TERMS OF REFERENCE FOR DRILLING OF BOREHOLE

Location: Yei
Project: SSHF
Job Title: Drilling of 03 Bore-hole completed with I MK II/III hand pump.

Background
Islamic Relief South Sudan is an international humanitarian organization that has been working with vulnerable communities in South Sudan since 2004, towards Emergency relief and recovery interventions in South-Sudan, IR is responding to priority needs of the conflict affected population in Yei county of Central equatoria state. With funding from UNDP/SSHF, IRSS intends to improve access to clean drinking water, sanitation and hygiene status in targeted arears of Yei town by construction of three new boreholes equipped with Indian MK II hand pumps. IRSS is sourcing for a competent company to carry out drilling of three (03) boreholes completed with Indian MK II/III hand pumps.

1. Scope of Work: 
The drilling work is expected to be implemented within Yei town, in the following locations:

<table>
<thead>
<tr>
<th>S/no</th>
<th>Location / village</th>
<th>Boma</th>
<th>Distance from the centre</th>
</tr>
</thead>
<tbody>
<tr>
<td>01</td>
<td>Hai Atlabara</td>
<td>Romoju</td>
<td>1.5 Kilometres’</td>
</tr>
<tr>
<td>02</td>
<td>morokonye</td>
<td>Gimunu</td>
<td>7.00 Kilometres</td>
</tr>
<tr>
<td>03</td>
<td>Giru</td>
<td>Mahad</td>
<td>3.00 Kilometres’</td>
</tr>
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Mandatory Documents for Bidding
The supplier is required to submit his/her proposal with the following documents:-
   i. Certificate of incorporation
ii. Tin

iii. Tax Clearance

iv. Registration with Ministry of Water

v. Practicing license

vi. Trade license

vii. Bank statement for three months i.e. Dec 2018 to Feb 2019

**Language of the Bid**
The bid, all correspondence & documents relating to the bid shall be in English language.

**Cost of Bidding**
The bidder/s shall bear all costs associated with preparation and submission of its bid. IRSS will in no case be responsible for those costs, regardless of the conduct or outcome of the bidding process.

**Clarification of Bidding Documents**
A supplier requiring any clarification shall notify IRSS in writing or by telephone & IRSS will respond in writing to any request prior to the deadline.

**Amendment of Bidding Document**
At any time prior to the deadline for submission of bids IRSS may for any reason whether at its own initiative or in response to a clarification requested by a prospective bidder, modify the bidding documents & will be binding on them. The amendment will be notified in writing or by email or letter to all prospective bidders, who have received the bidding documents & will be binding on them. In order to allow prospective bidders responsive time in which to take the amendment into account in preparing their bids, IRSS may, at the discretion, extend the deadline for the submission of the bids.

**Bid Currencies**
The bids prices shall be quoted in US Dollar (USD).
**Bids Prices**

- The bidders shall indicate the unit price where possible and the total bid price of the Work separately (for each work).
- Prices quoted by the bidder shall be fixed for a period of four months i.e. during evaluation, award and implementation.

**Award Criteria**

The contract shall be awarded to the most economically advantageous tender/bid that meets quality, specification, delivery, price and good terms of payment.

*IRSS is not bound to accept the highest, lowest or any other tender or bid, and is not bound to give any reasons thereof.*

**IRSS’s right to vary quantities at the time of the award**

IRSS reserves the right at the time of award of contract to increase or decrease the quantity.

**IRSS’s right to accept any bid and reject any or all bids**

IRSS reserves the right to accept any bid and to annul the bidding processes and reject all bids at any time prior to award of contract, without, thereby incurring any liability to the affected bidder or bidders or any obligation to inform the affected bidder or bidders on the grounds of its action.

**Tender Schedule**

<table>
<thead>
<tr>
<th>Task</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Advertising of Tender</td>
<td>13th of March, 2019</td>
</tr>
<tr>
<td>Closing of Tender</td>
<td>19th of March, 2019</td>
</tr>
<tr>
<td>Opening of Tender</td>
<td>20ND March 2019</td>
</tr>
<tr>
<td>Evaluation &amp; Award</td>
<td>22nd March 2019</td>
</tr>
</tbody>
</table>

The deadline for submitting bids/quotation is **19TH MARCH 2019 at 4.00 pm**. Bids to be sent to IRSS office in a hard copy marked
Should you be interested in bidding for the supply of the above mentioned items, we here by invite you to collect tender documents from IRSS Office, Hai Cinema, 2nd class, Plot no 54, Block B-XVI, Juba, South Sudan. We request you to submit your completed bid documents to the following address:

The work will involve:

(a) **Geophysical Survey/Profile Taking**

The selected company is expected to carry out geophysical survey before drilling commences, study is expected to use both secondary and primary data in the exercise; Secondary data will involve desk study of available information/data on existing boreholes, drill logs, reports and maps. The outcome of the study and recommendations is to be shared with IRSS before commencement of drilling work starts.

The geophysical investigations will be carried out in a multi-step approach:

a) Desk study: Review of existing data, topographical maps, satellite images, existing studies and borehole site investigations in the area, geological reports and maps (if available), borehole and surface water records, etc.

b) Findings.

c) Compilation, analysis, and evaluation of the gathered data and information.

d) Site selection and reporting.

(a) **Borehole Siting:**

The field investigations MUST be undertaken by a senior Hydrogeologist, assisted by highly qualified hydro-geologists. The senior hydro-geologist will be responsible for planning, execution and interpretation of all geophysical data, reporting and selection of the most suitable site for the drilling. The most promising site selected for drilling shall be marked with a concrete marker and indicated on a sketch map. The recommended site identified has to be well communicated to the community and the community should agree on the site first before drilling operation starts. Any geological difficulty arising making proposed sites by the community not suitable for hydrogeological reasons such that the promising
sites falls outside the preferred one by the community, all reasons for such changes shall be clearly communicated to the community and ensure they understand and agree on that.

(b) **Bore Well Drilling Requirements**

The drilling of the borehole should be carried out according to the characteristics of the soil formation of the site, as per result of the hydro geophysical survey while using proper drilling tools, drill pipes, casing pipes with centralizers to ensure that casing string is central within the hole.

- The expected bore well diameter is 6.5 inches
- The expected depth of the bore well is between 60.00m to 90.00m
- The expected yield of the bore well is a minimum 3,500 liters/hour.

**Screen casing** – factory made UPVC slotted 4.5 inches nominal internal diameter screens will be used throughout the aquifer zone. The slot size and screen length will depend on the aquifer materials and aquifer thickness placed at appropriate positions and depth. Screens should be of an ISO standard and having the specification UPVC class 9/10 drinking water standard non-toxic.

**Plain casing** – 4.5 inches nominal internal diameter casing should be of ISO standard UPVC class 10 drinking water standard, 3 meters long with threaded joints, well screwed, appropriately placed in the correct positions in the well.

**Permanent casing** – plain casing of 8 inches diameter Permanent casing must go up to 6 m or up to hard formation to ensure that it seals off all materials from surface runoff entering the well and sanitary grout is inserted to a depth of not less than 1.50m from ground level.

**Development** – on completion of drilling, an appropriate development method will be applied this can include continuous flushing for a period not less than 4 hours, meanwhile estimating the discharge rate. This is necessary to obtain the maximum yield of the well.

**Gravel packing** – Gravel packing material shall be supplied and install all along the filter (aquifer) section of the well. The material shall be 2mm – 4 mm diameter, clean, well rounded siliceous gravel with not more than 5% of non-siliceous materials. Sanitary seal should be installing at an appropriate depth using recommended grout materials.
**Pumping test** - Pumping test will be for a period not less than 6 hours in which the first 4 hours is for step draw down while the 2 hours for continuous test. The discharge at this point will correlate to the discharge during flushing.

**Recovery test** – recovery test should be done for at least 2 hours or such time when there is at least 80% of the static water level noted. The result for the pumping test should guide in determining the capacity of the pump appropriate for the well.

**Water Quality Analysis** – water quality test to be conducted at the end of the drilling to determine the status of the water, considering all the parameters recommended for testing. Ensure borehole is chlorinated before opening to users.

**Bore-hole Installation:**
Successful borehole will be installed with either Indian MK II or MK III hand pump will be installed as follows: < 50 m pump depth will be Indian MK II and > 51 m pump depth will be Indian MK III
- All platforms (aprons) should conform to south Sudan standards from Ministry of water resources and UNICEF.
- All drainage channels should be 6m long. Ensure boreholes are chlorinated and closed for 8 hours before use.

2. **Objectives:**
To ensure that, three boreholes are successfully constructed, hand pump well fixed and aprons are of good standard. Ensure the boreholes produces good amount and quality of water as required.

3. **Tasks and expected days of work**
- The contractor is expected to carry out the job accordingly, while assigning specific and clear task of works to specific team group e.g the hydrogeologist for geophysical survey, well logging and aquifer behavior, water engineer / technicians for test pumping and installation of hand pumps, drillers for good drilling operations. The whole work is expected to take 16 days including mobilization to and from the site.

4. **Reporting**
- Contractor to report on each phase of work successfully completed, this includes: Phase (1) Preliminary report of geophysical surveys work conducted on the three proposed sites (2) drilling completed and test pumping done (3) Hand pump installation, apron construction and fixing of sign posts.
5 **Handing over**

- Final inspection will be jointly conducted with the directorate of rural water supply and sanitation, community representatives various components of the borehole will be inspected and verified, according to the check list. In case of defaults in any component, has to be rectified before final handing over is done.

- After the facility is handed over, IRSS will carry out post construction monitoring for a period of three months before the liability (retention) money is settled.

6 **Visibility**

- A 0.80m height x 1.20m wide metallic sign post on 1.80m height stand (legs) shall be properly and appropriately installed for each borehole successfully completed.