

## 1. TECHNICAL SPECIFICATIONS

*[The bidder shall fill the last three columns given below. Bidder's failure to provide the information requested in these columns may be a reason for the rejection of the bid. If any discrepancy is observed between the information provided by the bidder below and the other technical information attached to the bid, the information provided herein shall take precedence.]*

### 3.1 Supply, Installation, Commissioning, and Maintenance of Pre-Fabricated Package Type Sewerage Treatment Plant for the Girls' Hostels at South Eastern University of Sri Lanka – University Park, Oluvil.

Items No	Specification	Conformity		If no, Bidder's response	Remarks
		Yes	No		
01	<b>Supply, Installation, Commissioning, and Maintenance of a Pre-Fabricated Package Type Sewerage Treatment Plant for the Girls' Hostels at the South Eastern University of Sri Lanka – Oluvil.</b>				
	Bidder should specify the following details for <b>the Treatment Plant</b> (Bidder can use separate sheets if needed)				
1.1	Product Brand: A reputed brand /product manufactured in the countries of Europe / Japan / America / Canada, or a substantially equivalent brand /product manufactured in another country.				
1.2	Product Model: <i>Please Specify</i>				
1.2a	Product Materials (Plant is preferred FRP)				
1.3	Country of Origin: <i>Please Specify</i>				
1.4	Country of Manufacturer: <i>Please Specify</i>				

1.5	Manufacturer Authorization: Should be attached					
1.6	Warranty required	Period	Plant (STP) and system - Minimum 10 years			
			Pumps other electrical equipment - Minimum 3 years			
1.7	Sewerage & Wastewater Pumps		Country of Origin: <i>Please Specify</i>			
			Country of Manufacturer: <i>Please Specify</i>			
			Brand Name: <b>Tsurumi / Wilo/ Zoeller/Homa</b> or substantially equivalent			
			Model – please specify			
			Bore- 3”/ 80mm			
			HP-2 (Minimum)			
			KW-1.5 (Minimum)			
			Solids DIA-1.18”/30mm			
			Liquid and solid waste			
			Pump Type- Cutter Type			
			Phase-3			
			Voltage-208-230/460/575			
			Amperage 6.2 – 5.9 / 3.1 / 2.3			
			Starting Method –Direct Online			
			Power Cable - PVC Sheath AWG16/4-32ft			
			Pump Casing- Cast Iron			
			Impeller- Cast Iron W/Tungsten Carbide			
			Mechanical Seal- Silicon Carbide/H-20A			
			Motor Bracket- Aluminum Alloy Die Casting			
			Shaft- Stainless Steel			
			Bearing Housing - Aluminum Alloy Die Casting			
			<b>NB: Please provide the performance curve and the sectional view of the pump</b>			

02	General Requirements of the Treatment Plant					
	Description	Details of Requirement				
2.1	Capacity of the plant (A)	150 m <sup>3</sup> per day average flow capacity, package type Sewage Treatment Plant (Supply, installation with suitable excavation, foundation, commissioning, and operating with one-year free maintenance during the retention period of one year)				
2.2	Location of delivery (A)	Girls Hostel  South Eastern University of Sri Lanka – Oluvil				
2.3	Main functions of the plant	The sewage treatment system should be able to effectively treat raw effluent discharged from the hostels, which might be undiluted, high-strength raw sewage with typical domestic wastewater quality parameters.  Raw sewage effluent should be treated in compliance with Central Environmental Authority (CEA) water quality standards for discharging the treated effluent into natural inland surface water bodies.  In addition, a sewage treatment system should consist of appropriate sludge treatment and removal mechanisms.				

		Performance of the treatment plant system should be justified with appropriate calculations for each water quality parameter, such as BOD, COD. It should have less power consumption and be Easy to maintain with a non-technical assistant.				
2.4	Basic component of the treatment plant	Package type: compact treatment plant with all necessary accessories				
		It should contain Mechanical & Electrical units related to the plant				
		Supplying and fixing necessary electric pumps (bidder should specify in detail of pumps separately for the cutter pump, submersible pumps, and others)				
		Suitable pumps for the pumping from the immediate collecting pit and its necessary connections				
2.5	Expected treated effluent quality	The quality of the treated effluent should comply with CEA water quality standards for discharging into the natural inland surface water bodies.				
		pH	6.0-8.5			
		BOD (mg/l)	<30			
		COD (mg/l)	<250			
		TSS (mg/l)	<50			
		Oil & Grease (mg/l)	<10			
		Other parameters	As per the CEA discharge standards			

2.6	Treatment Methods	Treatment plant should consist of appropriate cost cost-effective, easy-to-operate treatment process units, such as;	Preliminary and primary treatment units (grit separation, oil and grease removal, and primary sedimentation)				
			Anaerobic and Aerobic secondary treatment units and internal circulation for more effective treatment				
			Secondary clarification units				
			Disinfection of treated effluent and other tertiary treatment units				
			Sludge treatment and removal mechanisms				
2.7	Operation & Maintenance with labor requirements	Zero maintenance or only occasional maintenance. The treatment plant operation shall be automated.					
2.8	Reduced load and Idle requirements	The treatment system should be able to withstand up to six weeks of idle time, or reduced operation with efficient treatment, and to perform normally when returned to normal operation					
2.9	Additional note	No or less sludge generation, and the range should be 0 % to less than 2% sludge generation. Appropriate sludge treatment and removal mechanisms should be provided.					
		The treatment plant should function without producing any odor to the surrounding environment (Zero Odor)					
		Shall have the chlorination unit for disinfection of treated effluent					

		The noise level of the plant should be within the tolerable limit				
		The power consumption for the wastewater treatment system should be reasonable				
		The plant and all of its components should be made out of chemical and corrosion-resistant, light-weight, and durable materials				
		The plant and all of its Pumps and mechanical components should not be excessive in number				
		The treatment should have provision for expansion if required in the future; therefore, it should be modular in design				
<b>03</b>	<b>Other Requirements of the Employer</b>					
3.1	a). It is compulsory for the bidders to visit and inspect the site conditions before submitting the bid. Moreover, the bidder should submit more details in addition to the details listed below for consideration.					
3.2	b). The bidder shall have registered with the Central Environmental Authority (CEA) or the quoted model of the Treatment Plant shall be approved by the Central Environmental Authority to be used in Sri Lanka					
3.3	c). The supplier shall maintain the Plant up to one year from the date of commissioning and shall prove the water quality of the treated effluent by means of test reports from the accredited water quality laboratory at the bidder's cost. During the maintenance period supplier shall train the University's staff in operation and maintenance.					
3.4	d). During the retention period, the supplier shall test six (6) water samples collected from the treated effluent once in two months. The testing shall be carried out by an accredited water quality-testing laboratory, and reports shall be handed over to the University.					
3.5	e). Treated water will be used for gardening purposes in the University premises, and the excess water shall be discharged to the earth drain, which will reach the natural water bodies. Therefore, the treated water effluent shall					

	comply with the standards of the Central Environmental Authority for each concerned water quality parameter.				
3.6	f). The bidder shall provide at least a 10-year warranty for the product.				
3.7	g). Breakdown maintenance shall be attended immediately.				
3.8	<b>h). Bidder shall submit the 5 years' service and maintenance agreement ( after the free maintenance period of one year), plan, and proposal along with the price bid</b>				
3.9	i) The user manual shall be submitted after the completion of installation and a draft should be provided along with the bid submission				
3.10	j) Detailed drawings of the treatment plant, such as process diagrams, plan and section drawings of the treatment plant and units with dimensions and details, mechanical and electrical drawings, P&ID diagram, etc., should be provided.				
3.11	k). The expected latest time for delivery, installation, and commissioning shall be within 15 – 20 Weeks after signing the contract agreement.				

Bidder's Name & Signature:

Name of the Company:

Date and Company seal: