United Nations Children's Fund

WASH Programme

Republic of Iraq

Ministry of Construction, Housing and Public Municipalities

Ministry of Health

General Directorate of Health

Terms of Reference

Long Term Arrangement for the Establishment of MBBR Wastewater Treatment Units in Health Care Facilities and in Communities - Iraq

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MBBR Wastewater Treatment Methodology for Health Care Facilities and in Communities - Iraq

Section	Content
Background	This term of reference is to provide safe sanitation is essential for public health in preventing infection, contributing to improved health and social well-being. The lack of safe sanitation contributes to water borne diseases such as diarrhea, enhance environmental protection (reduce contamination in water bodies) in targeted locations and downstream governorates. A major public health concern and a leading cause of disease and death among children under five years in low- and middle- income countries. Furthermore, poor sanitation contributes to several neglected tropical diseases as well as broader adverse outcomes such as undernutrition. Based on the results from the environmental survey for water, sanitation and municipal services in Iraq conducted by the Central Statistical Organization at the Ministry of Planning, only 37 per cent of wastewater in Iraq is treated before being discharged into the environment. This translates into approximately five million tons of untreated wastes discharged daily into the Tigris and Euphrates rivers (over 1.5 million in Baghdad only), leading to waterborne diseases including frequent outbreaks of acute watery diarrhea (AWD) as well as cholera, which is endemic in Iraq. The health of people is at risk from polluted surface water. Managing wastewater by increasing wastewater collection and treatment (on-site and off-site) can help achieve the 2030 Agenda for Sustainable Development. Political will is needed to regulate and enforce pollution control measures. The chemicals and micro-pollutants that are discharged from the health Department labs are highly complex contaminants that are non-biodegradable. These contaminants, therefore, remain in the intakes of water treatment plants of the southern provinces where most or all of them have only conventional treatment processes which are not designed to remove or treat such contaminants. Therefore, this new Long-Term Arrangement (LTA) project will mainly help to reduce the contamination at water main rivers and its branches as a long-term strategic plan to support the service providers to enable children, young people and their families have access to safely managed

sanitation in line with UNICEF global efforts to promote climate change adaptation and risks mitigation.

As per standard liquid waste management principles, municipal wastewater generated in houses, public places, commercial areas, etc. needs to be safely disposed in situ, transported, and treated off-site. In order to improve water quality by reducing pollution, eliminating dumping untreated wastewater in open environment and/ or in sewer network, then thrown directly into the rivers without proper treatment, as reflected in SDG # 6.3.1: percentage of wastewater safely treated and 6.2.1: population using safely managed sanitation services in terms of accessibility and quality.

- **Project Description**

The MBBR is currently the best water treatment solution for high-strength water systems. This is mainly because of the biological nitrogen removal (BNR), which uses MBBR systems, thus improving waste matter quality and increasing treatment capacity with no extra footprint growth. MBBR-powered plants are reliable and advanced wastewater treatment plants for water utilities, hospitals, and industries.

This aim of project is to provide different settings with an approximate wastewater load of 25, 50, 75, 100, 150 and 200 m3/day (moving bed biofilm reactor (MBBR) technology of wastewater treatment compact unit with all requirements).
The wastewater discharged from targeted settings include micro-pollutants of wide concentration range, from operation rooms, laboratory units, where medicine and nutrition solutions are generated. The pharmaceuticals are hospital-originated micro-pollutants substantially used in modern medical practices.

Proposed project: Provision and Installation of (25, 50, 75, 100, 150 and 200, m^3/day MBBR wastewater treatment compact units with all requirements to treat the effluent wastewater of the Health Care facilities and then connect it to the main sewer line.

Scope of work:

	• Supply, installation and proper operation of moving bed biofilm reactor (MBBR) units-over ground type container of the designed capacity for treating the wastewater of Health Care facilities and communities (the MBBR system should include disinfection process). • Submission of detailed Bill of Quantities for each of above requested capacities, highlighting the needed descriptions for each and every component for the proposed project, stating the pricing against each line item as well as the grand total in US dollar currency. • Construction of the entire sewer system (pumping stations and sewage network inside the entity as well as the proper connection to the public sewer network/pipeline. • Construction of the collection tank to pump the discharge waste from the laboratory to the MBBR units. • Provision, installation, and operation of best quality sewerage submersible pumps to boost the collected sewage to MBBR. • At least THREE days On-site training for THREE technical local staff on operation and maintenance. • The MBBR unit along with all other components should be operated properly for six months for each of the units as a liability period complying with the national and international standards (MoB, MoEnv, MoH and WHO) before finally handing over process. **Proposed Methodology:** The MBBR process utilizes floating plastic carriers (media) within the aeration tank to increase the number of micro-organisms available to treat the wastewater. The microorganisms consume organic materials. The media provides increased surface area for the biological micro-organisms to enable the growth of anaerobic bacteria in the aeration tanks. The increased surface area also reduces the footprint of the tanks required to treat wastewater. The media is continuously agitated by bubbles from the aeration system that adds oxygen at the bottom of the first compartment for the aeration tank. The microorganisms consume organic materials. When compared to conventional secondary treatment it provides superior efficiency and value. The MBBR media or biochips have an active surface area > 4000 m2/m3 which is up to six (6) times greater than any competing media available in the local and global the market.

Objectives, Purpose & Expected results

In line with SDG Goal 6.3: "By 2030, improve water quality by reducing pollution, eliminating dumping and minimizing release of hazardous chemicals and materials, halving the proportion of untreated wastewater and substantially increasing recycling and safe reuse globally

Specific details of the envisioned project/assignment; the framing and presentation of the objectives, purposes, expected outputs, and results to be achieved

- The Moving Bed Bio Reactor system is operating and functional and meets the national water protection legislation including act No. 27 of the year 2009 on protection and development of Iraqi environment & act No. 25 of the year 1967 for the maintenance of the rivers and public water from pollution.
- The operation of the MBBR system shall be automatically operated. The mode of operation shall be defined in the SOP and clearly describes the process is controlled and optimally operated. The frequency of cleaning cycles shall be defined with a detailed description.
- The bidder may refer to existing SOP available at the laboratory engineering section and improve based on the manufacture's recommendations.

- Three technical staff from engineering unit responsible on operation and maintenance shall be engaged in on-site training on quality monitoring and control.

- The training package shall be augmented with operation parameters and monitoring including (TSS, TOC, COD, BOD, TDS, … etc.).

- The trained local staff are able to utilize the gained data during the operation to optimize the operation and ensure cost efficiency, get better results and most importantly meeting the national guidelines.
- The local staff shall be trained on documentation including preparation of operation logbooks, data, and records.

- By the end of each targeted project, the contractor is obliged to achieve the following test results and share official results from national independent sewage laboratory in Baghdad or from other governorates:

Wastewater quality: Before and after treatment

1	Quality for effluent (Treated Water)	UNAMI Requirement
	Flow (M3/Day)	25-50-75-100-150 and 200 m^3/day
	Biochemical Oxygen Demand (BOD)	Less than 10 Mg/l
	Chemical Oxygen Demand (COD)	Less than 40 Mg/l

		TSS – Total Suspended Solids	Less than 10 Mg/l
		TDS – Total Dissolved Solids (mg/L)	500 Mg/l
		PH	4 to 6.8
		Turbidity	2 NTU
		Oil And Grease (mg/L)	Nil
		C12 – Free Chlorine	0.5 Mg/l
		FOC	Nil
		Odor	Nil
		FC – Fecal Coliform (Qty. / 100 mL)	2.2
		Floating Materials	Nil
	• Sludge solid retention time shall be minimum 7 days		
Description of the assignment	1. Wastewater MBBR treatment compact unit is fully functioning and operational within six months warranty of operation, covering the entire process, individual units and components. 2. Effluent discharged shall meet the Iraqi environmental standard, laws, guidelines, and legislation related to environment protection and development including act No. 25 of the year 1967 and Act No. 27 of the year 2009. 3. Three local staff whom their duties are O&M assigned and well trained and certified during the project implementation as well as during warranty period. The rough annual O&M cost of operation shall be calculated. The breakdown of all the operation and maintenance costs shall be submitted to UNICEF at the end of the project. 4. Standard operations procedure (SOP) is prepared for each wastewater treatment compact unit to provide full details of the operations, troubleshooting guidelines, maintenance recommendations, chemicals shall be used, safety for health and security including bio-security, best practices to operate MBBR elements to achieve full life cycle according to the manufacturer recommendations, operational catalog with full descriptions of all components of the new system, particularly electrical, electronical, mechanical and civil works. 5. The bidder shall submit a project proposal, including the scope of work and methodology, full technical specifications, describing all the technical topics that meet the above criteria and objectives. 6. The bidder is responsible and required to supply all the required highly qualified technical expertise, tools, manpower, highly experienced management, etc. as required to implement all the required components as per the Bill of Quantities and ToR.		

7. In additional to the technical criteria, the bidder shall provide the technical offer including a full set proposal for the below requirements supported with catalogues/ brochures comprising all components of the MBBR system.
8. The proposed system shall meet applicable national standards and codes.
9. The technical specifications for the proposed system shall ensure sustainability, safeguarding the environment, health and safety measures of the workers and surrounding community.
10. UNICEF has zero tolerance for corruption and/or fraud.
11. Child labor is forbidden
12. Ensure the best safety (including Covid-19 safety procedure) and security practices in the site for his own employees, everyone on the site. The bidder shall use all required safety measures including safety equipment, personal protection equipment, safety signs, safety training and inductions when, and where required in the site. UNICEF is not responsible for any accident to any type of injury or death occurred.
13. The contractor shall submit samples of materials used in the project to the supervising committee for approval before using them in work. Additionally, the contractor shall submit certificate of origin (CoO). The supervising committee may reject any equipment that does not comply with the specifications, in which case the contractor without any extra cost shall replace the defected materials. The supervising committee from the directorates of sanitation and health (depending on the nature of intervention and setting) shall request for any test to ensure the quality of the materials used and work. Only approved materials/ equipment and workmanship shall be used.
14. Responsible for works and damages due to misuse, user's negligence, theft, deliberate destruction of materials or components, vandalism and inappropriate or unjustified acts or behaviors, wear due to normal use of materials, equipment and components, or damages due to military conflicts; natural catastrophes…etc.
15. The operation of MBBR system shall be automatically operated. The mode of operation shall be defined in the SOP and clearly describes the process is controlled and optimally operated. Frequency of cleaning cycles shall be defined with a detailed description.
16. The bidder may refer to existing SOP available at the engineering section and improve based on the manufacture's recommendations.
17. Local technical staff responsible on operation and maintenance shall be engaged in three days on-site training on quality monitoring and control.
18. The training package shall be augmented with operation parameters and monitoring including (TSS, TOC, COD, BOD, TDS, … etc.)

Schedule of Completion for each project

No	Description	Time required in days

		1	Provide, deliver and install of (MBBR)	120
		2	Piping, construction of manholes and valves system	30
		3	Electrical Control & Operation Unit	10
		4	On-site training on Operation and Maintenance	10
		5.	Site inspection and handover upon substantial completion	4
		5	Operating and maintain of MBBR (warranty period)	180

Deliverables	• All works shall be accomplished according to UNICEF- General Terms and Conditions as well as the direction of the supervising committee formulated by the concerned service providers and the below requirements: • The bidder shall prepare and submit operation and maintenance manuals, technical sheets of the provided materials and time schedule plan. • The bidder shall also be deemed to have read and examined the terms of reference, technical specifications, drawings, and all other relevant documents before completing the Bills of Quantities. • Unless otherwise indicated, the prices and rates entered in the following Bills of Quantities of the proposal shall be deemed to cover and include the provision by the bidder for all equipment, materials, labors and shall allow for all and every expense and for all works not specifically described or which may be incidental, contingent or deemed necessary by the bidder for completing and maintaining all works in strict conformity with the terms of reference, specifications, drawings and other terms of the contract; • This bidder shall take into consideration water parameters in selected locations and targeted governorate. Samples of effluent shall be performed by independent laboratories at the directorates of sewage in targeted governorates, while representatives from the contractor shall join in this process. • The contractor shall be fully responsible for all logistical and administrative arrangements in terms of getting tax and custom exemptions from local authorities, including at the Iraqi borders. • Quoted prices for MBBR Wastewater Treatment compact unit, civil works, mechanical works, electrical works and any other required parts or materials necessary for the contract implementation shall include transportation fees, on-site handling of materials (including offloading and uploading from trucks) as well as storing. • Unless otherwise directed by the supervising committee, the dismantled parts (not in use any longer) shall be delivered by the bidder to department warehouse and receive signed good receipt note to be submitted at the end of the project to the final handing over committee. • Alterations or modifications are not allowed without prior written approval from both parties, targeted facility and UNICEF. In case such approval is granted, it will not relieve the bidder from his responsibilities under the general terms and conditions of contract. All works shall cover the provision of all required complementary supplies and works (not necessarily mentioned in the Bills of

	Quantities) such as sand, gravel, cement, washers, elbows, bolts, nuts, screws, welding, etc. and laborers (skilled and unskilled) • The bidder shall submit project proposal, including scope of work and methodology, full technical specification describing all the technical topics that meet the above criteria and objectives. • Full design documents for the overall system, pumping station, network, package unit etc... (3 copies) • Implementation plan and time schedule. • Operation and maintenance manuals and troubleshooting guides (Two Arabic copies and one English copy) • Bidder shall submit progress reports to both parties, UNICEF, and the supervising committee (English) • Operation and Maintenance manual and troubleshooting chart in English and Arabic Versions • Daily Operation logbooks
Reporting requirements	Lists of the reporting guidelines and the reports to be prepared during the assignment as well as deadlines for submission; it includes requirements such as contents, number of copies, language, who should receive the reports and whether they should be submitted electronically (specify the file format, e.g., "pdf"), in hard copy, or both. Following reports for project milestones are required are: • The successful bidder shall submit monthly progress reports: The reports shall be submitted one week prior the submission of each payment request. The report shall contain all the works done during the period, enclosed by photos, minutes of meetings signed by all parties, certificates of test results for all inspected materials. • Preliminary handing over report: One technical report shall be submitted after the physical completion of all works and preliminary handing over. This report shall contain all the implementation details as per the BOQs, time correction, signed good receipts enclosed with an official cover letter from the management of laboratory. • Final report: Final report shall be submitted after completion of the warranty period and completion the training of technical local staff from laboratory, embedded the training materials, signed list of attendees, the outcome of the training, and an official approval letter from health department addressed to UNICEF indicating the successful completion of on-site training.
Location and Duration	Starting date: After 5 days from signing the contract • The implementation period should not exceed four months after the official site handing over. The implementation period for each project site is the actual period of provision, installation, and proper operation of the whole system. Operation and warranty period shall not exceed 6 months from the date of the official preliminary handing over. • The implementation shall be scheduled by the bidder, while time schedule shall be agreed upon among three parties and approved by the established–supervising committee by sanitation and health directorates as well as WASH team at country office and the teams from field offices based on the geographical locations.

Qualification requirements	**Specifies the professional requirements of the individual(s) and/or team(s) for the assignment including required experience, skills, and qualifications; if applicable:** • The project shall be supervised by the assigned project manager from the awarded company, while the project supervision is assigned by the formulated supervising committee by health department. The project manager shall have at least 15 years of experience for managing similar projects for wastewater treatment technology (hazardous waste inclusive) and should provide solid evidence during the submission of technical offers. The project manager shall have environmental protection experience, OHS&E qualified from reputable institutions. Moreover, the project manager shall have civil, mechanical, or chemical engineering degree and most have proven at least 10 years of experience with government wastewater projects in the fields of construction, operation, maintenance and operation troubleshooting. • All the mechanical works shall be supervised by a mechanical engineer assigned by the project manager. The mechanical engineer shall have at least of 7 years of experience in a similar role supervising mechanical parts within an operating wastewater treatment plant. • All the electrical works shall be supervised by an electrical engineer. The electrical engineer shall have at least 7 years of experience in a similar role supervising the electrical parts within an operating wastewater treatment plant. • Occupational health and safety shall be supervised, maintained, and ensured by occupational health and safety officer qualified and licensed from NEBOSH or OCHA and have proven 5 years of experience of work in site with potential high concentration of H2S and CH4 presents and proven experience in occupational health and safety in construction sites where civil, chemical, mechanical and electrical works are conducted.

Evaluation process and methods

4.1 **Initial Technical Evaluation Pass/Fill approach:**

MANDATORY REQUIREMENTS	**SUPPORTING DOCUMENTS**	**SCORE**
Lead bidder is a legal entity regulated and licensed in Iraq	A copy of the certificate of incorporation (i.e. company legal registration) or equivalent document verifying legal status/capacity in Iraq. The contractor to submit a valid contactor classification card. International companies are not excluded provided by to be registered in Iraq.	Pass / Fail
The lead bidder's license is valid at the time of submission, and it can be renewed.	A valid copy of License / Authorization from the relevant local Government Authorities (i.e. central bank, Ministry of Finance or any other government authority, company valid classification ID)	Pass / Fail
Lead bidder has a well-structured management	A detailed description of the lead bidder's management structure and composition	Pass / Fail

structure with sound reporting lines.	(Organogram that lists names, titles, and functions of the owners/ shareholders and managers) + Evidence of the Company administration office structure.	
The bidder shall submit solid and formal evidence of implementing similar projects on MBBR projects	List of similar projects on the treatment of wastewater in Iraq	Pass / Fail
Bidder keeps updated and compliant financial records	The most recent Audited Financial Statements of the lead bidder. (Financial Statement (Approved by the legal auditor) for last 2 years: 2021 & 2022)	Pass / Fail

Then Bid shall be evaluated based on technical and financial criteria. The ratio weight between technical and financial criteria is **(70:30**).

- Technical Evaluation:
- The Bid shall be technically evaluated as below:
- The passing score of the technical criteria is **46 out of 70**. See the criteria on annex I.
    - Financial Evaluation:

- The bidder will be financially scored based on formula below:

Contractor(A) = (Maximum score for price proposal (30 points) x Price of lowest priced proposal among technically passed bidders)/Price of proposal (A)

- The total weight of the bidder will be cumulative of the two above formulas (Technical and Financial).

Item	Technical Evaluation Criteria	S. Weight
A3	Approved "similar works" for supply and installation experience of MBR and/ or MBBR treatment technology. The approved similar projects/works to be submitted within list supported documents by contact info of the managing agency. Similar works that were successfully implemented by the bidder with the government, agencies/ private sector. The submitted list only for the last 7 years. 15 points for concrete evidence of similar works 15 points for completed works on MBR and/ or MBBR system The evidence shall contain the following information:	30

	• Nature of the works previously executed. • Employing authorities and the supervising engineers. • Value of various contracts. • Locations of implemented works. • Dates on when they were implemented. • Any other information the bidders may present as evidence for his capability. • Certificate of completion of works.	
B1	Proposed work plan (Progress chart) and approach of implementation of the tasks as per the TOR and BOQ and the suggested period	7
B2	Catalogues/ data sheets submission of the required items needed to be supplied and installed (data sheet)	8
B3	Submission of risks mitigation plan for this project. (Quality Control Plan, safety plan…etc.) Detailed plan/s with a clear mitigation measure for each risk type	5
B4	Suggested typical design of MBBR units, it's clarity and simplicity, way of presentation, drawings, and layout. 5 points for the design 5 points for drawings 5 points for layout	15
C1	List of specialized technical staff that will manage and track supply and installation process, CVs to be shared. 3 points for the Organogram 2 points for submission of CVs (project manager, engineers, and technicians with relevant experience), along with a copy of the employment contract	5
	Total Scoring	**70 points**

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Administrative issues	It is crucial that tenderer shall fully understand that site visit performed for each project site individually. The contractor shall submit certificate of site visit enclosed to wastewater analysis (effluent) document issued by the sewage or health departments based on the

	selected settings. A Pre-bid meeting shall be held for all bidders as provided in the tender documents. The pre-bid meeting provides an opportunity for UNICEF to present the requirements to all interested participants and for the attendees to ask any questions in relation to the bid.
	• Bidders shall have previously executed in a satisfactory manner works of a similar scope and shall supply evidence to UNICEF to this effect in a letter of capacity accompanying their tender in order that UNICEF may be satisfied that the tenderers are technically and financially capable of executing the proposed works. The evidence submitted shall contain the following information:
	  • Nature of the works previously executed.
	  • Employing authorities and the supervising engineers.
	  • Value of various contracts.
	  • Locations of implemented works.
	  • Dates when they were implemented.
	  • Names of engineers and technicians to be employed for carrying out the proposed works together with their experience and CVs.
	  • Details of the special equipment in his possession for carrying out the proposed works.
	• Any other information the bidders may present as evidence for his capability.
	• The contractor shall prepare a detailed work plan (Bar Chart) and submit to health department and UNICEF within 14 days from the signing date of contract. The contractor shall also prepare periodic progress reports as requested by supervising engineers and submit to health department and main WASH focal person assigned by UNICEF. After completion of the works, 9 months of operation, maintenance and warranty period will be applicable.
	• The contractor must commence the works within a maximum period of **10 days** from the signing date of contract.
	• The contractor shall submit samples of materials used in the project to the supervising committee (from health department) for approval before using them in work. The supervisor engineer may reject any material that does not comply with the specifications, in which case the contractor without any extra cost shall replace the defected materials. The supervising committee from health department shall request for any test to ensure the quality of the materials used and work. Only approved materials and workmanship shall be used.
	• The Bills of Quantities shall be priced and totaled in U$ Dollar's currency.
	• The bidder shall make sure all clauses are priced, and the calculations are accurate. The bidder will bear responsibility for the nonprice clauses and inaccurate calculations in the financial offer.

Project management	For the technical related communications between UNICEF and other parties, UNICEF will provide overall supervision to the subject project by assigning WASH consultant for day-to-day monitoring and oversee by WASH officers and/ or specialists at country office and field offices, based on the geographical locations as well as WASH consultant. Assigned representative(s) from sewage and health departments shall provide day-to-day

	supervision, oversee implementation process and advise UNICEF on the quality of expected results. The bidder shall assign project manager for day to day managing the work implementation and liaise with UNICEF, sewage health departments on all matters related to completion of this assignment. All activities shall be conducted according to the terms and conditions embedded in the contract with due considerations to UNICEF rules and regulations. The contractor shall also obtain sewage and health departments' endorsement of all its submittals.
Payment Schedule	Payments shall be made to the contractor in installments upon accomplishment of the deliverables and as follows: • First Payment: 45 % of contract value upon completion of (1) from the project timetable. • Second Payment: 45% of the contract value upon completion of (2, 3, and 4) from the project timetable. • Warranty payment: 10% of contract value upon completion of 6 months of functional operation and maintenance. The retention amount shall be released by UNICEF after: UNICEF will make payments to the contractor in U$ Dollars according to percentages of completed work certified by the supervising committee and approved by UNICEF WASH focal person at Iraq Country Office. UNICEF will withhold a retention (liability) value of not more than **5%** of the total contract value or value of the completed work whichever is less. This amount shall be released after **180 days** upon satisfactory completion of the warranty period. The retention amount shall be released by UNICEF after: a. Completion of the proper maintenance works and three days on-site training of three local staff at health and sewage departments. b. Submission signed minutes of final handing over, enclosed by an official letter after adequate operation and maintenance during the warranty period issued by health and sewage departments. c. The contract is considered completed when a maintenance certificate from health or sewage departments is endorsed and submitted to UNICEF stating that all works have been completed and maintained to their satisfaction. UNICEF shall make payments in U$ Dollars through bank transfer modality only: the contractor shall provide UNICEF with details of bank account
Specifications of the (MBBR)	This unit should provide according to the Ministry of Construction, Housing and Public Municipalities, Directorates of Sewage and Ministry of Health requirements and have a capacity of (Will be calculated according to the project) and a peak flow of (Will be calculated according to the project). The units shall be capable to treat the wastewater and produce an effluent with the quality described below: BOD: <10 mg/L, TSS: <10 mg/L, NO2: nil, COD: <40mg/l

Scope of Work

- Process design and engineering for the MBBR treatment plant,
- Preparation of architectural guide and layout drawings for any kind of building, concrete construction, cabling, piping work at site,
- Supplying all units and mechanical equipment of the system,
- Delivering all materials
- Erection, start-up and commissioning of the treatment plant*

Scope of Supply

- Engineering documentation: all necessary documentation as defined.
- Documentation: all necessary final documentation for erection, commissioning, operation, control philosophy or system design manual, electrical wiring, equipment maintenance manual, and detailed drawing
- Providing operational manuals for start-up, operation, repair and maintenance
- Complete engineering and design, including development of all documents, drawings, procedures, manuals, etc., as required
- Operating and maintenance manuals in (English) Training of personnel

REINFORCED CONCRETE DIMENSIONS

Equalization Basin (tank)

Will be calculated according to the project

Slab Basement

Will be calculated according to the project

PHYSICAL TREATMENT

Pannier Screen

Will be calculated according to the project

Transfer Pumps

Will be calculated according to the project

BIOLOGICAL UNIT

Package Biological Treatment Tank (MBBR)+ Clean Water Tank - Above Ground

Will be calculated according to the project

	Blower Will be calculated according to the project **FILTRATION UNIT** **Filter Feed Pump and lamella sheets** Will be calculated according to the project **Sand & AC Filters** Will be calculated according to the project **Sludge Drying Bed** Will be calculated according to the project **Odor Control System Technical Specification** Will be calculated according to the project **CONTROL PANEL AND GENERAL PIPING** **Control Panel** Will be calculated according to the project **PIPING and FITTINGS** Will be calculated according to the project
Any other information	• It is not permissible for employees of official or semi-official government departments to participate directly or indirectly in the tender. • UNICEF shall make any variation in the form of quality or quantity of the works that may in its opinion be necessary and for that purpose or if for any other reason, it shall have the power to order the contractor to do and the contractor shall do any of the following: • Increase or decrease the quantity of any works included in the contract. • Omit any work included in the contract. • Change the character or quality or kind of any work included in the contract. • Execute additional work of any kind necessary for the completion of the works, hence, adjustment shall be applied on detailed BOQs and endorsed by health department and UNICEF. • No such variation shall be made by the contractor without an order in writing by UNICEF who shall determine the amount (if any) to be added to or deducted from the sum named in the tender in respect of any extra or additional work done or work omitted by its order. All such work shall be valued as follows: • Where there are rates for comparable work in the bills of quantities such rates are to be used. • Where no such comparable rates are available from the bills of quantities UNICEF shall determine such rates as it considers fair and reasonable, due allowance shall be

	made for the market value of articles purchased, the intricacy and the location of the work involved and the current value of similar work in other contracts. • There will be no variation in the contract price because of any variation in the costs of materials for permanent or temporary works or of consumable stores fuel or power or in the rates of wages or allowances payable to or in respect of labor or as a result of any changes in the labor employment conditions or as a result of the introduction or operation of any law statute or order. • The contractor shall submit samples of the materials used in the project to the supervisor engineer from the supervising committee and UNICEF for approval prior using them in works. The supervising committee may reject any material that does not comply with the required specifications, in which case the contractor without any extra cost should replace the failed materials. The site engineer can ask for any test to ensure the quality of the material used and work. Only approved materials and workmanship should be used.