERGENCY STOP, control of centrifuge main drive. Interlock back drive start with main drive so that the main drive motor cannot run unless the back drive is running.
4. BACKDRIVE - SPEED CONTROL
5. BACK DRIVE - DIFFERENTIAL, NORMAL / HIGH
6. CLEAN CYCLE - START/STOP control and FORWARD/REVERSE status lights for back drive clean-in-place operation. Provide automatic clean-in-place timers, flush valve controls and differential adjustment controls as an integral part of the system.
7. Polymer Feed Pump Permissive
8. "Power On" light, indicating power available to centrifuge control panel.
9. "On-Off" lights, indicating status of centrifuge, back drive, lube oil pump, sludge feed pumps, polymer feed pump, flushing valve, cooling water.
10. Sludge Feed Pump Permissive
11. Flush Valve - OPEN/CLOSE, for control of flush valve in manual.
12. Common Alert contact from PLC for customer use.
13. Common Alarm shutdown contact from PLC for customer use.

Existing main motor uses WYE – Delta start/running sequence. Uses 3 outputs from PLC main relay

- Starting relay
- Run relay

Transition time needs to be set from interface. We now use 6 minute transition time.

- C. Operation: Provide each supporting sub-system capable of being started only after the previous sub-system is proved to be operating properly by indication of an "ON" light. When the centrifuge and sub-systems have been started, the permissive allows the sludge and polymer feed pumps to start. Normally stop the centrifuge by manually pushing the WASH STOP button. Direct the Operator in the wash stopping sequence to first push the "STOP" button for the sludge and polymer feed pump. The Operator can then push the WASH STOP button which opens the motor operated flushing valve and flushes the centrifuge for a preset time period. Provide for the main drive and remaining sub-systems to then be stopped in reverse order.

- D. Emergency Shut Down: Allow for an emergency shutdown procedure in the manual mode to be provided through a separate EMERGENCY STOP push button on the front face of the panel. Provide for pushing the EMERGENCY STOP button to immediately shut off the drive motor, and activating the sludge and polymer feed pumps permissive. Provide for the remaining sub-systems to then be stopped automatically in reverse order of starting.
- E. PLC Control system description
1. The centrifuge shall be able to be started automatically or manually. To automatically start the centrifuge, press “Auto Start” key on the operator interface unit.
 2. The PLC shall issue a “run” command to the centrifuge main drive motor and the bowl will begin to accelerate. The polymer and feed systems shall be interlocked with the centrifuge controls to prevent their operation at this time. During acceleration of the centrifuge, the PLC shall issue a “run” command to the back drive and a “start-up speed” command to the operator interface unit. This will make the back drive run at a pre-programmed start-up speed as set in the operator interface unit to provide the maximum scrolling of residual solids from the bowl. After a pre-set, timed interval, during which the bowl has reached full operating speed, the feed and polymer pumps permissive will allow them to start. As process requirements vary, the back drive speed shall be infinitely adjustable via the operator interface unit keypad, which shall maintain the set speed utilizing a closed loop, feedback. In this mode, the back drive speed shall be maintained while the torque is allowed to vary as process parameters change.
 3. The system shall be designed so that automatic/torque mode may also be selected at any time with a bump less transfer from differential control mode. In this mode the back drive shall be maintained while the speed is allowed to vary, within pre-set limits, in order to maximize residence time. If torque begins to rise above the set point, the differential speed shall be increased to scroll solids out of the bowl at a faster rate, thereby lowering the torque to the set point.
 4. The centrifuge shall be able to be started manually as well by pressing the appropriate keys as prompted by the manual operation screen of the operator interface unit.
 5. The PLC shall be provided with a screen to allow precise tuning of the auto torque controller PID settings. Tuning shall be provided through Auto-Tuning algorithms that are selectable on the operator terminal without need for special PC or software.

6. Graphic and alphanumeric operating screens to provide representation of the centrifuge process status. Screens to be broken down into the following:
 - a. Main Screen – provide display of the centrifuge status and of auxiliary systems set points. Allow adjustment of set points for all components from this screen.
 - b. Centrifuge System - provide detailed display of status and for the control of the centrifuge equipment and ancillary equipment associated with the direct operation of the centrifuge.
 - c. Alarm Screen – display alarms of the centrifuge and of auxiliary systems. Display active alarms and past acknowledged alarms for an historical record.
 - d. Operating Parameter Screen (password protected) – for setup of the centrifuge timers, speeds, loops, etc.
 7. Upon stopping the centrifuge by pressing the “Auto Stop” key on the operator interface unit, or via a fault condition, the feed and polymer system shall shut down the feed to the centrifuge. An auto flush valve will also be opened for a pre-determined time during shutdown.
 8. Provide a Clean-In-Place (CIP) System for cleaning of the centrifuge. The CIP run cycle shall have the capability to be started anytime the main drive motor is at rest as determined by the shutdown timer. The CIP cycle shall be initiated by clearing all faults and pressing the “CIP Start” key. The back drive shall be energized and begin to rotate in the reverse direction at a low speed for a predetermined time. At the end of the set time, the back drive shall then toggle direction, causing a water “sloshing” effect within the centrifuge bowl and conveyor. The process shall continue until the predetermined overall time ends, or the “CIP Stop” key is depressed, or a fault occurs. Any shutdown fault shall terminate the CIP cycle.
- F. Displays and Alarms: Provide the following functional displays and alarms to be indicated at the Centrifuge Control Panel on the operator interface unit screen.
1. Functional Displays:
 - a. Centrifuge Off
 - b. Centrifuge On
 - c. Centrifuge Run
 - d. Elapsed Time Meter

- e. Sludge Feed Flow, with a range of 0-350 gpm
- f. Polymer Feed Flow, with a range of 0-50 gpm
- g. Conveyor Torque, 0-100 percent
- h. Main drive load, amps with three-way switch to read each leg
- i. Differential speed, rpm
- j. Wash Timer(s)
- k. Back drive, Torque
- l. Cooling Water On
- m. Flush Water On/ Off
- n. Flush Valve Closed
- o. Flush Valve Open
- p. Lube Oil Pump Start
- q. Lube Oil Pump Stop
- r. Lube Pump Off
- s. Lube Pump On
- t. Liquid End Oil Flow
- u. Solids End Oil Flow
- v. Wash Cycle Off
- w. Wash Cycle On
- x. CIP Start
- y. CIP Stop
- z. Forward Clean
- aa. Reverse Clean

bb. Centrifuge Vibration Reading

2. Alarms:

- a. Main Drive Overload
- b. Main Drive High Temperature
- c. Back drive Overload
- d. Back drive High Torque for feed off
- e. Back drive High, High Torque for shut down
- f. Oil Pump Overload
- g. Low Oil Flow, Front Bearing
- h. Low Oil Flow, Rear Bearing
- i. Cooling water loss
- j. Flushing water loss
- k. High vibration for feed off alarm
- l. Excessive vibration for shut down
- m. Bearing temperature warning solids end
- n. Bearing temperature warning liquid end
- o. Bearing temperature high solids end
- p. Bearing temperature high liquid end
- q. Alarm Horn
- r. Alarm Silence
- s. Alarm Reset

G. Control System Fault Detection

1. In the event that a fault condition occurs, the sounding of an alarm horn shall take place, and an alarm text fault message shall be displayed on the operator interface unit to facilitate trouble shooting. An alarm acknowledge push-button, mounted on the front panel, shall flash when a fault condition occurs. When pressed, the horn shall be silenced.
2. The following faults shall be provided as alert conditions and shall shut off the feed pump and polymer system as required:
 - a. Scroll Torque alert
 - b. Low differential torque
3. The following faults shall be provided as alarms and will cause shutdown of the main drive and back drive motors:
 - a. Main motor overheat
 - b. Main drive malfunction
 - c. Excessive vibration
 - d. Back drive motor overheated
 - e. Back drive malfunction
 - f. Torque alarm
 - g. Lube Oil system Front Bearing Temperature
 - h. Lube Oil system Front Bearing Flow
 - i. Lube Oil system Rear Bearing Temperature
 - j. Lube Oil system Rear Bearing Flow

2.4 INSTRUMENTATION AND CONTROLS

- A. General: Provide instrumentation and controls furnished as part of each centrifuge unit to include (1) centrifuge control sub-system and (1) sub-panel, complete with instruments, meters and associated components necessary to properly operate and control the centrifuge in accordance with the centrifuge system control scheme described previously.
- B. Power: The installing Contractor shall supply a single 480-volt, 3-phase, 60 hertz power feed to the Centrifuge Control Panel. The installing Contractor shall furnish and install all interconnecting wiring and conduits from the centrifuge control panel to motors, control panels, control devices and appurtenances that are furnished under this section under the supervision of the centrifuge system supplier.

PART 3 EXECUTION

3.1 INSTALLATION

- A. General: The installing Contractor shall install all centrifuge equipment and AC back drive motor in accordance with the panel manufacturer's recommendations.
- B. The installing Contractor shall remove the existing centrifuge control panel doors and DC sub-panels, then install the new centrifuge control panel doors and sub-panels under the supervision of the panel manufacturer.
- C. The installing Contractor shall disconnect each existing DC back drive motor power cables and control wiring, remove each DC back drive motor, mount and align the new 40 HP AC back drive motors, connect new AC cables and control wiring.

3.2 FIELD QUALITY CONTROL

- A. Manufacturer's Field Service: Furnish the services of a qualified representative of the manufacturer to inspect the completed installation, participate in the startup of the equipment, participate in the field testing of the equipment, and place the equipment in trouble-free operation.
- B. Tests: After installation of the centrifuge control panel sub-systems, sub-panels and AC back drive motors, subject each unit to a field test under actual operating conditions.
 - 1. Field Performance Test: After installation of the control panel sub-systems and after all accessories are in operable condition, have a field performance test performed in the presence of the Owner. Conform to the following:
 - a. Subject each unit to complete manual and automatic normal start, auto torque modes, manual back drive operation, wash stop, CIP cycles, and centrifuge emergency stop cycles. Check all safety devices and the differential speed control for the back drive unit for satisfactory operation.
 - b. Correct any malfunctions appearing during the tests and perform additional testing, as required, to demonstrate that the defective or maladjusted equipment will perform satisfactorily after adjustment.
 - c. Check and adjust instruments and controls on the control panels as required. Run new AC wiring, then connect.

- d. Perform all operations of the centrifuge unit. The Owner will supply sludge feed, polymer solution, water and power within the limits of available equipment at the time of the test. Owner's personnel will prepare the polymer solutions and operate the sludge feed and polymer feed pumps.

3.3 OPERATION DEMONSTRATION

- A. **Manufacturer's Field Services:** Furnish the services of a qualified representative of the manufacturer to demonstrate the proper operation and instruct plant personnel in the equipment's operation and maintenance.

PRICING SHEET

TOTAL PRICE PER MACHINE \$ _____ X 2 MACHINES

TOTAL BID \$ _____

SUBMITTED BY:

NAME

TITLE

COMPANY

DATE

**ALL QUESTIONS PERTAINING TO THIS BID MUST BE RECEIVED IN WRITING
AND SENT TO SHAYNA J. JOHNSON, PURCHASING AGENT
(SJOHNSON@HOPEWELLVA.GOV).**