

Scope of works & building specifications

Introduction:

Islamic Relief Worldwide has been operating in Sudan since 1984, initially responding to a famine. They have established a main office in Khartoum and expanded their presence to multiple states within Sudan. The IR Sudan operations include providing emergency relief, food security, livelihood support, women's empowerment, education, and basic health services. Also, IR Sudan run programs for orphans and offer seasonal support like Ramadan and Qurbani distributions.

Islamic Relief's work in Sudan has focused on assisting those affected by conflict, displacement, and natural disasters and provided aid to over 1.2 million people affected by the recent conflict, distributing food, water, and hygiene kits. In addition to this, IR Sudan support health centers and nutritional feeding centers, and have provided financial assistance and livelihood support to displaced families.

Currently IR Sudan is looking to engage with qualified contractor to construct water kiosks for UmMasan and Danabo Villages in Gedaref state

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Scope of works:

- The successful contractor will be given the task to undertake the construction of water kiosks for UmMasan and Danabo Villages in Gedaref state
- The construction works must be completed according to the BOQ specification.
- The contractor should be able and have the capacity to supply the required materials, skilled, un-skilled labors , equipment and tools to complete the construction works within the time frame specified in work plan and with required quality.
- Any change or amendment on the construction works, BOQ and scope of work should be discussed and agreed with IR Sudan field engineer in advance and on writing.
- The contractor should supply good quality materials in complaisance with IR Sudan procurements standards and execute work as specified bellow and detailed in the drawing.

Works specification:

- Excavate isolated foundations, 50 cm diameter and 1 m depth, for each main column.
- Supply of materials and casting of 3-inch pipes, 5 mm thick, every 1.5 meters with base reinforcement 20 cm thick, then casting the remaining depth of the column inside the base (80 cm) using white concrete mix 1:3:6, with proper water curing for five days, ensuring the net height of the kiosk is 3 meters.
- Excavate soil inside the kiosk to a depth of 0.50 m, then supply materials and backfill the excavated soil with red fill, properly compacted with water in two layers to prepare the base for flooring casting.
- Supply of materials and casting of 10 cm thick plain concrete flooring with a 1:2:4 mix ratio, including proper water curing for 5 days.
- Supply materials and install horizontal braces every 1 meter using imported heavy 2-inch × 3 mm angle steel to support the structure, fixed with 4-inch drill screws and proper welding to ensure durability and stability.
- Supply materials and install heavy local zinc sheets, 0.35 mm thick, for the sides, properly fixed with 4-inch drill screws onto the vertical and horizontal angles of the structure at a height of 1.5 m from ground level, then install a 1 m high louver to ensure ventilation in the airflow direction as shown in the attached drawings.
- Supply materials and construct a roof using local zinc sheets, 0.35 mm thick, firmly fixed on horizontal purlins made of 2-inch × 5 mm angle steel spaced every 1 m, with zinc sheets secured using 4-inch drill screws and welding where required, including installation of thermal insulation beneath the zinc to reduce heat, and providing adequate slope for rainwater drainage.
- Fabricate, supply, and install a heavy zinc door with 0.35 mm thickness, using 4×8 cm square pipes for the outer frame and 3×6 cm pipes for the inner frame, with dimensions of 1.00 m width and 2.20 m height, including a lock operable from both inside and outside.
- Supply, install, and connect a 5000-liter food-grade polyethylene water tank, triple-layer, heat and UV resistant, equipped with a float valve and non-return valve, mounted on a base made of 3-inch × 5 mm heavy angle steel with a total height of 2.5 m; the base legs shall be embedded 0.80 m into the ground and fixed with white concrete, with X-bracing on all four sides for proper reinforcement.
- Supply, install and test, 2" centrifugal solar pump, of $Q=15 \text{ m}^3$ per hour with total head= 5 m,, the cost include (6 solar panel size 550 watt Jinko with super structure , invertor 3 k GSB , complete fittings and pump accessories including float, non-return valves, flanges, adaptor etc. First pump set for raw water and second pump set for clean water to elevated tank both in 3x3m steel pump room. Pump installation shall include RC foundation. Pump shall be European made subjected to the approval of the Engineer prior installation.
- Supply and installation of 2-inch diameter Poly Ethylene pipes, as line from the pump to the water tank ,, the cost including all required fittings and valves, and installation the distribution network as per the approved layout.
- construction of two sides distribution points with 5 taps in each side and control valve 2inch with drainage system in area of 3*3.
- Supply and installation of a fence made of galvanized anti-rust gabion wire mesh with 5×5 cm / 2mm openings, tightly stretched and fixed on vertical iron angle 3-inch and thickness 5 mm . The posts shall be embedded 1 meter into the ground and cast with 1:2:4 concrete mix, with proper compaction and alignment to ensure stability. Horizontal bracing bars of 12 mm reinforcement steel shall be installed at three levels (top, middle, bottom) and fixed to the posts by welding or tying to provide additional rigidity. The top of each post shall be shaped in a "Y" form to secure the mesh and prevent sagging, ensuring the mesh is well-stretched and firmly tied to both posts and bracing bars for strength and continuity. All angles shall be painted with anti-rust primer followed by blue and white finishing coats. All works shall be executed in accordance with technical standards and engineering specifications under the supervision of the consultant/engineer in charge.

- Supply, fabricate, and install a main gate with a clear opening of 3.00 m width and 2.50 m height, consisting of two leaves, with H-section steel columns 140 × 140 mm, thickness 6–8 mm, fixed into concrete foundations 1.2 × 1.2 m and 1.2 m deep, the main frame made of square steel pipes 4 × 8 cm, thickness 2.0 mm, and the subframe made of steel angles 1.5 × 1.5 inches, thickness 4 mm, fitted with heavy-duty galvanized gabion wire mesh (7 × 7 cm openings, 4 mm wire thickness). Each leaf is equipped with a CNC-cut steel plate, 6 mm thick, engraved with the Islamic Relief logo and donor logos, mounted securely. Each leaf has 4 heavy-duty hinges, 16 cm each, and internal and external locks with a sliding bolt and padlocks. All steel surfaces are sand-blasted, coated with two layers of anti-rust epoxy primer and three layers of high-quality oil-based or polyurethane blue paint, with logos painted in white. Gate foundations include proper slope and drainage to prevent water accumulation. All metal components are hot-dip galvanized to ensure durability and sustainability. Works to be executed according to engineering standards under the supervision of the site engineer.
- Supply and installation of a signboard (3 m height × 1.8 m width) made of heavy imported steel sheet (8 mm thick, high durability). The structural frame shall be made of galvanized pipes (3 inches diameter, 5 mm thick) for the main frame, with a base extension (Dastoor) at the end of each pipe fixed into the ground and cast with white concrete mix (1:2:4). The inner frame supporting the steel sheet shall be made of heavy imported rectangular hollow sections (4×8, 5 mm thick). All joints shall be properly welded, and the edges smoothed using a grinding stone to eliminate sharp surfaces. The structure shall be fixed at ground level (0.70 m depth) and supported with 3-inch, 8 mm steel angles embedded in concrete mix (1:2:4) from both the front and back sides. The braces shall be installed at a height of 2.3 m from the signboard and embedded 70 cm into the ground. The signboard shall be painted with one anti-rust primer coat and three finishing coats. The content and logos shall be clearly hand-painted on both sides with oil-based paint. The cost shall include all excavation, fittings, welding, fixing, transportation to the required sites, and painting works, all as per the supervising engineer's instructions.

General notes:

Materials/Equipment to be supplied by contractor:

- All materials and equipment supplied locally by the contractor shall be of the best quality in their class and of the respective kinds as described in the contract and in accordance with the "Supervisor's" instructions and to the satisfaction of the IR Sudan Engineer. They shall be inspected from time to time at the site during the progress of the work.
- Any materials/equipment arriving on site found unsuitable shall be rejected. The contractor shall replace the rejected material/equipment at his own expense.

Health & Safety

Safety

During implementation period, many factors of safety should be considered:

- Labourers shall have enough and appropriate digging tools and keep excavated materials back at least 600 mm (2 ft.) from the edge of any trench excavation and 1.2 m (4 ft.) from any other excavation.
- Protective gloves and suitable protective clothing to protect hands or the whole body as required that should be provided to Labourers.
- Provide a ladder when workers are required to enter excavation over 1.5 meter (5ft) in depth, the ladder should be properly fixed to prevent slipping.
- During the digging some argument should take place to prevent falling stone in the well, and support the sides of excavations by sheet piling, shorting and bracing to guard against danger to workers from fall or dislodgement of earth, rock or other material.
- The well should be covered during the night to prevent falling children inside.
- Fence the construction site to prevent the entry of unauthorized persons on construction sites, which are located in built-up areas and alongside vehicular and pedestrian traffic routes.

- The contractor shall also follow the field engineer of IR Sudan guidelines for working in excavations and ensure that these standards are met at all times during construction work alongside the above specific points.

Quality assurance:

All materials and equipment supplied by the contractor shall be of the best quality in their class and of the respective kinds as described in the contract and in accordance with the (supervisor's) instructions and to the satisfaction of the IR Sudan engineer. They shall be inspected from time to time at the site during the progress of the work. Any materials / equipment arriving on site found unsuitable shall be rejected. The contractor shall replace the rejected materials at his own expense.

Materials and workmanship:

All the work noted in this specification must be carried out to the highest standard which is normally possible using only the best materials and most skilled workmen. Samples of all construction materials must be shown to a representative of IR Sudan for written approval before starting construction.

Site in charge:

The contractor must employ an experienced site-in-charge who must be on site to supervise the work at all times when work is generally leave the whole area of the site clean, washed, tidy and ready for use.

A. Basic materials:

Cement:

The choosing of cement brand must agree with a representative of IR Sudan. All cement brought to the site must be fresh (manufactured within previous three months) and in perfect condition for use. All cement brought must be stored carefully so that it remains in perfect condition. Storage must be a totally dry place with a platform of planks or bamboo to keep all cement 6 minimum height above ground.

Coarse aggregate for concrete:

The first choice of coarse aggregate chosen by IR Sudan is graded river gravel of suitable type and strength. The second choice of aggregate is broken stone of suitable type and strength.

The source of aggregate should be clean and free from impurities and plant material. The shape of the aggregate should be mostly rounded with a small number which are long or flat. If this type of aggregate is not available the contractor must agree with a representative of IR Sudan which other type to use.

Sand:

The first choice of sand chosen by IR Sudan is good quality river sand. The sand must not contain mud, dust, or pieces of plants. The contractor must make all efforts to obtain coarse sand (with zero fines). A sample of sand must be shown to a representative of IR Sudan. For plastering the sand must be sieved according to the IR Sudan field engineer additional specification.

Water:

Clean water must be used in all construction works especially for plaster or mortar. The contractor must inform a representative of IR Sudan. As to the source of water used in all construction works.

B. Workmanship:

Blockwork wall workmanship:

All block walls should be laid in 1:2:4 cement: sand mortar. All bricks or block surfaces must be wetted with water before laying commences. Blocks should be soaked for just sufficient time for water to penetrate the whole brick. Existing wall brick layers should be wetted slightly before laying new bricks. All vertical and horizontal joints are to be completely filled with mortar. New brickwork and blockwork must not be laid for more than 1m above the general construction level at any one time. Brickwork and blockwork must be kept covered with wet sacking for one week after laying.

Concrete workmanship:

All materials for concrete (cement, sand, aggregate and water) must meet the quality specifications set out in section B. The proportions of cement, sand and aggregate and must be determined by volume according to the following table:

Concrete mix (1m3)	Cement	Dry sand	Gravel
1:2:4	320 kg	0.45 m3	0.9 m3
1:3:6	220 kg	0.46 m3	0.92 m3

Water / cement ratio quantity of water must not exceed the following:

Concrete mix	Amount of water
1:2:4	32 liters per 50kg cement
1:3:6	25 liters per 50kg cement