



**United Nations Children's
Fund
WASH Section**

Rehabilitation of Water Compact Units in Al Baghdadi sub-district - AL Hee AL Askree Water Compact Unit (200 m³/h) and Al Khsrj Water Compact Unit (200 m³/h)

- Terms of Reference
- General Notes on the Bills of Quantities
- Electrical Works
- Civil Works (General Specification)
- Bills of Quantities

April – 2021

**Rehabilitation of WASH Water Compact Units in Al Baghdadi sub-district - AL Hee AL Askree
Water Compact Unit (200 m3/h) and Al Khsrj Water Compact Unit (200 m3/h)**

TERMS OF REFERENCE

The work described hereinafter comprises the Rehabilitation of WASH water compact unit in Al Baghdadi sub-district - AL Hee AL Askree Water Compact Units (200 m3/h) and Rehabilitation of Khsrj Water Compact Units (200 m3/h) in Al Anbar Governorates. The project owned and managed by Water Directorates/ Al Anbar- AL Baghdadi department. The work in general includes Provision of materials, equipment, labours and all that is required to make the job complete in every part and detail to Renovation/Rehabilitation/Improvement of the mentioned facilities.

1. A nominated supervising engineer from Water Directorate/-Al Baghdadi and UNICEF will supervise the work.
2. A-Kick off meeting /call will be conducted between UNICEF Officer or whoever represents with the Contractor before the beginning of the work to agree on the work procedures and give clear guidelines.
3. The time for the completion of the work is **60 Days** from the date of commencement as specified hereinafter.
4. After completion of work, a warranty (maintenance) period of **90 days** will be applied.
5. The contractor shall appoint a qualified engineer with at least five years of professional experience to work full time in supervising the implementation of work during the whole contract and warranty periods as specified in paragraphs 4 above, and both the contractor and his engineer should work closely with the supervisor engineer nominated by directorate of Water and UNICEF appointed engineer to supervise the implementation of the works.
6. The contractor shall prepare a detailed work plan (Bar Chart) and submit to Directorate of Water and UNICEF within **14 days** from the signing date of the contract.
7. The contractor shall also prepare periodic progress reports as requested by supervising engineers and submit to Directorate of Water and UNICEF. After completion of the works, a warranty period of 90 days will be applicable.
8. The contractor must commence the contract works within a maximum period of **Seven days** from the signing date of the contract.
9. The contractor shall submit samples of the materials used in the project to the supervisor engineer (Directorates of Water) and UNICEF for approval before using them in the work. The supervisor engineer may reject any material that does not comply with the specifications, in this 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.
10. UNICEF will make payments to the contractor in US Dollars according to percentages of completed work certified by the supervising engineer and approved by UNICEF's WASH section. UNICEF will withhold a retention (warranty) amount of **10%** of contract value or value of the completed work whichever is less. This amount is to be released after **90 days** upon satisfactory completion of the warranty period.

The retention amount shall be released by UNICEF after:

a- Completion of the work as per the bill of quantities and terms and conditions of this contract.

b-Submission of certificate of handing over and adequate maintenance during the warranty period issued by Directorate of Water/ Al Baghdadi.

11. UNICEF shall make payments in US Dollars in Baghdad, the contractor shall inform UNICEF of the method of payment whether to collect a cheque or transfer the money to a bank in Baghdad, in which case the contractor should provide the following:

a) In case of payment by cheque - the contractor shall provide UNICEF with a letter authorising an individual to receive the cheque in Baghdad. The letter should include full name and ID number of the person.

b) In case of bank transfer: the contractor shall provide UNICEF with detail of bank account at a bank in Baghdad.

12. Payments will be made to the contractor in instalments as follows:

a- First payment: **40%** of the contract value will be paid upon completion of **50%** works as per BOQ according to the BOQ items, values, and measurements

b- Second payment: **50%** of the contract value will be paid upon completion of **100%** works as per BOQ according to the BOQ items, values, and measurements

c- Final instalment: **10%** retention amount upon completion of warranty period.

13. The contract is considered completed when a maintenance certificate from Water Directorate delivered to UNICEF stating that the works have been completed and maintained to their satisfaction.

14. If the Contractor fails to complete the Works in accordance with the stipulated dates, UNICEF shall have the right to deduct from any payment due to the Contractor the amount of one tenth of a per cent (0.1 %) of the Contract Price per day of delay up to a maximum of ten per cent (10%) of the Contract Price. These liquidated damages shall not relieve the Contractor of his obligations or responsibilities that he may have under the Contract.

15. 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:

a) Increase or decrease the quantity of any work included in the contract.

b) Omit any work included in the contract.

c) Change the character or quality or kind of any work included in the contract.

d) Execute additional work of any kind necessary for the completion of the works.

and no such variation shall in any way vitiate or invalidate the contract but the value (if any) of all such variations shall be considered in ascertaining the amount of the contract price. 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:

a) Where there are rates for comparable work in the bills of quantities such rates are to be used.

b) 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.

16. Should the contractor fail to fulfil any of his obligations under the contract, UNICEF may in the absence of any other remedy provided under the terms of the contract and after giving the contractor seven days notice in writing of its intention so to do cause such obligations to be carried out by other persons or contractors and deduct the costs incurred from the moneys due or payable to the contractor or UNICEF may recover them as a debt from the contractor and in such case UNICEF shall certify the reasonable costs incurred.

17. There will be no variation in the contract price as a result 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 labour or as a result of any changes in the labour employment conditions or as a result of the introduction or operation of any law statute or order.

18. The latest issue of the “Conditions for Construction Contracts” issued by the government of Iraq shall be applicable to this contract especially clauses concerning Settlement of Disputes, Arbitration, etc.
19. **Bids Evaluation process and methods:** The bidders shall be evaluated based on a “lowest price technically compliant” system.

- **Technical Evaluation**, Technical Criteria:

The minimum pass score is 60 marks out of 100. The proposal will be subjected to technical evaluation as per the below criteria. Bidders must pass as satisfactory on criteria in the below table to be considered as technically compliant.

No.	Technical Evaluation Criteria	S. Weight
1	Company Registration License	10
2	Proposed work plan (Progress chart) and approach of implementation of the tasks as per the TOR and BOQ.	15
3	Suggested period for entire implementation by the bidder.	15
4	Similar works implemented by the bidder with UN, International agencies, and local government.	25
5	Ability to work in risk areas without stopping the construction work to avoid delay. Submission of risk mitigation plan Including COVID19 response and mitigation plan.	15
6	List of specialized technical staff that will monitor the project (not less than 5 years' experience).	10
7	Evidence of the Company administration office structure, equipment, and utilities.	10
Total		100

- **Financial Evaluation:** Only bidders passing as “technically compliant” shall be considered for financial evaluation, bidders considered as technically complaint shall be ranked based on the lowest offered price.
- **Awarding of contract:** The contract will be awarded to the offer that has passed the minimum required technical score and offered the lowest acceptable price.

GENERAL NOTES ON THE BILLS OF QUANTITIES

1. The contractor shall be deemed to have visited the site of works and to have acquainted himself with the type and scope of work required to be carried out. UNICEF shall accept no excuse or claim whatsoever from the Contractor for not knowing or being able to properly evaluate and assess the condition of the equipment and works that should be carried out.
2. The contractor shall prepare and submit construction drawings for the project, for approval by the supervisor engineer.
3. The contractor shall also be deemed to have read and examined the terms of reference, specification, drawing and all other relevant documents before completing the bills of quantities.
4. Unless otherwise indicated, the prices and rates entered in the following bills of quantities shall be deemed to cover and include provision by the contractor of all equipment, materials and labour and shall allow for all and every expense and for all work not specifically described or which may be incidental, contingent or deemed necessary by the contractor for completing and maintaining the works in strict conformity with the terms of reference, specification, drawing and other terms of contract.
5. Quoted prices for all pipes, steel work, iron works and any other required parts or materials necessary for the contract implementation, shall include transportation fees, on-site handling of materials (including unloading from trucks) and storing.
6. Unless otherwise directed by the supervising engineer, the dismantled parts (not in use any longer) shall be delivered by the contractor to Water Directorate/Al Anbar – Al Baghdadi
7. No alterations or modifications shall be allowed without the written approval of Water Directorate and UNICEF. In case such approval is granted, it will not relieve the contractor from his responsibilities under the contract.
8. All works should include provision of all required complementary supplies and works (not necessarily mentioned in the bills of quantities) such as sand, gravel, cement, washers, bolts, nuts, screws, welding, etc. and labourers.
9. The contractor shall be considered:
 - a) Responsible for defects and damages due to the use of poor materials or due to improper workmanship, electrical shorts, etc.
 - b) Not 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 behaviours, wear due to normal use of materials, equipment and components, or damages due to military conflicts; natural catastrophes...etc.

- Samples of all the electrical equipment provided should be submitted to the engineer before any portion of the work is carried out for approval. The contractor without any extra cost may replace any materials provided which do not comply with the specifications. All the supplied materials shall be West European, or Japanese made.
- Circuit breakers of capacity from 10-100Amp. should be replaced by air moulded case circuit breaker 4 poles M.C.C.B., 380V, 50Hz, 3-phase with thermal overload, magnetic, short circuit and for circuit breakers of a capacity below 10Amp must be miniature switch type except for the low tension motors the circuit breaker shall be 4 poles, 11 KV, 3.3kV, 50Hz, 3-phase with thermal overload.
- Star delta starters of a capacity from 5kW and above must contain the following:
 - a) Main isolating switch with main fuse.
 - b) Three contactors.
 - c) One overload relay.
 - d) One Phase failure.
 - e) One Timer.
 - f) Three indicating lamp, push buttons, ammeter with selector switch, voltmeter with selector switch all fixed at the front door of Cabinet Ip56.
- DOL starter of a capacity below 5kW must contain the same components as above but with one contactor.
- Wiring system for the pump station shall be drawn in a P.V.C. conduit pipes of diameter decided by the engineer depending on the number and size of the wires inside the conduit pipes, the type and size of the wires shall be decided by the engineer depending on the type of the equipment and machine.
- Wiring system for the operator rooms and the bathroom shall be under plastering type (siemens) 2×1.5 for normal lighting and ceiling fan, 2×2.5 for switch plugs and cable 2×4 for heaters.

CIVIL WORKS (GENERAL SPECIFICATION)

- All materials used shall be of the best quality and free from defects likely to undermine the strength and the period of service of the work, samples of the supplied materials shall be subjected to Lab. test in a governmental Lab. or private Lab. agreed by the supervising engineer.
- Termite treatment shall be applied by supplying and applying Chemical materials such as “chloredene” or “dorespan” or equivalent materials approved by the engineer and to be applied according to the instruction of the manufacturer. It should be applied before the back filling (at a depth not less than 70cm.) and for each layer of the back filling (each 20cm.), as well as under the mosaic tiles.
- Surplus, unsuitable or rejected materials should be collected and dumped outside the site according to the instructions of the benefited authority.
- All the back filling of the excavated area and the filling must be of good approved materials. Selected granular materials (sub-base) used for back filling shall be of the best quality well graded, free from trash, lumber, organic materials and other debris, etc. Back filling shall be well compacted in horizontal layers not exceeding 20cm thickness. All the work shall be according to the supervision of the engineer.
- The layers should be well compacted after mixing the soil with water to the optimum moisture content to get a proper compaction. Compaction shall be not less than 90% of the maximum modified dry density measured by the standard proctor test.
- Cement must be of the best Portland cement, Sulphate resisting cement must be used for all concrete works in contact with soil or water, both types of cements shall comply with the requirements of B.S 4027 or ASTM C 150.
- Gravel (Aggregate) must be crashed, well graded (passing the sieves 19mm. and retaining on sieve 4.75mm.) according to the standard technical specifications, clean, hard, strong, resistant to weathering action, free from salts or vegetable matter and shall not contain more than 0.25% by weight of sulphate as SO_3 (BS 1377 test No. 10) nor more than 0.5% by weight of clay lumps and contains no impurities un-coated particles and clay, dirt of any kind.
- Sand (fine aggregate) must be well graded (passing sieve 4.75mm and retaining sieve 0.075mm) good and clean, hard, strong, resistant to weather action, free from salts or vegetable matter and shall not contain more than 0.25% by weight of sulphate as SO_3 (BS 1377 test No. 10) nor more than 0.5% by weight of clay lumps and contains no impurities contain no impurities un coated particles and clay, dirt of any kind.
- Water used in mixing the concrete or mortar must be fresh, clean and free from harmful matter and free from injurious amounts of acids, alkaline, salts, and organic matter, test should be in accordance with the requirements of BS. 3148.
- Clay bricks must be of the best quality from approved sources, machine made, wire cut and of uniform standard size, sound, tough, well burnt, and shall conform to the appropriate clauses of the Iraqi standard specification No. 25.
- Concrete masonry units shall be of standard sizes and shapes regular prism shape and perpendicular edges.
- The concrete shall be according to the general technical specifications concerning the properties of materials, the coarse Aggregate shall be crashed aggregate only and the strength of the concrete at age of 28 days shall not be less than 25 N/mm^2 in any case.
- Works should be according to the technical specifications given by the supervising engineer.
- Contractor shall take all measures to ensure the safety of surrounding structures and utilities and will bear responsibility for any damage happens.
- W.P.S devise shall be used when the soil being unsuitable by using sheet-pile according to the specification of Water and Sewerage works.
- Water used in mixing the concrete or mortar shall be fresh, clean and free from injurious amounts of acids, alkaline, salts, and organic matter.

- All the works should be according to the instructions of the supervisor engineer and approved laboratories should test all the materials.
- Ordinary Portland cement to be used for the structure above ground level, while type V Sulphate resisting cement should be used in all concrete work below ground level.
- The maximum size of aggregate shall not exceed 20mm or 1/5 of the least dimension of the member whichever is smaller.
- Non-potable water must not be used in concrete mixes.
- The minimum clear concrete cover over the reinforcement shall be 40mm for footings, 30mm for walls, 25mm for slabs.
- All steel reinforcement shall be deformed, grade 60, complying with ASTM A615 or equivalent.
- The grade of concrete denotes the characteristic strength in MPa of 150 mm standard cube at the age of 28 days, the following grades should be used in the respective of the structure:
 - Lean concrete should be 15cm thickness.
 - All surfaces of R.C. members in direct contact with soil should be given two layers of approved quality of bituminous protection.
 - All exposed surfaces of R.C. members to be made fair face, true to the required levels and vertical and horizontal lines.
 - Special precautions to be taken when concreting during hot and very cold weathers.
- Rubber or PVC water stops should be resistive to deterioration through aging, mechanical abrasion and attack by water, domestic sewage, seawater and natural salts.
- External water stops, if used, should be PVC complete with four ribs, ailing flanges and grout checks, all junctions should be factory made.
- Centrally placed PVC water stops should have a web thickness of at least 10mm.
- An approved hot knife welding technique to be used in making joints for PVC water stops.
- Spacing of reinforcement within a member is preferred to be staggered with a minimum overlap as shown in the attached drawings.
- Brick masonry units shall be of standard sizes and shapes regular prism shape and perpendicular edges.
- Unless otherwise stated in the bills of quantities the steel windows should be made of standard sections according to the instructions of the supervising engineer. Glass thickness is 6mm to be fixed with good quality putty. Windows to be provided with good quality galvanized fly mesh and good quality handles.
- Unless otherwise stated all steel and metal works shall be painted with one coat of anti-corrosion paint (red lead) followed by three layers of oil paint.
- The proportions of materials in concrete mixes for the various classes of concrete and the corresponding permissible test cubes strengths are as shown in the below table. Tests on concrete are to be carried out in accordance with the relevant Iraqi Organization for Standards (IOS) Specification:

Concrete Mixes

Class of Mix	Nominal Mix By Volume	Aggregate Volume Per 100 kg Cement (m ³)		Permissible Average Test Cube Strength (kg/cm ²)		Min. Permissible Strength of Individual Test Cube (kg/cm ²)	
		Fine	Coarse	7 days	28 days	7 days	28 days
A	1 : 1 : 2	0.069	0.139	257	387	211	317
B	1 : 1 ½ : 3	0.104	0.209	222	334	176	264
C	1 : 2 : 4	0.139	0.278	187	281	141	211
D	1 : 3 : 6	0.209	0.418	141	211	95	141


Mahir Ali

BFO-WASH Officer



Ahmed Gharbawee
WASH Specialist