

AUGUSTA COUNTY SERVICE AUTHORITY

18 Government Center Lane
P. O. Box 859
Verona, Virginia 24482-0859



REQUEST FOR SEALED BIDS Wastewater Screening Equipment

ITB No. 2102

Issue Date: September 21, 2020

Sealed Bids, subject to the conditions and instructions attached hereto, will be received at the above office until, but not later than **3:00 o'clock p.m. local Verizon time, October 6, 2020**, then publicly opened, for furnishing the specified wastewater screening equipment, delivery/transportation to be F.O.B., to the treatment plants for the Augusta County Service Authority (OWNER).

ITB questions: Casey McCracken, Purchasing Officer - 540-245-5680 - email cmccracken@co.augusta.va.us

Technical questions: Timothy Castillo, Director of Treatment Operations— 540-487-8263 - email tcastillo@co.augusta.va.us

Notes: 1. Bids are to include delivery, F.O.B. delivery site in Augusta County.
2. **EMAIL or FAX** Bids will **NOT** be accepted.

Terms: _____% _____ days

Company: _____

Address: _____

City: _____

Phone No. (____) _____

Official Signature: _____

Printed Name: _____

Title: _____

Date: _____

Email Address: _____

THIS COMPLETED PAGE MUST BE INCLUDED WITH YOUR BID SUBMITTAL

GENERAL TERMS AND CONDITIONS

- 1. PRECEDENCE OF TERMS:** In the event there is a conflict between the general terms and conditions and any special terms and conditions which may be included in this solicitation, the special terms and conditions shall apply.
- 2. CLARIFICATION OF TERMS:** If any prospective Bidder has questions about the specifications or other solicitation documents, the prospective Bidder should contact the Technical person whose name appears on the first page of the Invitation to Bid, no later than five (5) days before the opening date. Any revisions to the solicitation will be made only by addendum, issued by OWNER.
- 3. ADDENDA:** In the event there are any addenda, they will be posted to the OWNER's website at www.acsawater.com/bids. It is the Bidder's responsibility to check the website prior to the submittal deadline to ensure that the Bidder has a complete, up-to-date package.
- 4. PAYMENT TERMS:** Payments will be made upon verification of delivery and receipt of materials. All pay requests and supporting documentations must be approved by OWNER and will be submitted for payment in accordance with OWNER's payment policies. Approvals for payment under this procurement will be by the OWNER's designated technical representative, or their designee, as noted on Page 1 of this solicitation.
- 5. QUALIFICATIONS OF BIDDERS:** OWNERS may make such reasonable investigations as deemed proper and necessary to determine the ability of the Bidder to perform the work and the Bidder shall furnish to OWNER all such information and data for this purpose as may be requested. OWNER reserves the right to inspect Bidders physical facilities prior to award to satisfy questions regarding the Bidders capabilities. OWNER further reserves the right to reject any proposal if the evidence submitted by, or investigations of, such Bidder fails to satisfy OWNER that such Bidder is properly qualified to carry out the obligations of the contract and to complete the work/furnish the item(s) contemplated therein.
- 6. ASSIGNMENT OF CONTRACT:** A contract shall not be assignable by the Bidder in whole or in part without the written consent of OWNER.
- 7. ANTI-DISCRIMINATION:** By submitting their proposals, all Bidders certify to OWNER that they will conform to the provisions of the Presidential Order #11246, the Federal Civil Rights Act of 1964, as amended, as well as the Virginia Fair Employment Act of 1975, as amended, where applicable, and Section 2.2-4311 of the Virginia Public Procurement Act and that during the performance of this contract, the Bidder agrees as follows:

The Bidder will not discriminate against any employee or applicant for employment because of race, religion, color, sex, national origin, age, disability, or any other basis prohibited by the state law relating to discrimination in employment, except when there is bona fide occupational qualification reasonably necessary to the normal operation of the Bidder. The Bidder agrees to post in conspicuous places, available to employees and applicants for employment, notices setting forth the provisions of this nondiscrimination clause.

Notices, advertisements and solicitations placed by or on behalf of the Bidder will state that such contractor is an equal opportunity employer.

Notices, advertisements and solicitations placed in accordance with federal law, rule or regulation shall be deemed sufficient for the purpose of meeting the requirements of this section.

The Bidder will include the provisions of the foregoing paragraphs in every subcontract or purchase order of over \$10,000, so that the provisions will be binding upon each subcontractor or vendor.

- 8. NONDISCRIMINATION AGAINST FAITH-BASED ORGANIZATION:** In accordance with the Personal Responsibility and Work Opportunity Reconciliation Act of 1996, P.L. 104-193, the OWNER will not discriminate against faith-based organizations. The bidder also agrees to abide by § 2.2-4343.1 of the Virginia Public Procurement Act.
- 9. MINORITY AND WOMEN-OWNED BUSINESSES:** In accordance with Presidential Executive Orders #12138 & #11625 OWNER actively solicits both minority and women-owned businesses to respond to all Invitations to Bid and Requests for Proposal, and if not already on the Authority's mailing list, you may request application for inclusion on the list. Should you be interested, please contact the Authority at (540) 245-5670 and request information.

Disadvantaged business enterprises (DBE), as defined in 49 CFR 23, shall have equal opportunity to compete for and perform subcontracts which the contractor enters into pursuant to this contract. The contractor will use his best efforts to solicit bids from and to utilize DBE subcontractors or subcontractors with meaningful minority group and female representation among their employees.

- 10. DRUG-FREE WORKPLACE:** During the performance of this contract, the Contractor agrees to (i) provide a drug-free workplace for the contractor's employees; (ii) 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 violation of such prohibition; (iii) state in all solicitations or advertisements for employees placed by or on behalf of the contractor that the contractor maintains a drug-free workplace; and (iv) include the provisions of the foregoing clauses in every subcontract or purchase order of over \$10,000, so that the provisions will be binding upon each subcontractor or vendor.

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 in accordance with this chapter, 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.

- 11. ETHICS IN PUBLIC CONTRACTING:** By submitting their proposals, all Bidders certify that their proposals are made without collusion or fraud and that they have not offered or received any kickbacks or inducements from any other Bidder, supplier, manufacturer or subcontractor in connection with their proposal.
- 12. PUBLIC INSPECTION OF PROCUREMENT RECORDS:** Proposals submitted shall be subject to public inspection only in accordance with Virginia Code § 2.2-4342.
- 13. COSTS OF PROPOSAL PREPARATION:** Any costs incurred by the Bidders in preparing or submitting proposals are the Bidders' responsibility. OWNER will not reimburse any Bidder for any costs incurred as a result of a response to this Invitation to Bid.
- 14. OWNERSHIP OF MATERIAL:** Ownership of all data, material and documentation originated and prepared for OWNER, including any electronic media, shall belong exclusively to OWNER and be subject to public inspection in accordance with the Virginia Freedom of Information Act. Trade secrets or proprietary information submitted by a Bidder shall not be subject to public disclosure under the Virginia Freedom of Information Act; however, the Bidder must invoke the protection of this section prior to, or upon submission, of the data or other materials, and must identify the data or other materials to be protected and state the reasons why protection is necessary to the extent that such protected material is separately packaged and so identified in the Bid Submittal envelope.

15. CANCELLATION OF CONTRACT: Unless otherwise specified in the ITB, the OWNER may terminate the resulting contract for its convenience upon thirty (30) days written notice to the Bidder. The Bidder shall not be paid for any service rendered or expense incurred after receipt of such notice except such fees and expenses incurred prior to the effective date of termination that are necessary for curtailment of the Bidder's work under this contract.

16. INSURANCE COVERAGE: Unless otherwise specified in the ITB, the Bidder shall maintain the following insurance to protect it from claims under the Workmen's Compensation Act, and from any other claims for personal injury, including death, and for damage to property that may arise from operations under the Contract, whether such operations be by itself or by any subcontractor, or anyone directly or indirectly employed by either of them.

<u>TYPE OF COVERAGE</u>	<u>LIMITS</u>
Workers' Compensation and Employer's Liability including coverage under United States Longshoremen's and Harbor Worker's Act where applicable	Statutory, including Employer's Liability of \$100,000.00 Each Accident \$500,000.00 Disease-Policy Limit \$100,000.00 Disease-Each Employee
Comprehensive General Liability endorsement coverage.	Including the Broad Form C.G.L.
Premises – Operations Bodily Injury Liability and Property Damage Liability Combined	\$500,000 Each Occurrence \$1,000,000 Aggregate
Automobile Bodily Injury Liability and Property Damage Liability Combined covering all automobiles, trucks, tractors, trailers, or other automobile equipment, whether owned, non-owned, or hired by the Bidder	\$500,000 Per Accident
Umbrella/Excess Liability	\$1,000,000 Each Occurrence \$2,000,000 Aggregate

The Bidder shall purchase and/or maintain insurance coverage on his tools, equipment and machinery and shall waive subrogation to the OWNER for damage thereto.

The OWNER reserves the right to require insurance of any Bidder in greater amounts provided notice of such requirements is stated in the Solicitation.

17. OBLIGATION OF BIDDER: By submitting a proposal, the Bidder covenants and agrees that he has satisfied himself, from his own investigation of the conditions to be met, that he fully understands his obligation and that he will not make any claim for, or have right to cancellation or relief from the contract because of any misunderstanding or lack of information.

18. UNAUTHORIZED ALIENS: In accordance with Virginia Code § 2.2-4311.1. Compliance with federal, state, and local laws and federal immigration law requires that the contractor does not, and shall not during the performance of any awarded contract, knowingly employ an unauthorized alien as defined in the federal Immigration Reform and Control Act of 1986.

19. COOPERATIVE PROCUREMENT

- i. This procurement is being conducted on behalf of the OWNER in accordance with the provisions of §2.2-4304 of the Virginia Public Procurement Act.
- ii. If approved by the bidder, the contract resulting from this procurement may be used by other public bodies to purchase at contract prices and in accordance with the contract terms. The bidder shall deal directly with any public body it approves to use the contract. Failure to extend a contract to another public body will have no effect on consideration of bidder's bid/proposal.
- iii. With the approval of the bidder, any public body using the resultant contract has the option of executing a separate contract with the bidder to add terms and conditions required by statute, ordinances, or regulations, or to remove terms and conditions which conflict with its governing statutes, ordinances, or regulations.
- iv. The OWNER, its officials and staff are not responsible for placement of orders, invoicing, payments, contractual disputes, or any other transactions between the bidder and any other public bodies, and in no event shall the OWNER, its officials or staff be responsible for any costs, damages or injury resulting to any party from use of an OWNER contract. If, when preparing such a contract, the additional terms and conditions of a public body seeking to purchase pursuant to cooperative procurement are unacceptable to the bidder, the bidder may withdraw its consent to extension of the contract to that particular public body.
- v. The OWNER assumes no responsibility for any notification of the availability of the contract for use by other public bodies, but the bidder may carry out such notification.

SPECIAL TERMS AND CONDITIONS

- A. AWARD:** The OWNER reserves the right to reject any or all bids, to waive informalities in any bid, to purchase any whole or part of the items listed in the bid, and the right to award either to the lowest bidder per item or to the bidder who submits a bid for all items, with one Grand Total, in lieu of the lowest bidder, item-by-item as deemed to be in the best interest of the Authority.
- B. AWARD CRITERIA:** The contract will be awarded to the lowest responsive and responsible bidder in accordance with section A above.
- C. AVAILABILITY OF FUNDS:** It is understood and agreed between the parties herein that OWNER shall be bound hereunder only to the extent of the funds available or which may hereafter become available for the purpose of this agreement. Unless canceled or rejected, a responsive bid from the lowest responsible bidder shall be accepted as submitted, except that, if the bid from the lowest responsible bidder exceeds available funds, the OWNER may negotiate with the apparent low bidder to obtain a contract price within available funds in accordance with Terms and Conditions, Item K, below.
- D. BID ACCEPTANCE PERIOD:** Any bid in response to this solicitation shall be valid for (60) days. At the end of (60) days the bid may be withdrawn at the written request of the bidder. If the bid is not withdrawn at that time it remains in effect until an award is made or the solicitation is canceled.
- E. BID PRICES:** Bids shall be in the form of a firm unit price for each item.
- F. DELIVERY AND STORAGE:** It shall be the responsibility of the bidder to make all arrangements for delivery and unloading of materials at the designated receiving areas. Deliveries must be made during normal working hours (8:00 am - 4:00 pm, local time), Monday through Friday.

G. EXTRA CHARGES NOT ALLOWED: By submitting their (bids/proposals), all (bidders/offerors) certify and warrant that the price offered for *F.O.B. destination* includes only the actual freight rate costs at the lowest and best rate and is based upon the actual weight of the goods to be shipped. Except as otherwise specified herein, standard commercial packaging, packing and shipping containers shall be used. All shipping containers shall be legibly marked or labeled on the outside with purchase order number, commodity description, and quantity.

H. IDENTIFICATION OF BID/PROPOSAL ENVELOPE: The signed bid/proposal should be returned in a separate envelope or package, sealed and identified as follows:

<u>ITB No 2102</u> <u>Screening Equipment</u>		
From: _____	<u>October 6, 2020</u>	<u>3:00 PM</u>
Name of Bidder	Due Date	Time Due

Street or Box Number		

City, State, Zip Code		
ATTN: <u>Casey McCracken, Purchasing Officer</u>		

The outer (or delivery envelope) should be addressed as directed on Page 2, second bullet of the solicitation.

If a bid/proposal not contained in the special envelope is mailed, the bidder takes the risk that the envelope, even if marked as described above, may be inadvertently opened and the information compromised which may cause the bid or proposal to be disqualified. Bids/proposals may be hand delivered to the designated location in the office issuing the solicitation. No other correspondence, other than bid documents, should be placed in the inner envelope.

I. PRODUCT INFORMATION: The Bidder shall clearly and specifically identify the product being offered and enclose complete and detailed descriptive literature, catalog cuts and specifications with the bid to enable OWNER to determine if the product offered meets the requirements of the solicitation. Failure to do so may cause the bid/proposal to be considered nonresponsive.

J. SITE DAMAGES: Any damage to existing utilities, equipment or finished surfaces resulting from the Bidder's performance of this contract shall be repaired to OWNER's satisfaction at the bidder's expense.

K. NEGOTIATION WITH THE LOWEST BIDDER: Unless all bids are cancelled or rejected, OWNER 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 OWNER'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 OWNER for this contract prior to the issuance of the written Invitation to Bid. Negotiations with the low bidder may include both modifications of the bid price and other items required to be performed. The OWNER 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 OWNER and the lowest responsive, responsible bidder(s).

**ATTACHMENT A
SPECIFICATIONS**

**VERONA PUMPING STATION @ MIDDLE RIVER WWTP
848 LAUREL HILL RD, VERONA VA 24482**

PEAK FLOW 8 MGD, 5FT TOTAL DEPTH, 1/4" BAR SPACING, 304L STAINLESS STEEL, HYDRAULIC MOTOR

SELF CLEANING FINE BAR SCREEN AND SCREENINGS RAM PRESS

PART 1.00 - GENERAL

1.01 **SUMMARY**

- A. The Bidder shall furnish, and following Owner installation, inspect and place into satisfactory operating condition one (1) mechanical fine bar screen and one (1) ram press for separating solid, semi-solid debris and floating matter from raw sewage as shown on the Shop Drawings and described in the Specifications.

1.02 **REFERENCES**

- A. American Institute of Steel Construction (AISC)
- B. American Society of Testing and Materials (ASTM)
- C. American Society of Civil Engineers (ASCE)
- D. American Welding Society (AWS)
- E. Steel Structures Painting Council (SSPC)

1.03 **SYSTEM DESCRIPTION**

- A. The equipment specified herein is intended to be standard equipment for use in a screenings application specifically to separate solid, semi-solid debris and floating matter from raw sewage. The equipment specified under this Section shall include an automatically cleaning fine bar screen, a hydraulic ram press, discharge pipe from the ram press, and a control panel to manage the equipment for manual and automatic operation.

The scope of equipment supplied must convey the screenings out of the channel to the top of the structure elevation, compact the screenings, and discharge them into an adjacent screenings receptacle. The frequency of lifting the screenings shall be normally controlled by differential level control. This level mode of operation may be overridden by a timer control or manual control.

- B. Design summary:
Mechanical Fine Bar Screen

1. Number of Units	1
2. Channel width, inches	2'4"
3. Channel depth, inches	5'3"
4. Flow Rate, MGD	
Maximum	8.0 MGD
Average	2.0 MGD
Minimum	0.1 MGD
5. Bar width, inches	1/8
6. Clear spacing between screen bars, inches	1/4
7. Maximum differential head cross screen, inches	18
8. Maximum Motor size, HP	1.5
9. Motor type	TEFC

Ram Press

1. Quantity	1
2. Feed Solids Concentration, dry solids	15-25%
3. Nominal Pressing Zone Diameter, inches	8
4. Nominal Discharge Pipe Diameter at press, inches	8

- C. All mechanical equipment shall be provided with a substantial stainless-steel nameplate, mechanically fastened with stainless steel hardware in a conspicuous place, clearly inscribed with the manufacturer's name, year of manufacture and serial number.

1.04 PRODUCT HANDLING

- A. It shall be necessary to protect the screen system materials from all other Contractors before, during, and after installation. In the event of damage, immediately make all repairs and replacements necessary to the approval of the Owner and at no additional cost to the Owner or manufacturer.

1.05 PERFORMANCE

- A. The fine bar screen shall be designed to handle the maximum flow rate as noted in paragraph 1.03.B.
- B. The fine bar screen shall consist of a stationary step-type bar screen, operated by an electric motor. The screen shall operate via a series of stationary and elliptically rotating screen bars which are actuated to remove debris from the screen surface.
- C. The operation of the screen shall be automatically initiated based on the differential raw water level up and downstream of the screen. The fine bar screen shall give a closed-circuit path for a self-cleaning movement across the entire surface of the screen, in accordance with the principle of counter-flow.
- D. The ram press shall be sized to match the screen discharge and shall convey the screenings into a screenings container.

1.06 POST AWARD SUBMITTALS

- A. Shop Drawings

Prior to screen system fabrication, the successful Bidder shall submit one (1) electronic copy of complete Shop Drawings for the screenings and press unit showing all dimensions, materials, hook-ups, installations, and any available or necessary information requested by the Owner.

1.07 QUALITY ASSURANCE

- A. In order to assure uniform quality, ease of maintenance and minimal parts storage, it is the intent of these Specifications a single manufacturer shall supply all equipment called for under this Section.
- B. It is the Bidder's responsibility to ensure the installation of the screen shall fit as designed. The Owner will hold the Bidder responsible for inspection and startup following Owner installation. Complete Shop Drawings for the screen, ram press, and all items associated in this Section shall be provided for approval.
- C. No equipment shall be supplied by any manufacturer not regularly engaged in the manufacturing and production of fine bar screen equipment designed for use in wastewater treatment. The manufacturer must have installed and had in satisfactory use a minimum of fifty (50) installations of similar type comparable to the units specified. Only U.S. installations will be acceptable as meeting the experience requirement.

- D. The term "installations" shall mean individual projects/contracts. Multiple equipment units for a project shall be considered as one (1) installation toward meeting the experience requirements.
- E. Bids from manufacturers lacking the experience requirements, but meeting all technical and performance requirements of the Specifications, can be considered if the manufacturer provides a satisfactory three (3) year maintenance bond in lieu of evidence of experience and operation. Maintenance bond shall be for the replacement value of the equipment. The bonding company shall have a policy-holder rating of A+ and a financial rating of "Class XV" in the most recent edition of "Best Key Rating Guide". The bonding company shall be licensed to do business in the state of installation.

PART 2.00 - PRODUCTS

2.01 MATERIALS AND EQUIPMENT

- A. Materials and equipment shall conform to the respective publications and other requirements specified and shall be the standard products of a manufacturer regularly engaged in the manufacture of the products:

1. Steel	ASTM A 36/A 36M
2. Cast Steel	ASTM A 27/A 27M
3. Cast Iron	ASTM A 48, Grade 30

2.01.1 Materials

- A. The screen, step blade packages, frame, sole plate, link mechanisms, blade cross pieces, drive console and covers shall be constructed from minimum Type 304 stainless steel. The entire screen assembly shall be full immersion passivated after the completion of all welding, machining, and fabricating.
- B. Unless otherwise stated above, specified or permitted, the materials used in the fabrication of the equipment under this section shall conform to the following:

1. Chutes	AISI 304 stainless steel
2. Troughs, End Plates, Covers	AISI 304 stainless steel
3. Supports	AISI 304 stainless steel
4. Hoppers	AISI 304 stainless steel
5. Bolt, Nuts, and Washers	304 stainless steel
Supports, trough, lids & drive	

2.02 SCREENING EQUIPMENT

2.02.1 Mechanically Cleaned Fine Bar Screen Description

- A. The bar screen shall consist of a stationary step-type screen, operated by an electric drive unit. The screen shall operate via a series of stationary and elliptically rotating screen bars which are actuated to remove debris from the screen surface. All metal components, except motors, driveshaft and bearing housings, shall be Type 304 stainless steel. The screen system shall include a screw ram press to collect the screenings from the step screen, discharge piping, supports, anchors and all associated equipment. The screen system shall be automatically controlled based on the differential raw water level in the influent channel before and after the screen. Being named or bidding as an equal does not relieve the manufacturer of meeting the requirements specified herein of this Section.
- B. The manufacturer selected must stock parts domestically, including screen bars, drive motors and gearboxes which can be delivered from stock.

- C. The manufacturer shall supply the screen channel with the maximum screening area available. All structural steel shall be Type 304 stainless steel with a minimum thickness of 0.20 inch. The screen step blade packages and frame shall be mounted within and above the sewage channel. Easy access shall be provided for maintenance of the screen from the front and sides of the unit by employing a pivoting mechanism out of the channel.
- D. A control system shall be provided to control the motor in the manner indicated in section 2.02.8. Motor controls shall be coordinated with the associated motor and shall have properly sized thermal-overload protective elements or IDEC trips. Except where otherwise indicated, starters shall be provided in weatherproof / explosion-proof, Class I, Division II, enclosures. The step screen motor shall be submersible proof, isolated from the channel, and shall be fully enclosed in a Type 304 stainless-steel housing.

2.02.2 Self Cleaning Step Screen Requirements

- A. The step screen shall comprise a screen with multiple fixed-parallel and movable bars which are arranged in a plane, 50 degrees inclined downwards into a flow of water. The movable bars shall be interconnected in parallel to at least one package of fixed bars, with the blade edges turned into the wastewater flow. Movement is caused by a drive mechanism which brings about a closed, circular path in the plane of the bars, including a vertical movement component surpassing the step height of the bars. The bars must be a minimum thickness as specified bar width indicated in section 1.03.B, and shall have a contoured hook design; flat steps shall not be allowed.
- B. Blades shall have a flexible (non-rigid or attached) bottom step to assure passage of flushing sand. The bottom step mechanisms must actuate with each step action and prevent any opening greater than the specified spacing of the screen from being exposed. The flap mechanism must move with each step automatically and shall pump grit from under the feet of the bars to prevent jamming. Manual flap mechanisms shall not be allowed.
- C. The fine screen must give a closed-circuit path for a self-cleaning movement across the entire surface of the screen, in accordance with the principle of counter-flow. Cleaning shall be accomplished without any additional rinsing, external cleaning, brushes, wipers, or other mechanical equipment. Saw teeth may be provided on the back of each blade to prevent jamming by providing a cutting action of any attached material.

2.02.3 Screen Blades

- A. The bars of the screen shall be accurately set and have plastic spacers to provide a consistent clearance throughout the entire step cycle. The bars shall be step shaped with replaceable spacers.
- B. The bars shall be contoured in shape, forming a hook from the foot of the step to the base. Bars with flat, right-angled steps shall not be allowed.
- C. The bars shall be a minimum thickness as specified bar width indicated in 1.03.B. Additional bars shall not be bolted to the bottom of the stationary and movable bars. The bars shall not be attached to the sole plate which allows flexibility of the bars to move from side to side. The bottom-hinged part of the movable bar package shall provide the required flexibility via the stainless linkage.

2.02.4 Sole Plate

- A. A mechanically actuated bottom step shall be provided and actuate with each step of the screen. This flap mechanism shall create a flushing system to prevent sand and grit from accumulating under the footing of the bars at the bottom of the screen. Screens without this bottom step, including manual actuated bottom steps or thick, solid bottom steps, shall not be considered.

- B. The sole plate shall be level with the horizontal plane and it shall neither be attached to the concrete floor nor to the channel walls by way of using anchor bolts.

2.02.5 Link Mechanism

- A. The drive mechanism shall be contained on both sides of the fine bar screen. The drive sprockets, shafts, bearings, motors, gear reducers and other moving mechanisms must be located above the access slab. The components shall be accessible from the front of the screen to allow for ease of maintenance.
- B. Link mechanisms (one on each side) shall consist of two rigid arms. Glide bearings shall be used at the lower end and ball bearings at the upper end. All bearings must be sealed, and automatic oilers shall not be allowed. Chain or sprocket drive mechanisms shall not be allowed. The link mechanisms (one at each side) shall each consist of the bearing eccentric, bar, and two links with glide bearings at the lower end of the bar and a ball bearing at the upper end. The link mechanism shall include a first link running between a fixed point in the strainer and the bottom end of the connecting bar, and a second link running between the bottom end of the connecting bar and an attachment at the bottom end of the movable blade package.
- C. The screen shall never see an opening greater than the specified clear spacing indicated in 1.03.B, including the bottom of the screen when in operation.

2.02.6 Frame

- A. The frame shall accommodate the step blade packages, blade cross pieces, link mechanisms, and drive unit including shaft, gears and motors.
- B. The frame shall be accurately set into position into the channel and shall anchor securely into place through fixing the support legs to the channel top. The screen shall be set at 50 degrees to the horizontal. The frame facing the flow stream shall be vertical and shall not present any additional restriction to influent flow entering the screen. Rubber side seals shall be bolted to the front vertical side plates of the frame to direct flow into the screen surface.
- C. The frame sides shall be fully bolted to the sole plate, bar cross pieces and the drive console. The frame sides shall form the supports for removal of the cover panels at the sides, front and back of the screen.
- D. Frame components shall be a minimum thickness of 0.20-inch stainless steel.

2.02.7 Drive Unit

- A. The selected drive unit shall be suitably and continuously rated to match the duty of the screen. The drive unit shall be directly coupled to the screen drive shaft through the gearbox.
- B. A facility shall be incorporated within the drive unit console mounting arrangement to enable the movable blade package to be correctly and accurately positioned across the screen frame and without the necessity for any special tools.
- C. The screen shall be equipped with an overload amp draw protection, which shall be activated in the detection of a blockage of the screen. The overload device shall actuate an alarm condition at the screen control panel.
- D. The drive unit shall be designed to stay out of the flow, with all connections out of possible danger of submergence. The only allowable connection to the drive unit will be a stainless-steel bar link. Only one link will be allowed on each side of the screen.

- E. Equipment above the level of the sewage-carrying channel shall be fully enclosed in a Type 304 stainless-steel housing. The housing shall be provided with a sufficient number of doors or removable panels to ensure ready access to any part of equipment for repairs, replacements, or cleaning. All joints in the housing or between the housing and the concrete foundation shall be made leak-proof.

2.02.8 Step Screen Control System Requirements

- A. The electrical control system shall provide for automatic control of the screen and press by a float switch and/or ultrasonic high liquid level control system in connection with an adjustable time clock to provide a variable time between cleaning operations.
- B. The controls shall be housed within an AISI 304 stainless steel NEMA 4X enclosure, UL listed, and manufactured in the United States.
- C. All controls necessary for the fully automatic operation of the screen shall be provided.
- D. The drive unit and monitoring devices are wired internal to the machine.
- E. There shall be a minimum of a fused disconnect switch, Hand-Off-Automatic control switch, power overload protection device, run lights and warning lights, motor starter, and elapsed time meter.
- F. The step screen shall be at rest in its initial position. The step screen travels one revolution and returns to rest in its initial position. A latching relay returns the screen to its original position once it makes a revolution.
- G. At no time shall it be possible to run the screen backwards during maintenance by reversing motor loads.

2.02.9 Screening Performance

- A. To be considered, each screen supplier shall demonstrate average total solids and volatile solids removal efficiencies as listed below under the listed raw influent conditions for a 1/8-inch screen. The screen supplier shall be capable of removal rates with the screen of the below table from actual pilot work with a step screen performed by the supplier.

	Minimum	Maximum	Average
Raw WWTP Influent			
Total Solids	400 mg/l	900 mg/l	600 mg/l
Required Pilot Screen Performance			
Solids Capture	100 lb/MGD	500 lb/MGD	275 lb/MGD
Volatile Solids Removal	10%	26%	15%

2.02.10 Float Switch Control and/or Ultrasonic Level Sensor

- A. A float switch and/or ultrasonic level sensor shall be supplied, as specified in the Shop Drawings.
- B. Devices Summary
 - 1. A float switch may be used to control the head differential across the screen. The set point for the level sensor shall be continuously adjustable over the full range of water level possible in the influent channel. Adjustment of sensor set points shall be made at the float switch hanger.

2. An ultrasonic level sensor may be mounted directly above the influent channel up and downstream of the bar screen to monitor differential across the screen. The sensors may be mounted in such a location that it is easily accessible for service and never come into contact with raw wastewater. The sensor shall be enclosed in a weatherproof enclosure and provided with an aluminum sun shield. The ultrasonic level sensor shall have two ultrasonic transducers, one upstream of the screen and one downstream of the screen. Stainless steel ultrasonic level sensors wall brackets and stainless-steel concrete anchor bolts shall be supplied with each stainless-steel wall bracket.

The set point for the level sensor shall be continuously adjustable over the full range of water level possible in the influent channel. Adjustment of sensor set points shall be at the differential level transmitter.

2.02.11 Cleaning Mechanism, Wash Water System, and Transport Area

- A. The step-screen shall be self-cleaning. No cleaning mechanism shall be required, including brush or flushing devices at the discharge point(s). A Type 304 stainless steel spray bar and bronze ½ inch solenoid valves may be supplied over the steps of the screen. The spray shall be controlled automatically from the step screen control system.
- B. Screens that require influent to pass through more than one set of screening media shall not be considered. Screens which employ a circular moving media that pass through the flow and in the direction of flow to screen debris and then move backwards against the direction of flow to the return position shall not be considered. Screens using step like porous plating with circular holes will not be permitted.
- C. Screens that operate with the possibility of trapping screenings or other materials between screening media will not be permitted. No screen will be considered that has a cross bar for support anywhere in the screening system in the flow except at the absolute top and bottom of the screen frame.

2.02.12 Discharge Hopper

- A. A rectangular stainless-steel inlet hopper for solids, which feeds into the ram press, shall be included. The inlet hoppers shall have dimensions as shown on the Shop Drawings. The hopper shall be mounted to the top of the inlet chamber. Sloping sides shall funnel the screenings into the compacting area.
- B. Removal of the hopper shall not be required to rotate the screen from the channel for maintenance.
- C. The hopper shall be a minimum of Type 304 stainless steel.

2.03 RAM PRESS GENERAL

The screening press shall be manufactured by the chosen manufacture and supplied with their step screen and controls.

2.03.1 Equipment Description

The hydraulic press ram shall consist of a 10" I.D. diameter stainless steel cylinder. The ram shall press through a horizontally mounted 304 stainless steel inlet chamber and a 304 stainless steel compression/dewatering zone to discharge flange. The press section shall be supported by a fixed rear ram housing and an adjustable front support for the purpose of press inclination.

The pressing zone shall be supplied with perforation for drainage of water to the influent channel. The press shall be furnished with a flanged stainless-steel dewatering chamber mounted to compression/dewatering zone to drain expelled water to the influent channel. A hydraulic cylinder shall be fitted within the press

ram and affixed to the rear of the ram housing. The hydraulic cylinder shall be protected from drainage water by a wiper seal between the press section and the ram housing. The hydraulic cylinder shall be fixed to the press ram by link bearings enabling the ram to apply pressure to the screenings.

2.03.2 Hydraulic Power Pack

The hydraulic power pack unit consisting of a hydraulic gear pump and a 4.0 HP, 480 Volt, 3 Ph, 60 HZ TEFC motor shall drive the hydraulic cylinder. The hydraulic power pack shall be self-contained with a minimum 12 gallon capacity stainless steel oil tank, 0 - 3000 psi pressure gauge, pressure limiting valve, and reciprocating valve. Movement of the hydraulic cylinder shall be actuated by pressure regulation of the reciprocating valve. The oil recirculation system shall be equipped with a replaceable oil filter system. Two (2) 6' long standard hydraulic hoses shall connect the power pack to the cylinder. The reversing valve shall operate off flow of oil, not from pressure.

2.03.3 Press Control System

- A. The press control mode is selected with the press HAND-OFF-AUTO switch. In the HAND position, the ram press shall operate if control power is on and the overload has not tripped. The PRESS RUNNING light will come on at any time the ram press is running. The MOTOR PROTECTION TRIPPED light will come on at any time the press overload has tripped. In the OFF position the press will not operate. In the AUTO position, the press will operate automatically if control power is on and the overload has not tripped.

PART 3.00 - EXECUTION

3.01 INSTALLATION

All equipment and materials specified herein shall be properly installed, free from defect, in strict accordance with the manufacturer's instructions and Shop Drawings. The installation shall include all materials, equipment, piping, equipment wiring, power source connections, switches, relays, fittings, miscellaneous controls and all items necessary for the proper operation of the fine bar screen and press, whether or not specifically detailed herein or shown on the plans. No consideration shall be given for extra payment for necessary and obvious appurtenances due to omission of such in plans and Specifications.

- A. All electric motors shall be checked for proper rotation. All electric motor driven equipment shall be checked for proper amperage draw under full load conditions. A tabulation shall be made of all tests and the results submitted to the Owner.
- B. All welds shall be continuous unless otherwise specified. Facing surfaces of bolted joints shall be shop primed. Facing surfaces of field welded components shall be beveled and match marked.
- C. Sharp corners of all cut and sheared edges shall be made smooth.
- D. All iron and mild steel surfaces to be painted shall be dry abrasive blasted in accordance with SSPC-SP6. Surfaces shall be painted within 24 hours to prevent rusting and surface discoloration. Stainless steel shall be cleaned with mild abrasive wheels and/or nonferrous blast media to remove heavy scale and welding carbon.
- E. Concrete for foundations shall be as specified in the Shop Drawings. Mechanical screen shall fit within the existing channel without retrofit.
- F. All non-stainless steel equipment shall be thoroughly cleaned, primed, and given two finish coats of paint at the factory in accordance with the recommendations of the manufacturer. Bidder shall coordinate colors, finishes and field painting with the Owner.

3.02 OPERATION AND MAINTENANCE (O&M) MANUALS

- A. O&M manuals shall contain complete information including assembly, operation, lubrication, adjustment, and maintenance instructions.
- B. O&M manuals shall include instructions, equipment ratings, technical bulletins, and any other printed matter such as wiring diagrams and schematics, prints or drawings, containing full information required for the proper operation, maintenance, and repair of the equipment. Included be a spare parts diagram, complete spare parts list, bill of materials, OEM part numbers and manufacturer's catalog information of all equipment components.

3.03 WARRANTY AND GUARANTEE

- A. The manufacturer shall warrant all parts to be free from defects in materials and workmanship for a period of one (1) year after installation. A letter shall be required from the manufacturer's technical representative documenting dates and results of specified inspections, initial operation and testing of equipment. All defects covered by warranty shall be furnished, shipped and installed at no charge to the Owner.

END OF SECTION

Mount Sidney WWTP
2075 Lee Hwy, Mount Sidney VA 24467
Peak Flow 0.7 MGD, 41" Total Depth, 3/8" Bar Spacing, 304L Stainless Steel

MECHANICALLY CLEANED SCREENS WITH INTEGRATED
WASHER/COMPACTOR AND APPURTENANCES

PART 1 - GENERAL

1.01 DESCRIPTION

- A. Provide and test mechanically cleaned screen, washer/compactor motors, controls and appurtenances as indicated and specified.
- B. The screen, washer/compactor and control panels shall be a complete factory manufactured unit.

1.02 REFERENCES SPECIFICATIONS, CODES, AND STANDARDS

- 1. American Gear Manufacturers Association (AGMA)
- 2. National Electrical Manufacturers Association (NEMA)
- 3. American Federation of Bearing Manufacturers Association (AFBMA)
- 4. American Society for Testing and Materials (ASTM)
- 5. Underwriters Laboratory

1.03 POST AWARD SUBMITTALS

- A. Submit the following shop drawings:
 - 1. Certified shop and erection drawings. Bidder shall submit electronic files of the proposed equipment in the capacity, size, and arrangement as indicated and specified.
 - 2. Drawings showing materials of construction, thicknesses, operating and maintenance envelope and assembly weight.
 - 3. Hydraulic calculations verifying compliance to the design criteria.
 - 4. Shop drawing data for accessory items.
 - 5. Operating and maintenance instructions and parts lists.
 - 6. List of recommended spare parts other than those specified in the item 6 above.
 - 7. Shop and field-testing procedures, set up and equipment to be used.
 - 8. List of special tools required.
 - 9. Gear reducer data including service factor, efficiency, torque rating and materials.
 - 10. Schematic control and power wiring diagrams including interconnecting and internal wiring diagrams.
 - 11. Control panel drawings.
 - 12. Equipment weight and lifting points for installation and removal purposes.

13. Number, size and weight of pieces shipped.

14. Material Certification:

- a. Provide certification from the equipment manufacturer that the materials of construction specified are recommended and suitable for the service conditions specified and indicated.

1.04 QUALITY ASSURANCE

- A. Equipment specified shall be the product of one (1) manufacturer.
- B. The Manufacturer of the vertical bar screen and integrated washer/compactor specified herein shall have had at least 50 successful installations of this type of equipment in order to be considered.
- C. Equipment specified shall be manufacturer's standard cataloged product and modified to provide compliance with the drawings, specifications and the service conditions specified and indicated.
- D. Shop tests as specified.
- E. Service of a factory-trained technician shall be provided and specifically trained on type of equipment specified.

Service technician shall be present on site for all items listed below:

1. Functional testing: calibrate, check alignment and perform a functional test.
 2. Field performance testing.
 3. Training: field operation and maintenance instruction including all materials, slides, videos and handouts.
 4. Any additional time required of the factory trained service technician to assist in placing the equipment in operation at no additional cost to the Owner.
- F. Electrical Equipment Labeling Requirements:
 1. Equipment control panel shall be a UL listed assembly.
 - G. Fabrication shall be in compliance with all applicable ASTM 967 standards.
 - H. Factory welding shall use shielded arc, inert gas, TIG method.
 - I. All stainless-steel subassemblies shall be acid passivated after welding for corrosion resistance and to provide a superior surface finish. The passivation shall be done by using an acid passivation paste in the weld and heat-affected areas and spray-on acid solutions elsewhere. After passivation, the weldments shall be thoroughly rinsed with clean water and allowed to air dry.

PART 2 - PRODUCTS

2.01 SYSTEM DESCRIPTION

- A. Screening system capacities and operating data shall be indicated.
- B. Screen shall be installed in the channel as specified and indicated.
- C. Service: Screen raw wastewater.
- D. Screen shall discharge to an integrated washer/compactor.
- E. The screen shall be capable of operating with the screen 30 percent blinded.

- F. Mechanically cleaned screen shall be front-clean, back-discharge, and installed in the existing channel without channel retrofit.
- G. Mechanically cleaned screen with submerged bearings that require regular maintenance are not acceptable.
- H. Mechanically cleaned screen with an inclination different from 90° is not acceptable.
- I. Mechanically cleaned screen without an integrated washer/compactor is not acceptable.
- J. Submerged moving sprockets are not acceptable.
- K. Multiple rake technology is not acceptable.
- L. The screen technology shall be straight bars. Perforated screen basket is not acceptable.
- M. The screen technology using a grappling bucket is not acceptable.

2.03 SCREEN CONSTRUCTION

A. General

- 1. Screen: Shall mechanically front-clean and back-discharge.
- 2. Mechanically-cleaned screen shall be front cleaning since the shovel rake shall remove debris from the upstream side of the screen.
- 3. Screenings shall be discharged on the downstream side of screen through discharge chute to an integrated washer/compactor.

B. Frame

- 1. Frame: Shall be constructed of type 304L stainless steel.
- 2. The side frames shall be suitably reinforced to support all loads imposed on the mechanism during operation, installation, assembly, or transportation.
- 3. The total frame length shall be 113”.
- 4. The total frame width shall be 15.74”.
- 5. Anchor support frames onto the operating floor shall be of type 304L stainless steel hardware.
- 6. Screen frame shall be supplied in one (1) piece.
 - A. Screen manufacturer representative shall approve screen frame field assembly.
- 7. Screen Enclosure: screen shall be fully enclosed above the operating floor with hinged access door.

C. Bar Rack and Baseplate

- 1. Material: Shall be of type 304L stainless steel.
- 2. The bar screen shall consist of rectangular 304L stainless steel bars.
- 3. The bar screen shall be firmly fastened at top and bottom.
- 4. Bar spacing shall be as specified. Provided screens shall be accurately constructed to provide a clear spacing of 3/8” between the bars.
- 5. The bars shall be straight and cover the full equipment width and extend 1’ above the bottom of the channel.

D. Dead Plate

1. Bar screens shall have a dead plate and stiffeners construct of type 304L stainless steel with a minimum thickness of 1/8" (3 mm).
2. The dead plate shall be 1/8" thick constructed of type 304L stainless steel plate and extend from the top of the bar screen to the point of discharge.

E. Discharge Chute

1. A discharge chute shall be added to divert screenings from screen to self-dumping hopper.
2. Material: Shall be of type 304L stainless steel, minimum thickness of 1/8".

F. Single Shovel Rake

1. The debris shall be removed from the bar screen by a 304L stainless steel single shovel rake assembly designed to mesh with the bar screen.
2. The single shovel rake shall consist of type 304L stainless steel teeth that penetrate the bar screens completely.

G. Scraper

1. A scraper assembly shall be installed to assist removing the debris from the shovel rake.
2. The scraper shall be type of 304L stainless steel and high-density polyethylene (HDPE) and shall penetrate completely in the shovel rake to insure effective debris removal.

H. Side Seals

1. To prevent bypass around the sides of the unit, seals shall be mounted on the upstream face of the screen and on each side of the unit.
2. The seals shall be secured in place by backing plates and constructed of type 304L stainless steel.

I. Anchor Bolts, Bolts and Nuts

1. Bolts, nuts, lock washers shall be of type 304L stainless steel.
2. Anchor bolts type shall be of type 304L stainless steel.

J. Drive Mechanism

1. The single shovel rake shall be mounted on one (1) sturdy strap resistant to any chemical agents and frost.
2. A pulley shall be used to transmit a rotational motion.
3. The strap shall be capable of lifting no less than 1,000 pounds.
4. The single shovel rake shall be guided by two (2) high-density polyethylene (HDPE) wheels.

5. Two (2) inductive proximity sensors shall be placed at the top of the equipment to command the sense of rotation.
6. The gravity and the weight of the shovel rake shall insure the closing motion.

K. Overload Protection

1. A sensor torque overload protection device shall stop the screen and start an alarm.
 - a. Contacts for screen failure shall be provided.

L. Freezing protection

1. A hot air blowing turbine shall be installed at the top of the mechanism to ensure normal operation during severe freezing conditions.
2. The turbine shall be controlled by a thermostat installed on the equipment which will kick ON the blower once the temperature is below the temperature set.

2.04 INTEGRATED WASHER/COMPACTOR

A. Washer/Compactor shall be installed as specified and indicated.

B. Service: Washer/Compactor shall reduce the volume of screenings. The volume reduction shall be at least 50% and shall have a dry solid concentration of at least 30%.

C. The captured solids shall be compacted, dewatered and discharged.

1. Screenings shall be conveyed by a shaftless auger that operates in the forward direction. Then, the captured solids shall be compacted, dewatered and discharged in a self-dumping hopper.

D. Inlet Hoper

1. The inlet hopper shall direct screenings material from the conveyor into the transport tube. The gap between the inlet hopper and the conveyor discharge chute shall be no larger than ¼” in order to keep a perfect odor control. The inlet hopper shall be made of type 304L stainless steel.

E. Transport tube

1. The transport tube shall be made of type 304L stainless steel with a width of no less than 7” and a thickness of ¼”.
2. High-density polyethylene (HDPE) shall cover the transport tube to avoid wear.
3. The easily adjustable compression gate shall allow the screenings to be compacted and a perforated sheet strainer to dewater the screenings.

F. Discharge Chute

1. The discharge chute shall be made of type 304L stainless steel and designed in conformance with the applicable safety standards. The inspection cover shall have an easy access to the wear parts.

G. Auger

1. The shaftless auger shall be made of alloy steel with a protective polyurethane coating.

H. Spray Bars

1. The wash zone shall include a spray wash system to wash organic residue from screenings.
2. The spray bars shall activate during the screw rotation in order to increase the washing efficiency.
3. The Washer/Compactor shall be directed by a timer. During peak loading conditions, the frequency of compaction and washing shall be adjusted automatically.
4. Two (2) solenoid valves shall be located on the top of the Washer/Compactor to allow spray bars to work properly on the transport tube and on the perforated sheet strainer.

I. Perforated sheet strainer

1. The drainage trough shall be a perforated inlet area that capture screenings and allows liquid to drain.

J. Anchor Bolts, Bolts and Nuts

1. Bolts, nuts, lock washers shall be of type 304L stainless steel.
2. Anchor bolts type shall be of type 304L stainless steel.

K. Freezing protection

1. A heating trace shall be provided at the compaction zone to ensure normal operation during severe freezing conditions.

2.05 DRIVE SYSTEM

Two (2) motors shall be provided.

A. Motor:

1. Motor shall operate without overheating at the speeds specified and indicated.
2. Motor shall have premium efficiency with nominal and minimum efficiencies per NEMA MG1.
3. Rating: 240/480V, 3-ph, 60 Hertz.
4. Insulation: Shall be class F insulation with Class B temperature rise.
5. Motor shall have high temperature thermal overloads for motor winding high temperature and high motor brake temperature.
6. Motor shall have a sufficient capacity to start and operate screen at 50 percent blinded without exceeding nameplate ratings for current and power and without operating in the service factor.

2.06 CONTROLS AND INSTRUMENTATION

1. Vertical Bar Screen

- A. All controls shall be provided for the fully automatic operation of the screen. The screen shall be factory wired so that the electrician is only required to make the electrical connections to the control panel and from the control panel to a junction box at the screens.
- B. Control panel shall be UL listed and manufactured in the United States.
- C. The mechanically cleaned bar screen shall be furnished with a complete control system housed in an enclosure complying with the specific requirements:
 - 1. Local control panel shall be delivered to jobsite, prewired ready for installation.
 - 2. Control panel: NEMA 4X Stainless steel.
 - 3. Power Requirements: 240/480 Volt, 60 Hz, 3-Phase.
 - 4. Motor Requirements: 3/4 Hp.
 - 5. Motor torque limiter.
 - 6. Touch screen PLC.
 - 7. Emergency Stop Button.
 - 8. Audible alarm (beep).
 - 9. Top mounted red strobe for alarm.
 - 10. Switches for controls.
 - 11. Unit shall be controlled manually, on timer and a float.
 - a. In HAND: The equipment is controlled with switch(es).
 - b. In AUTO: The equipment follows the settings. The equipment works on timer or cycle. The timer can be overridden by the float.
- D. The following controls shall be provided with the control panel:
 - 1. Emergency stop push button.
 - 2. HAND/OFF/AUTO selector switch (HOA).
 - 3. UP/OFF/DOWN spring return selector switch to drive the rake in HAND.
 - 4. Main circuit breaker mounted outside the panel.
 - 5. System safety reset button.
 - 6. Audible alarm.
 - 7. Motor torque limiter.
 - 8. Float sensor status.
- E. The following lights shall be provided on the control panel layout:
 - 1. Red strobe top mounted.
 - 2. Alarm (red).
 - 3. System Power ON (white).
 - 4. System ready (green).
 - 5. Compactor running (green).
 - 6. Bar screen running (green).
 - 7. Float active (blue).

F. The PLC controller shall have at least the following functionalities:

1. Color display.
2. Touch screen shall display all alarms including emergency stop and safety cover.
3. Touch screen shall display the amperage of the motor(s) live.
4. Touch screen shall display the motion of the rake.
5. The setup of all settings of the equipment shall be accessible by the operator.
6. The alarm history shall be accessible by the operator.
7. The torque limiter shall be adjustable by the operator.

G. Operation

1. One float switch shall be provided with the equipment. The screen shall be activated by the float primarily. Back up timer keeps the equipment working every certain period of time.

H. The local control panel plus other accessories shall perform the functions of:

1. Circuit breaker.
2. Motor starter.
3. Control power transformer.
4. Obstruction alarm.

2. Integrated Washer/Compactor

A. The following controls shall be provided with the control panel:

1. Panel disconnect.
2. Emergency stop red and mushroom type.
3. Hand/Off/Auto selector switch. (HOA).
4. Compactor Hand mode Forward/Reverse selector.
5. Solenoid valve(s) HAND/OFF/AUTO.
6. Reverse switch with spring return useable in HAND mode.
7. System safety reset.
8. Audible alarm.
9. Motor torque limiter.
10. Float sensor status.

B. The following lights shall be provided on the control panel layout:

1. Red strobe top mounted for alarm.
2. Alarm (red).
3. System power on (white).
4. System ready (yellow).
5. Compactor running (green).
6. Float active (blue).
7. Maintenance mode active (amber).

C. The PLC controller shall have at least the functionalities below:

1. Color display.
2. Touch screen shall display the amperage of the motor in live.
3. The setup of all settings of the equipment shall be accessible by the operator (cleaning cycles, working cycles...).
4. The alarm history shall be accessible by the operator.
5. torque limiter shall be adjustable by the operator.
6. Touch screen shall display the motion of the screw.

D. Operation of integrated Washer/Compactor:

1. One float switch shall be provided with the equipment. The Washer/Compactor shall follow the other screening technology. The Washer/Compactor is activated by the float primarily. Back up timer keeps the equipment working every certain period of time.
2. Spray bars shall be activated while the Washer/Compactor is working. The washing cycles shall be adjustable by the operator.

2.07 DESIGN REQUIREMENTS

Mechanically Cleaned Screen	Data
Number of screens with integrated Washer/Compactor	1
Peak/normal flow	700,000/150,000 GPD
Clear opening between bars	3/8"
Angle of inclination	90 Degrees
Channel depth	13"
Channel total depth	41"
Channel width	28"
Maximum allowable water level before screen at peak flow and 30% of blocking	0.26'
Maximum headloss at peak flow and 30% of blocking	0.16'

2.08 SHOP TESTING

- A. Motors shall be shop tested.
- B. Control panel shall be shop tested:
 1. Test all functions and alarms of the control panel.
- C. Screen shall be shop tested:
 1. The bar screen shall be completely factory assembled and inspected prior to shipment.

PART 3 - EXECUTION

3.01 INSTALLATION

- A. All installed items shall be in accordance with shop drawings and manufacturer's instructions with no exceptions.
- B. Manufacturer shall furnish one electronic copy of the operation and maintenance manuals.

3.02 FIELD TESTING

- A. After installation, inspection, operation, testing and adjustment of the equipment, a manufacturer's field service technician shall conduct a performance test for the unit in the presence of the Owner to determine its ability to deliver its rated capacity under specified conditions.
 - 1. Performance Test: During tests, observe and record flow rates, channel water depths, headloss, and motor inputs. Repeat tests until specified results are obtained.
- B. Make all adjustments necessary to place equipment in specified working order at time of above tests.

END OF SECTION

New Hope WWTP
1998 Knightly Mill Rd, Fort Defiance VA 24437
Peak Flow 0.25 MGD, 20" Total Depth, 3/8" Bar Spacing, 304L Stainless Steel

**MECHANICALLY CLEANED SCREENS WITH INTEGRATED
WASHER/COMPACTOR AND APPURTENANCES**

The New Hope WWTP Specification uses the same criteria as the Mount Sidney WWTP with the following exceptions.

- B. Frame
1. Frame: Shall be constructed of type 304L stainless steel.
 2. The side frames shall be suitably reinforced to support all loads imposed on the mechanism during operation, installation, assembly, or transportation.
 3. The total frame length shall be 92".
 4. The total frame width shall be 11.81".
 5. Anchor support frames onto the operating floor shall be of type 304L stainless steel hardware.
 6. Screen frame shall be supplied in one (1) piece.
 7. Screen manufacturer representative shall approve screen frame field assembly.
 8. Screen Enclosure: screen shall be fully enclosed above the operating floor with hinged access door.

2.07 **DESIGN REQUIREMENTS**

Mechanically Cleaned Screen	Data
Number of screens with integrated Washer/Compactor	1
Peak/normal flow	250,000/40,000 GPD
Clear opening between bars	3/8"
Angle of inclination	90 Degrees
Channel depth	20"
Channel width	12"
Maximum allowable water level before screen	0.16'
Maximum headloss at peak flow and 30% of blocking	0.09'

END OF SECTION

ATTACHMENT B

BID SHEET

(THIS COMPLETED PAGE MUST BE INCLUDED WITH YOUR BID SUBMITTAL)

VERONA PUMPING STATION @ MIDDLE RIVER WWTP

PEAK FLOW 8 MGD, 5FT TOTAL DEPTH, 1/4" BAR SPACING, 304L STAINLESS STEEL, HYDRAULIC MOTOR

COST \$ _____

Mount Sidney WWTP

Peak Flow 0.7 MGD, 41" Total Depth, 3/8" Bar Spacing, 304L Stainless Steel

COST \$ _____

New Hope WWTP

Peak Flow 0.25 MGD, 20" Total Depth, 3/8" Bar Spacing, 304L Stainless Steel

COST \$ _____

Grand Total: \$ _____

ATTACHMENT C

REFERENCES

(THIS COMPLETED PAGE MUST BE INCLUDED WITH YOUR BID SUBMITTAL)

The bidder must have the capability and capacity in all respects to fully satisfy all of the contractual requirements. To that end, please provide the following information:

1. **YEARS IN BUSINESS:** Indicate the length of time you have been in business providing this type of equipment _____ years _____ months.

2. Number of successful U.S. Installations: _____

3. **REFERENCES:** Indicate below, at a minimum, two (2) recent references for whom you have provided this type of equipment. Include the date service was furnished and the name and address of the person the Service Authority has your permission to contact.

Date Provided	Client and Address	Contact Person and Phone Number
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

*****THIS COMPLETED PAGE MUST BE INCLUDED WITH YOUR BID SUBMITTAL*****

ATTACHMENT D

AFFIDAVIT OF NON-COLLUSION

(THIS COMPLETED PAGE MUST BE INCLUDED WITH YOUR BID SUBMITTAL)

TO THE AUGUSTA COUNTY SERVICE AUTHORITY:

The undersigned hereby declares that he (it) is the only person (firm) with an interest in this bid being submitted; that it is made without any connection with any person making another bid for this same contract; that the bid is in all respects fair and without collusion or fraud; and that no official or any person in the employ of the Augusta County Service Authority is directly or indirectly interested in this bid or any portion of the profit thereof.

The undersigned also declares that they have carefully examined the Invitation to Bid specifications, all annexed instructions, addenda, and attachments and will provide all the required services and will fulfill all the terms of the bid.

Signature: _____

Title: _____

Date: _____

ADDRESS OF PRINCIPAL PLACE OF BUSINESS:

Telephone: _____

Facsimile: _____

Email Address: _____

*****THIS COMPLETED PAGE MUST BE INCLUDED WITH YOUR BID SUBMITTAL*****