



BARBADOS WATER AUTHORITY

TENDER FOR THE

**SUPPLY AND INSTALLATION OF A SCREW PUMP
AT THE SOUTH COAST SEWAGE TREATMENT
PLANT (SCSTP) # 022022**

1. GENERAL

The Barbados Water Authority (BWA) is desirous of receiving quotations for the Supply and Installation of a Screw Pump at the South Coast Sewage Treatment Plant, located at Harmony Hall, Christ Church.

2. INSTRUCTIONS TO TENDERERS

2.1 All bidders must supply the following information in their bids. Failure to provide the information will render the bid null and void: -

- a. Registration number of company.
- b. Country in which company is registered.
- c. The date on which the company was first incorporated and the names and addresses of all company directors. Certified copy must be issued by the Corporate Affairs Registry.
- d. A certified copy of company's Certificate of Incorporation, as evidence that the company is in existence at the date of the bid. Failure to provide the certified copy of the Certificate of Incorporation will render the tender null and void. Certified copy must be issued by the Corporate Affairs Registry.
- e. Registered office of the company.
- f. In the case of sole proprietorships or partnerships, the names and addresses of owners must be supplied. If the business is registered under the Registration of Business Names Act, a certified copy of the registration must also be provided. Certified copy must be issued by the Corporate Affairs Registry.
- g. Barbadian bidders must provide a copy of their VAT Registration Certificate and Tax Identification Number (TIN).
- h. Bidders should be aware that the labour clauses of (Public Contracts) Act, Cap. 349 shall, in so far as is applicable to the subject of the tender, apply to any contract made in respect of the tender.

2.2 Tenders to be submitted via electronic mail with attachments in PDF format (For large files please submit multiple emails and attachments) to the email address below with the subject:

“TENDER FOR THE SUPPLY AND INSTALLATION OF A SCREW PUMP AT THE SOUTH COAST SEWAGE TREATMENT PLANT # 022022” and addressed to:

**The Chairman
Tenders Committee
Barbados Water Authority
Email: bwatenders.committee@bwa.gov.bb**

to reach the office no later than **Thursday 31st March, 2022** at 4:30pm.

2.3 No tender will be considered unless it complies with the conditions set out in this notice.

2.4 The BWA does not bind itself to accept the lowest or any tender.

2.5 The BWA reserves the right to withdraw this tender notice at any time.

2.6 The BWA reserves the right to annul the process at any time prior to the award of contract without incurring any liabilities.

2.7 Any tender submitted after the closing time and date or any extension thereof will not be considered.

2.8 All tenders must be quoted in either **Barbados Dollars or US Dollars**. Tenders quoted in US dollars will be evaluated using the prevailing exchange rate at the date of closing of the tender.

2.9 Bidders must state all lead times and delivery dates.

3. PENALTIES

The Barbados Water Authority reserves the right to apply and enforce penalties against a tenderer for non-performance as it relates to specified delivery dates. The total penalty shall not exceed 5% of contract sum for the first occurrence and 10% thereafter for each additional occurrence. When there is evidence that the lack of performance directly impacts the BWA's operations penalties in the form of a

retention on payments due to the Bidder shall be applied.

CONDITIONS OF TENDERING

1. Acceptance of Tender and Tenderer's Expenses

The BWA shall not reimburse the Bidder for any expense incurred in the preparation of this tender.

2. Firm Price

No price variation clause may be included in the Tender. Prices in Barbados or US dollars must be quoted and such prices shall include all cost for materials, labour, transport, management fees and all other things necessary.

3. Tenderer to Obtain Their Own Information

The Bidder shall inform themselves on all matters necessary for compliance with and completion of the Contract and in all matters that might in any way affect the prices quoted.

5. Insurance

The Bidder shall obtain adequate insurance to indemnify the BWA against all claims for death, injuries, damage to property and losses sustained by the Bidder during the procurement and performance of duties under this Contract.

6. Addenda

Any interpretation of, or change in the Tender Document prior to the specified closing date, will be made only by Addendum issued by the BWA to each Bidder to whom the Tender Document has been issued and it shall become part of the Tender Document.

8. Compliance with Conditions of Tendering

The Bidder must comply with all the above Conditions of Tendering. Failure to comply with or breach of any of the Conditions may disqualify the Tender.

9. **Performance Security**

9.1 The successful Tenderer shall furnish the performance security for the performance of the contract in a form acceptable to the BWA within twenty-seven (27) days of the receipt of notification of award from the BWA. The performance security shall be in a sum equivalent to ten percent (10%) of the contract price. The proceeds of the performance security shall be payable to the Barbados Water Authority as compensation for any loss resulting from the successful tenderer's failure to complete its obligations under the contract. If the tenderer shall be in default of any of the terms and conditions of the contract, the BWA shall be entitled to make a claim against the performance security. The claim shall be in writing to the agency, bank or insurance company that issues the performance security.

9.2 The performance security shall be valid for one (1) year after the date for completion of the tenderer's obligations, and shall be denominated in the currency of the contract or in a freely convertible currency acceptable to the BWA and shall be in one of the following forms:-

- a. A bank guarantee or irrevocable letter of credit, issued by a bank located in Barbados or abroad, acceptable to the BWA and in the form provided in the Bidding Documents or another form acceptable to the BWA; or
- b. A cashiers cheque, or certified check payable to the BWA or cash.

9.3 The performance security will be discharged by the BWA and returned to the tenderer not later than one (1) year following the date of completion of the tenderer's performance obligations, including any warranty under the Contract.

1.0 BACKGROUND

The South Coast Sewage Treatment Plant located at Harmony Hall in Christ Church, is designed to treat wastewater from the south coast sewer network collection system, to a level considered acceptable for discharge into the Caribbean Sea.

Wastewater flows into the SCSTP are collected in an influent chamber and then transferred for screening by the use of screw lift pumps. The wastewater is then screened using a series of progressively smaller screens, with the major screening elements consisting of coarse screens, medium screens and fine screens, to remove debris from the waste water before it is pumped out to sea.

Screw Lift pumps are positive displacement pumps or Archimedes' screws used to transfer liquid from a low lying body of water, through the rotation of the screw, to a higher elevation. The pumps form the basis for moving sewage flows from the influent chamber at the SCSTP for screening and are critical to the effective operation of the plant.

The SCSTP was designed to accommodate three screw lift pumps and during construction was outfitted with two open screw pumps with a rated capacity of US 6MGD each. Each pump was installed within a semi-circular concrete channel with minimum space (5-10mm) between the screw blades and said concrete channel to allow efficient transfer of sewage flows to the screening systems. Over time, deterioration of the concrete channel from H₂S gases have led to a decrease in the efficiency of the screw pumps due to an increase in the gap between the screw blades and the concrete channel. Attempts to remedy the loss in efficiency were temporarily successful. The success of such a process primarily based on the skill of the contractor, as well as being impacted by the unevenness of the screw pump blades, difficulty in accessing the bottom bearing due to constant influent flows, and alignment of the screw.

2.0 BWA BSTP IMMEDIATE NEEDS ASSESSMENT

The BWA Wastewater Division is currently investigating various process improvements to address concerns with the existing screw pump system at the SCSTP.

1. Loss of efficiencies due to back-flow between the concrete channel and screw pump spiral blades.
2. Inability or difficulty in accessing screw pump bottom bearing.
3. Inability to execute servicing of bottom bearing due to inability to divert plant flows
4. Ability to move rags and other debris up to the screening processes.
5. Inability to conduct full screw pump maintenance due to influent sump levels and constant inflow of wastewater to the SCSTP.
6. Inability to isolate screw pumps from incoming sewage flows while still maintaining plant operations.

3.0 SCOPE OF WORKS

3.1 Screw Pump

General Requirements

1. Supply and installation of a screw lift pump, constructed of materials to withstand H₂s gases and the overall corrosive nature of the wastewater environment, where all support and serviceable components are above the water level on the influent sump.
2. Screw pump shall be of an enclosed and NOT open design. Any proposal of an open design shall have included with it, a clearly defined and detailed process for the maintenance, servicing and repair of the open design screw pump.
3. The Screw pump is to be installed in the third channel left to allow for future expansion of screw pumping capacity unless otherwise instructed by the BWA Engineer. This channel is currently fitted with steel trough and pipe manifold to facilitate the transfer of wastewater flows during an emergency. The BWA however reserves the right to change the location of the installation of the pump should it be considered more advantageous to do so.
4. Removal of trough and fabricated steel manifold.
5. Modification/retrofitting of screw pump concrete channel to ensure its ability to safely support loads from the new screw pump installation.
6. Modification/alteration of existing concrete channel to support forged ring and lower roller bearing assembly of the new screw pump.

7. Screw pump shall have a capacity of 6 MGD US per day (approximately 950 m³/hr) and shall be made of materials (e.g. 316 stainless steel) capable of withstanding harsh and corrosive wastewater environments.
8. Screw pump should meet the design capacity while still fitting within the concrete channel.
9. Any alterations or modifications required to the existing screw pump concrete channel to allow sufficient clearance with the new screw pump as well as to ensure adequate support for the new screw pump, as well as to ensure accessibility to the channel and screw.
10. Screw pump shall have the ability to move rags and debris without binding, becoming blocked or jammed.
11. Should the screw mechanism become jammed, with any large debris, the screw pump shall be equipped with a torque switch or similar device capable of being tripped to disable the screw mechanism and prevent damage.
12. The screw pump shall possess an alarm, annunciated both locally and remotely (within the Operator Room), if unusually high torque levels are sensed and upon automatic disabling of the screw pump.
13. Contractor to include within the proposal all civil and electrical works required to make the screw pump fully operable.
14. Contractor shall be responsible for providing all of the equipment necessary for safely lifting and installing the screw pump on site, both during the time of delivery as well as during the period of installation.
15. Contractor to ensure that screw pump is stored, at all times, in an appropriate manner to avoid any damage to the screw pump or any of its components.
16. Contractor shall include within the proposal, an itemized cost for the supply of all critical spares as outlined in the manufacturer's specifications. A detailed listing of the critical spares (specifications, part numbers, and parts suppliers/retailers) shall be included in the appendix of the proposal.
17. Contractor to include and make provision for sufficient training to ensure that BWA staff are capable of providing maintenance and conducting any repairs to the screw pump.

3.2 SCSTP Existing Screw Pump Data

Make	Hubert
Model	SP 1550
Type	Screw Pump
Capacity (L/s)	278
Head (m)	8.199
Pump Speed (rpm)	30.5
Drive Type	Gear Reducer
	Flender, B3SH-7
Shaft Power (kW)	30.7
Impeller Dia (mm)	1550

Motor – Make	Loher
Type	TEFC
Speed (rpm)	1475
Size (kW)	45.0
Electricity Supply (v/ph)	400/3
Coupling - Make	Flender
- Model	N-Eupex A480
V-Belts	B x 3000 mm
Grease Pump – Make	Woerner BV/
- Model	GMA-C/2/0
Material - Impeller	Carbon Steel
- Casing	Carbon Steel
- Seals	

Table 1: Existing Screw Pump specifications

3.3 South Coast Sewage Treatment Plant Design

- Minimum Daily Design Flow: 1.3 MGD (US)
- Average Daily Design Flow: 3.0 MGD (US)
- Peak flow: 7.8 MGD (US)

3.4 Screw Lift Pump Design Criteria

- 6MGD US (approximately 950 m3/hr)
- Concrete channel width (to be confirmed by contractor)

3.5 Lifting and Installation

- Screw pump should be fitted with the necessary structural components to allow for the safe lifting and handling of the screw pump.
- Care should be taken not to damage any protective coatings and coverings during installation.
- Contractor to ensure the use of rigging and hoist equipment of adequate capacity.
- Contractor to ensure that at all times the work area is secure and that unauthorized persons or animals are prevented from getting close to the installation.
- Contractor to ensure that BWA, Local and established safety protocols are followed and that all necessary PPE are provided to personnel on the project.

3.6 Storage

- Screw pump should be stored in a manner that does not negatively impact the structural integrity or the components of the pump.

4.0 RECONNAISSANCE AND FIELD SURVEYS

- Contractor/Supplier to define and analyse the feasibility of proposed alternatives, identify impacts and discuss as appropriate with BWA Wastewater Engineers.
- Contractor to prepare draft layout plans for the proposed project alternatives addressing desired objectives, process changes, and construction phases, and key milestones.
- Contractor to perform field reconnaissance and prepare a record of site conditions.
- Contractor to obtain and review available information relevant to this project from the BWA WWD SCSTP, inclusive of base maps and drawings pertinent to project and adjacent areas and as-built plans.
- Contractor to perform field data collection surveys to obtain the location of plumbing fixtures, piping, and electric conduit, etc. that may pose challenges to the project.
- Contractor to perform exploratory digs as needed to verify the exact location and depth of existing utilities so as to avoid conflicts with all proposed improvements.
- Contractor to provide adequate notice to the BWA, of major activities related to the project.

5.0 SUBMITTALS

- The Contractor/Supplier shall submit four (4) copies of the following information at a minimum for review and approval:
- Certified general arrangement drawings showing all important details including materials of construction, dimensions, loads on supporting structures, and anchor bolt locations.
- Descriptive literature, bulletins and/or catalogues of the equipment.
- Complete data on motors and gear reducers.
- Wiring diagrams and electrical schematics for all control equipment to be furnished.

6.0 WARRANTY

- A written supplier's warranty shall be provided for the equipment specified in this section. The warranty shall be for a minimum period of one (1) year from start-up or 18 months from time of equipment shipment, whichever comes first. Such warranty shall cover all defects or failures of materials or workmanship which occur as the result of normal operation and service.

Quotations should be submitted to the Authority on or before Thursday, March 31st 2022 and should include a break-down of the materials and labour costs.