

**DRC BID FORM – Invitation to Bid No: 06026EBL, 17
New Right Bank Project - Emergency Works**

TECHNICAL SPECIFICATION AND BILL OF QUANTITIES

- All the works must be executed in accordance with the Iraqi General Technical Specifications (I.G.T.S.) published by the General Directorate for Water, the drawings, contract documents and instructions of the DRC Project Manager.
- All the works and materials must be approved by the DRC Project Manager, including items to be supplied.
- The materials shall be tested and approved by the National Centre of Construction Laboratories (NCCL), as required by the Directorate of Water.
- The contractor must employ a permanent Site Engineer to be present at the project site during the execution period.
- The Contractor must set-up a temporary and adequate office at the project site.
- All the materials shall be new and deemed to be of best available type in the local market and as approved by the DRC Project Manager. Date of manufacture shall not be more than two years from date of installation.
- The item description herein after means "Supply of all materials, manpower, transportation, equipment, tools, machinery, temporary works and all the other works required", as approved by the DRC Project Manager.

- In case of differences between bill of quantities and contract documents, the Contractor should immediately highlight the difference to the DRC Project Manager. They will rule upon this within 24 hours.
- All electrical and mechanical items supplied should be supplied with certificates of origin and confirmation from manufacturer that the parts are genuine. .
- Where a standard is specified the Contractor must supply an item that meets this standard, unless they can demonstrate that the proposed item is to an equal or higher standard. The acceptance of any substitution is at the discretion of the DRC Project Manager.
- The contractor shall provide a final price and any omissions from the BOQ deemed necessary for the competition of the works shall be at the cost of the Contractor

NO.	Item description	UNIT	QTY	Unit Cost	Total Cost
	Item Description				
1	Undertake design verification of items A1-A3, B1-B9, C1-C10 listed below and verify that the items are suitable for purpose during an initial site visit, after award of contract.	lumpsum	1		
2	Once site has been accessed undertake a survey and confirm requirements for making the site operational again. Including producing any necessary BOQs.	lumpsum	1		

Lot 1 - Electrical Grid Connection					
A.1	Providing sufficient equipment, labor, tools and materials to maintain, test and operate 33kv power station. The work includes repairing; a 10 MVA 33/11 power transformer, CELME Brand Italian made, including • Primary & Secondary coils, • Control wiring and connections,	lump sum	1		

	• Filtering, • Oil filling, • Repairing damaged cables, • 33 kV outdoor type, SF6, AREVA incoming Circuit Breaker, The work should be done under the supervision and direction of the Directorate of Water Electrical Engineer.				
A.2	Providing sufficient equipment, labor, tools and materials to maintain, test and operate 33kv power station. The work includes repairing; A 14 MVA 33/11 power transformer, CELME Brand Italian made, including: • Primary & Secondary coils, • Control wiring and connections • Filtering, • Oil filling, • Repairing damaged cables, • 33 kV, outdoor, SF6, AREVA Circuit Breaker, The work should be done under the supervision and direction of the Directorate of Water Electrical Engineer.	lump sum	1		
A.3	Supply and install test a 2.5MVA 11/0.4 KV power transformer, oil immersed with ONAN cooling and OFFLOAD TAP CHANGER WITH RELAYS.	lump sum	2		

- A-Buchholz
- B- Winding
- C- Oil temperature
- D- Gas receiver trip to protect the tap changer
- E - Pressure relief valves.

The transformers shall be double copper wound, three phase, oil immersed with ONAN cooling. The supplied transformer shall conform in all aspects to the highest Engineering standards, design and workmanship. Including relevant IEC, ANSI, BS, AS, GOST, IEEE, IS, BS Standards. the design shall be in accordance with IEC 60076, IEC 60068-3-3, IEC 60085, IEC 60214-1, Tap Changer shall conform to IEC 600214-1 and IEC 600214-2, paint shall conform to ISO12944

Material thermal class insulation: IEC 60085 class A

Temperature rise: Mean winding temperature rise = 65 K

Top oil temperature rise 60 K

With the ambient temperature in accordance with IEC 60076-1

The temperature of the oil cooling air should not exceed:

- 20°C yearly average
- 30°C monthly average during the hottest month
- 40°C at any time

Rated Frequency: 50 Hz

Type of Cooling: ONAN (Oil Natural Air Natural)

Dielectric liquid Mineral oil: According to IEC or ANSI standard

	Short circuit withstand ability: Withstand the thermal and dynamic effects resulting of a secondary short-circuit in accordance with IEC 60076-5 Installations: Indoor or outdoor HV & LV terminals HV terminals: Plug-in or porcelain bushings LV terminals: Bus bars or porcelain bushings				
Sub-Total Lot 1 - Electrical Grid Connection					

Lot 2 - Electrical Works					
B.1	Providing sufficient equipment, labor, tools and materials to supply, install and test bus-bars as directed by the Directorate of Water Electrical Engineer. Copper type, 100*10 mm, for low lift pump station, switch boards	Meters	40		
B.2	Providing sufficient equipment, labor, tools and materials to supply, install and test bus-bars as directed by the Directorate of Water Electrical Engineer. Copper type, 50*10 mm, for filters switch boards.	Meters	100		
B.3	Providing sufficient equipment, labor, tools and materials to supply, install and test low tension, stranded (1-1.6 kV, CU/PVC/PVC/NYY,XLP) cable (1x240) copper conductor. Supplied cables should comply with IEC 60502-1, IEC60502-1, IEC 60227 and IEC 60502-1	meters	1,000		

B.4	Supply & installation of cable terminals at the Direction of the Directorate of Water Engineer that meet the following specification; • Copper specification: 99% IACS, to BS 601 7 1981 (1989). • Copper finish: Electro Tinned to BS 18721984 (1984) The Contractor should have available sufficient numbers of cable terminals in the range; 25, 35, 50, 70, 95,150, 120, 185 and 240 mm².	pieces	250		
B.5	Providing sufficient equipment, labor, tools and materials to supply, install and test MCCB (Molded Case Circuit Breaker) at the instruction of the Directorate of Water Electrical Engineer. Supplied MCCBs should be CE marked, in accordance to Directive 2006/95/CE on electrical equipment and conform to IEC 60947-2. Supplied MCCB should be 400V, 3 Pole, with magnetic protection and thermal and over current protection. - 1600 A - 1000 A - 630 A - 250 A - 100 A	pieces	4		
		pieces	2		
		pieces	2		
		pieces	2		
		pieces	2		

B.6	Providing sufficient equipment, labor, tools and materials to supply, install and test MCB (Mini Circuit Breaker) at the instruction of the Directorate of Water Electrical Engineer. Supplied MCBs should be CE marked, in accordance to Directive 2006/95/CE on electrical equipment and conform to IEC 60947-2 and IEC/EN 60898-1. Suitable for use in residential, commercial and industrial applications with insulation provided to IEC/EN 60664-1, rated to IP20 and in accordance with EU Directive 2002/95/EC August 18, 2005 and amendment Resistance to Shock in accordance with IEC 60068-2-27 should be 25g / 2 shocks / 13 ms. Resistance to Vibrations should be according to IEC 60068-2-6: 5g, 20 cycles at 5 Hz with load 0.8. The range of required MCB ratings is, 1,2,3,4,6,10,13,16,20,25,32,40,50,63,100 A with the spilt being determined by the Director of Water Electrical Engineer upon commencement. - Single - Dual - Triple	pieces	50		
		pieces	25		
		pieces	25		

B.7	Providing sufficient equipment, labor, tools and materials to supply, install and test at the instruction of the Directorate of Water Engineer 220 V, 10A, 30/C contacts, IP40, operating temp. up to 55 C°, 11 pin plug in relay, Conforming to standards IEC/EN 61810-1 (iss. 2), UL 508, CSA C22-2 n° 14, Vibration resistance conforming to IEC/EN 60068-2-6 and Shock resistance conforming to IEC/EN 60068-2-27.	pieces	100		
B.8	Provide sufficient equipment, labor, tools and materials to supply and install, on the instruction of the Directorate of Water Engineer, a power cable of (4x2.5) mm2, PVC isolated, copper stranded conductor. Supplied cables should comply with IEC 60502-1, IEC60502-1, IEC 60227 and IEC 60502-1 (Multiple locations)	Meters	300		
B.9	Providing sufficient equipment, labor, tools and materials to supply, install and test at the Direction of the Directorate of Water Engineer trip coil (shunt tripping coil), 110 VDC, for an 11kV Gas insulated TAMCO motorized circuit breaker, the trip coil shall be genuine part manufactured by TAMCO switchgear.	pieces	20		
Sub-Total Lot 2 - Electrical Works					

Lot 3 - Mechanical Works

C.1	Provide the required equipment, labor and tools for supplying, installing, testing and operating a dewatering submersible pumps. The supplied pump should be rated to IP68, with a maximum submission of 20 meters, all necessary connections and cabling should be supplied. The manufacturer of the pump should be TSE TS 12599: 1999, ISO 9001 accredited and the supplied pump should be CE marked and certificated under ISO 60204-1:2006 / 42 / EC Machinery Directive/ Annex VIII. Additionally, the pump should be manufactured in accordance with ISO 14001:2004 and OHSAS 18001:2007. The price includes transportation to the site and installation including all necessities (pipes, bolts, cables, starter, float switch "sensor" etc.) under the Supervision of the Directorate of Water Engineer. Q =20M³/HR, H=10 m, with an electric starter and an rpm of 1500.	units	2		
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C.2	Provide the required equipment, labour and tools for servicing, testing and minor repairs for high lift pumps & motors, serving Hermmat Line (Horizontal split case type, Q = 1000 m³/h, H = 60 m, RPM = 1500, pumps as described in the appendix). The work includes dismantling the pump & motor cover, fabricating and replacing all damaged, lantren and wear rings (brass), brass bushes, replace ball bearings, checking all electric connections and operating the motor. Spare components should be suitable for the installed equipment and approved by the DRC Project Manager. The works will be supervised by the Directorate of Water Engineer. The works include maintaining the delivery control valve.	units	2		
C.3	Provide the required equipment, labour and tools for servicing, testing and minor repairs for high lift pumps & motors, serving BS1 (Rageem-Hadeed Line). (Horizontal split case type, Q = 2200 m³/h, H = 120 m, RPM = 1500, pumps as described in appendix). The work includes dismantling the pump & motor cover, fabricating and replacing all damaged, lantren and wear rings (brass), brass bushes, replace ball bearings, checking all electric connections and operating the motor. Spare components should be suitable for the installed equipment and approved by the DRC Project Manager. The works will be supervised by the Directorate of Water Engineer. The price includes repairing delivery control valve.	units	2		

C.4	Provide the required equipment, labor and tools for servicing, testing and minor repairs for high lift pumps & motors, serving BS2 (Al-Yarmook) line. (Horizontal split case type, Q = 2000 m³/h, H = 60 m, RPM = 1500, as described in appendix). The work includes dismantling the pump & motor cover, fabricating and replacing all damaged, lantern and wear rings (brass), brass bushes, replace ball bearings, checking all electric connections and operating the motor. Spare components should be suitable for the installed equipment and approved by the DRC Project Manager. The works will be supervised by the Directorate of Water Engineer. The price includes repairing delivery control valve.	units	2		
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	Provide the required equipment, labor and tools for servicing, testing and minor repairs for low lift station pumps & motors. (Horizontal split case type, Q=2800m ³ /hr., H = 80m, RPM = 1500, pumps as described in Appendix).				
C.5	The work includes dismantling the pump & motor cover, fabricating and replacing all damaged lantern and wear rings (brass), brass bushes and replacement of ball bearing as required, checking all electric connections and operating the motor. Spare components should be suitable for the installed equipment and approved by the DRC Project Manager. The works will be supervised by the Directorate of Water Engineer.	units	4		

C.6	Provide the required equipment, labor and tools for supply, Install and testing of a Chlorination Dosing System: With, agitator, hydraulic piston diaphragm dosing pump and all other necessities (pipes, elbows, wiring, etc.), the cost includes providing all the required electrical works (control panel & wiring) and other plumbing works to install them on the flash mixer and the contact tank according to the instruction of the Directorate of Water Engineer. Mechanical Specifications 1 - Dosing Pump: 1150 L/h, 10 bars, 2 - I.P dosing head with multifunction valve. 3 - Polyethene tank:2000 L housed in a metallic cage, that supports agitator and dosing pump 4 - Suction line PVC including foot valve with strainer 5 - Agitator: stainless steel shaft and blades Electrical Specifications 1 - Agitator: 1-phase 220 v or 3-phase 400 v 2 - IP65 or higher 3 - Control Panel: IP55 or more with all protection and metering devices	units	3		
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C.7	Provide the required equipment, labor and tools for removing all mud, water, etc. from sludge pit and cleaning. The size of pit 1000 m ³ . N.b. a temporary sludge submersible pump should be provided by the contractor. This will remain a contractor's item and is not required for handover.	lump sum	1		
C.8	Provide the required equipment, labor and tools for minor repairs for the existing dislodging pumps (Q = 1300 m ³ /h, H = 8.5 m, RPM = 980, pumps as described in the Appendix). Work to include dismantling the pump motor in order replace the ball bearings, steel bushes, repairing the impeller and dry the coils, by using heat. Checking coil insulations, by using an appropriate Mugger tester and replacement of all damaged ball bearings. Spare components should be suitable for the installed equipment and approved by the DRC Project Manager. The works will be supervised by the Directorate of Water Engineer.	units	5		

C.9	Provide the required equipment, labour and tools for minor repairs for the existing desludging motors, 40kw drying coil by using heat, checking coil insulations by using Megar testar, also changing ball bearing and re-assembling the motor changing all damaged ball bearings Work to include dismantling the pump motor in order replace the ball bearings, steel bushes, repairing the impeller and dry the coils, by using heat. Checking coil insulations, by using an appropriate Mugger tester and replacement of all damaged ball bearings. Spare components should be suitable for the installed equipment and approved by the DRC Project Manager. The works will be supervised by the Directorate of Water Engineer.	units	5		
C.10	Supplying and test a new diesel pump, portable type, self-priming, pump with Q = 15m³/h , H = 15M. All connections, accessories and flexible piping required for a 20 m intake and outlet. In addition intake pipe to be fitted with suitable strainers. Item to be approved by DRC Project Manager before supply.	pieces	2		

C.11	Provide the required equipment, labour and tools for inspection, minor repair and test of DUPLEX AUTOMATIC VACUUM PRIMING SYSTEM for the low lift pump station as detailed in the Appendix. The work includes repairing the oil-lubricated vane vacuum pumps (changing all damaged parts), vacuum-valve, and replacement of all electric control, servicing of the 3kW motor and replacing all required fittings according to Directorate of Water Engineer.	units	2		
Lot 3 - Mechanical Works					
Total Cost					

Technical Details:

Please complete the table bellow. Failure to provide this information details may disqualify your bid.

NO.	Item description	BoQ Reference Number	Country of Origin	Brand	Range of selected item	Model Year
	Item Description					
1	Spare parts and materials for 10 MVA 33/11 Transformer, CELME power transformer, including:- Primary & Secondary coils and Oil filling	A.1				
2	Spare parts and materials for A 14 MVA 33/11 CELME power transformer, including:- Primary & Secondary coils and Oil filling	A.1				
3	2.5 MVA 11/04 kV Power transformer	A.3				
4	Molded Case Circuit Breakers - MCCB	B.5				
5	Mini Circuit Breaker - MCB	B.6				
6	11 pin plug in relay	B.7				
7	Dewatering submersible pumps.	C.1				
8	Ball bearings and Brass bushes Spare parts, as required.	C.2, C.3, C.4, C.5,				

12	Chlorination Dosing System: Agitator & motor, Hydraulic piston diaphragm dosing pump	C.6				
13	Ball bearings steel bushes and other relevant spare parts	C.8, C.9				
15	Diesel pump, portable type, self-priming, pump	C.10				
16	Oil lubricated vane vacuum pump proposed spare parts and materials	C.11				

Additional Information & Requirements		Company Details & Signature	
Offered Completion Days:	_____ Days	Company Name:	
Required Delivery Terms:	DDP (INCOTERMS 2010)	Contact Person:	
Delivery Destination:	New Right Bank Project, West Mosul (36.363178; 43.027489)	Address:	
This Bid is valid for:	30 days	Phone No.	
Currency of Bid:		Print Name:	
Warranty Period	_____ year	Email Address:	
Date:		Signed:	Title & Position (A duly authorized company representative.)

Please stamp this Bid Form with your Company Stamp