Humanitarian support to Refugee, IDP's and host communities in Paktika Province, Afghanistan:

"Negotiating procedures for drilling operations in Barmal Districts, Paktika, Afghanistan."

1. PURPOSE OF THIS "TENDERING DOCUMENT"

This tendering document concerns a project IMC is implementing in collaboration with the MRRD regarding the drilling of 20 new boreholes, the installation of 20 hand pumps with apron in the Barmal district of Paktika province. The details provided as below:

2. DESCRIPTION OF THE ACTIVITIES

This is a succinct description of the activities to do. The technical specification required will be described bellow. The designs are in Appendix.

a. Drilling of 20 new boreholes, each borehole will be equipped of one apron and one hand pump as per agreed design provided. The average depth would be limited to 45m with minimum of 10m of water column in each borehole to consider as successful borehole.

- **Barmal:** Ten villages with 20 locations (1 boreholes in Manglity, 3 boreholes Laman, 2 boreholes in Sor zghmi, 4 borheles in Marghah, 5 boreholes in Almasty, 1 borholes in Salahk hail, 1 boreholes in Sharbat khail, 1 Walokay Amar khail, 1 boreholes Howzay khail and 1 boreholes in Sapai village of bahrmail district of Paktika province.

3. LOCATION AND ACCESSIBILITY

The boreholes sites are located in Barmal district of Paktika province. IMC team in collaboration with the Barmal water committee will mark the exact locations of each borehole site. IMC will hand over the site to successful contractor to initiate the agreed drilling and civil works through a joint IMC and community filed visit.

4. RESPONSIBILITY OF THE CONTRACTOR

- The contractor will have to start his activities, deliver his machinery, tools, material, drilling staff and equipment in Barmal and is aware of the accessibility constraints.
- The work contractor shall fill the 3 following documents which are complete parts of this file :
  - Work Contractor Form For A Work Contract
  - Work Contractor's Declaration(S) Including The Financial Identification and Aisa Registration
  - Offer
- Besides, he will provide an additional and official pro forma and the technical specifications of the items proposed.
- The purchase will be submitted to a work contract, under authority of IMC.
- The type of contract will be paid in real expenses and the quotation amount has to be presented in Afghani.
- The Contractor should be ready to start the works at the latest one week after the notification of call for negotiated procedure results.

- It is up to the Contractor to arrange at his own expenses the necessary platform and stock for its materials installation on site for the defined work. The contractor will manage with his own means the supply of adequate and necessary materials, equipment and labor to the working site.
- The Contractor will have to strictly follow the National guidelines of MRRD in term of Water Supply Technology/Technical options (Annex 1) as well as the technical requests and recommendations of IMC mentioned
- A good coordination between IMC and the contractor will have to be done through regular field visit and coordination meeting.
- The work has to be realized in good co-operation with the Barmal Water Committees that will be responsible of the Operation and Maintenance of the water sources (boreholes and water points) of the project after hand-over by IMC.
- The contractor will have to respect a strict agreed execution of the planed works.
- Security on the field is under the contractor responsibility; however, the contractor will benefit from IMC network information. In case insecurity events occurred, a temporary suspension could be considered with prior authorization from IMC representative.
- It is also under Contractor responsibility to ensure a safety barrier around the site and to prevent any incident with the civilians.
- The Contractor will be responsible for the security of his equipment and staff on the building site and IMC will not be at any case responsible of any degradation or stealing of material and equipment or harm to contractor staff. It is up to the Contractor to ensure the security maybe by relying on guards.
- If it appears in the middle of the course of the work, that the Contractor cannot fulfill his obligation in time, he will have to reinforce his means in order to complete the work within the completion period.
- The Contractor will be fully responsible for cleaning and removing all the materials and equipment after the completion of the works. A clean place will have to be set up as it belongs to the governmental area..
- A visit of conformity for the materials will be carried out by IMC staff at the beginning of works, with an aim of notifying:
  - Conformity with the material proposed in the offer,
  - Compatibility between the capacities of this material, technical specifications of this document and completion periods.
- The pronunciation of this conformity per official report does not relieve in any case the Assignee of his engagements.
- The Contractor is held to attend all the appointments of working site fixed by IMC. He will make sure that he will be represented by an agent whom will have all due capacities and power for the building site management.
- All the material that the contractor will use for the work will be subject to the approval of IMC Coordinator or its representative.
- All the defective materials will have to be evacuated by the Contractor at his own expenses.
- The contractor is responsible for a regular supply of material to ensure the smooth work of the site in order to fulfill his commitments.
- Notwithstanding the approval of IMC for the quality of materials, the Contractor remains responsible for quality for the used materials.
- It is from his responsibility to carry out and at his own expenses, all the material analyses and all necessary tests to a good execution of the works.
- The Contractor is in charge to follow all the steps, for obtaining all authorizations or agreements and for paying for all the expenses, royalties or allowances resulting from the influence of the installation of building sites.
- The importation of materials and supplies will be subjected to the preliminary authorization of IMC on justification that equivalent materials or supplies cannot be found in Afghanistan. Any change in the origin of materials and supplies imported must be authorized beforehand by IMC.
- IMC will pay if the borehole is declared positive (definition in technical specifications). IMC will not pay any amount of money if the borehole is declared negative.
- A penalty of 2% from total amount of contract per day of delay in the completion of the work will be applied.

5. TECHNICAL SPECIFICATION AND DESIGN

A – MATERIALS & TECHNICAL SPECIFICATION

Concrete Works:
Cement:
- Cement used for the mortar and concrete will be preferably artificial Portland cement CPA 325. It will have to be delivered out of bags of 50 kg rather than any other packaging.
- Recoveries of cement dust will be prohibited.
- Cement use on the site should not be stored over long periods (more than two months); the Engineer on site will check the quality on regular basis.
- Stone Masonry- (50ft3)= the maximum water used would be 25 liters
- Type 2 (Concrete 1:2:4) = the maximum water used would be 25 liters
- Pointing (1:2)- = the maximum water used would be 18 liters

Sand:
- Sand calibration : 1-3mm
- The sand used to prepare the mortar must be washed to avoid any soil particles being available.

Gravel*:*
- The gravel used for every concrete part must be crashed, cleaned and have a 1 to 3 cm diameter.

Water:
- The water used for every concrete part needs to be clear (turbidity less than 5 NTU).

Gravel pack:
The gravel to use as filtering layer must have a size between 5 and 15 mm. They must be washed and clean.

Clay:
The clay must be industrial quality and delivered in small aggregates shape if possible. If not available, the clay used to create the plug should come in chunks of small size (less than 5 cm) to avoid them to be stuck in a higher position than supposed to.

Hand Pumps and fetching equipment:

Hand Pump (Afridev, Pamir):

The hand pump to install must be of the model Afridev Pamir or Indus type best quality. The hand pump parts should be in compliance to drawing and specification of SKAT. The parts (Steel Plates, sheets, Angle iron leg and square bars for fabrication) should also confirm to Afridev Hand Pumps confirm the ISO 630/DIN 17100, ST 37-2 (as per Afridev Hand Pump specification revision-2, 1994).The quality of the hand pumps will be validated by IMC technical team.

- **Pump Head Assembly:** Fully fabricated steel structure duly Hot Dip Galvanized.
- **Cylinder Assembly:** UPVC Pipe 63mm (OD) x 4.7 mm thick lined from inside with seamless brass liner 50 mm I.D. x 700 mm long.
- **Connecting Rod:** 10mm dia x 3 meters long mild steel Hot Dip Galvanized ((AISI 304 grade, AISI 316 grade).
- **Riser Pipe:** UPVC Pipe 63 mm (2”) OD x 4.7mm thickness x 2.9 meters long with socket spigot cemented joint.
- **PVC casing** The Class B casing (4”) will be used for percussion machines wells

BOREHOLE DRILLING

1. ***Definition of positive borehole***

A positive borehole is a borehole that:
- Has a minimum of 10 m water column;
- Gives clear water after development;
- Has a minimum yield of 0.2 L/S;
- Is equipped according the MRRD regulations (see paragraph 3: equipment).

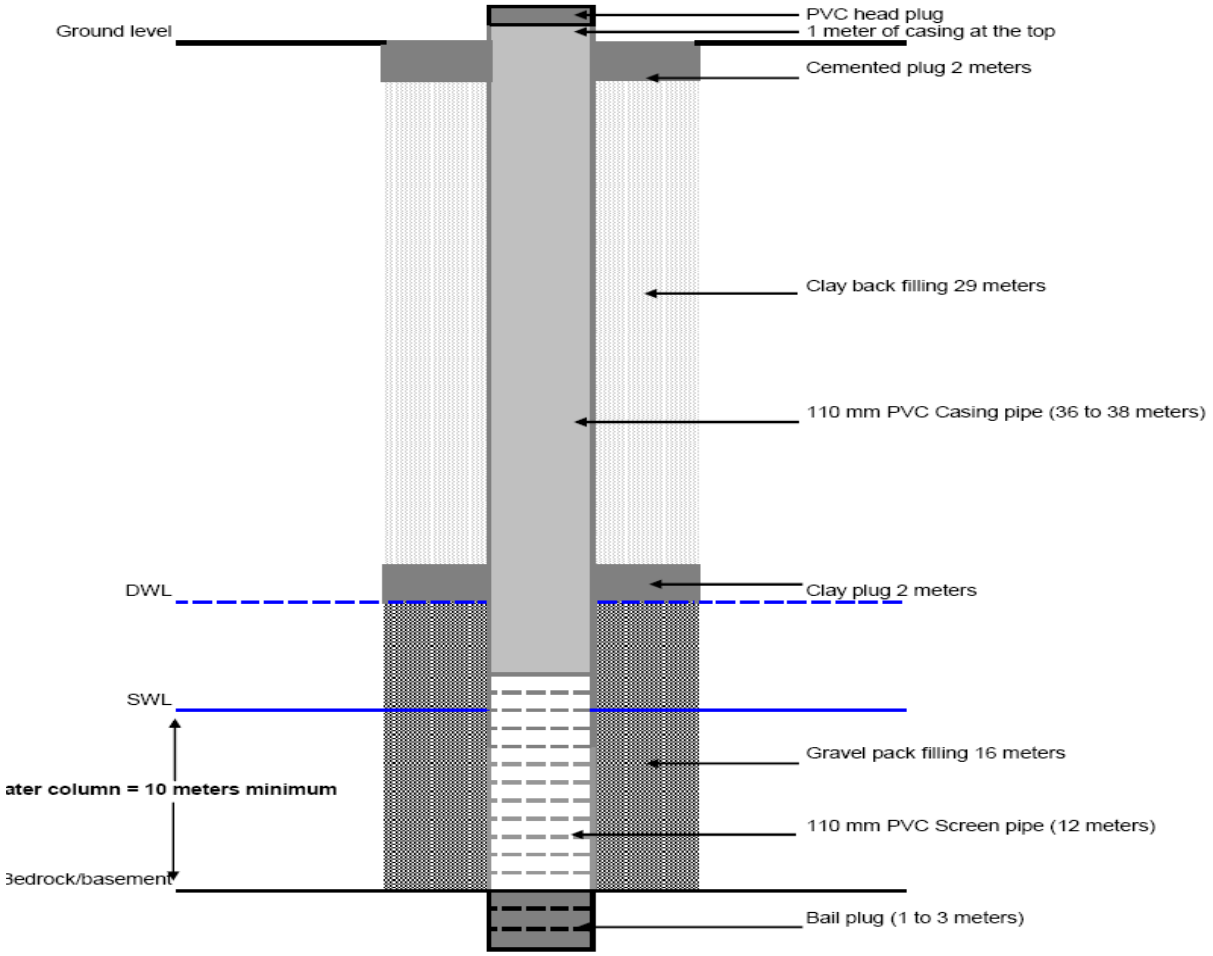
2. Procedure of drilling and equipment

- Superficial sedimentary formations drilled with the cable-and-tools machine with mud up to more than 40 m of depth in average;
- Installation of temporary casing based on needs;
- First development test for a minimum of 4 h;
- Installation of a bail plug in PVC;
- Installation of PVC screen class B;
- Placing of gravel pack 2m above the water table;
- Installation of PVC casing class B;
- Installation of a clay plug of 2m;
- Installation of clay back filling;
- Installation of concrete grout and head plug (2m) as sanitary seal for the borehole.
- Second development of the Boreholes for a minimum of 4 hours.
- Installation of the Afridev hand pump.
- Realization of the Apron.
- Fabrication of the drainage and soak-away pits as per the drawing and design provided.

3. Percussion

- The capacity of the percussion machines must be at least 75 meters depth. The machines should be able to drill on a diameter of 10” up to 18” for the percussion machine (depending on the soil nature).
- Every machine should have at least 50 m of metallic casing and a hammer.
- Every machine should have 2 sets of metallic casing of different size.
- The contractor to keep a log of the well drilling and present the data to IMC engineer for approval for selected casing pipes (blinds and strains), during the perforation, the cuttings will be taken at each change of ground or at each two meters dug as a maximum. The samples taken at the borehole outlet will be placed in a sample box with different compartments in order to visualize the geological section. After the drilling operation, the samples will be kept at the building site in plastic bags and a borehole log is provided to IMC staff. The materials will be at the disposal of IMC representative, which will decide on their conservation or not.
- A lithology report will be written and submitted to IMC as a draft.
- If the borehole failed within the agreed 40-meter, contractor will responsible like (during the drilling machines in face by stone they con not drilled borehole to complete the 60-meter depth contractor will responsible) and if the boreholes failed after the agreed 40m and remains dry as described above, IMC will pay the contractor for the drilling cost agreed.

4. Equipment



- The tolerance on the verticality of the casings will be 0.5% up to the static level it mean the wells must be strait up.
- The annular space between the sides of the borehole and the screen will be filled up with gravel pack of minimum 2”.
- A first clay grout of 2 meters length must be placed on top of the gravel pack in order to stop the grout from plugging the gravel pack.
- The intermediate space between the gravel pack and the first clay grout will be filled up with sand and clay.
- The last 1 meter will be filled up with a mixture of water and cement (grout) up to the ground level.
- The back filling of the tube well is done with natural clay up to the ground level. In this case, natural clay is sieved to remove all sand and gravel possibly present.
- Back filling material for casing pipes should not be from the borehole excavated material except if it was clay without coarse granular that can damage the pipe.

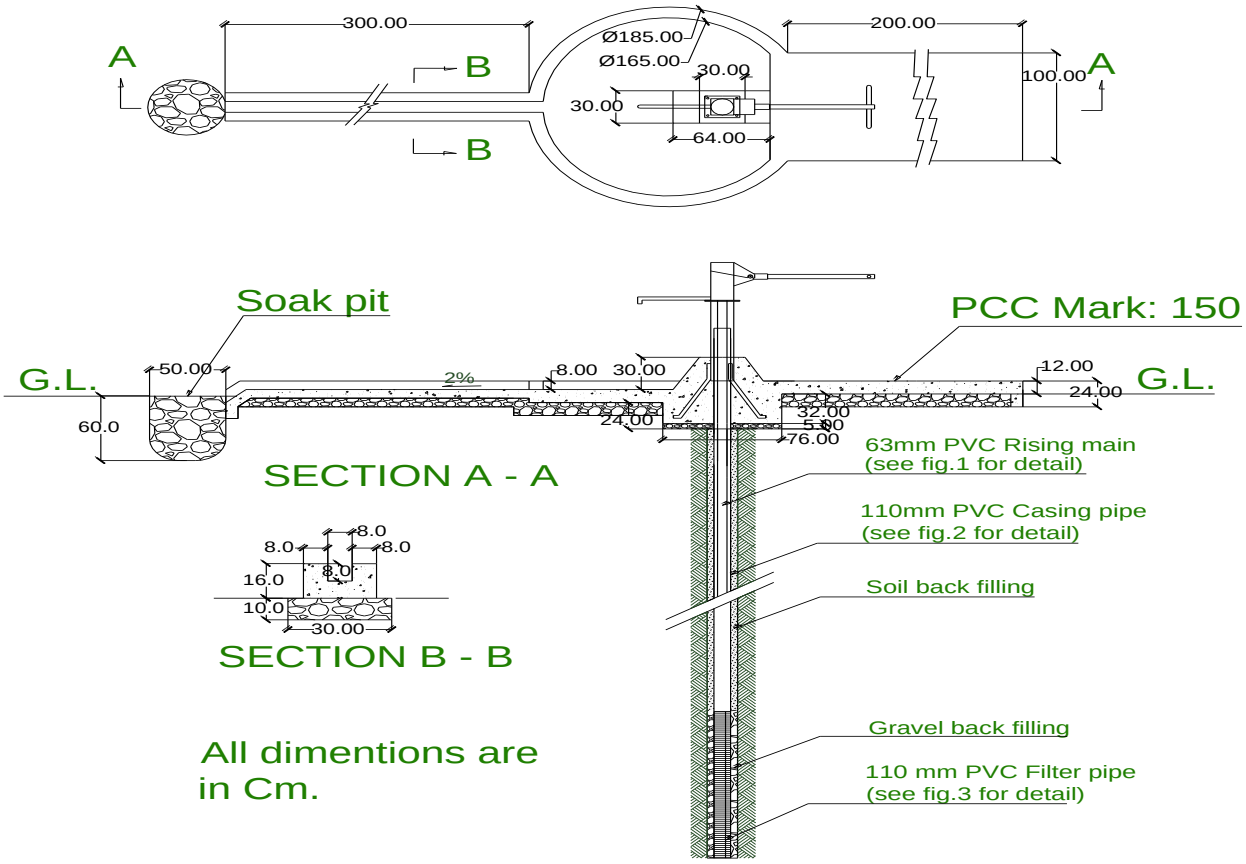
5. **Development**
   - The development will be continued until obtaining perfectly clear water, without sandy or argillaceous particles. The water level and the depth of the work will be measured before and after development.
   - There should one development before installation of the casing for a minimum length of 4 h.
   - There should be a second development after the installation of the casing for a minimum length of 4 h.
   - As the maximum yield of a borehole in use should be around two thirds of the yield obtained at the end of the development process, it is important to estimate maximum yield during development. If a problem of execution appears at the time of the realization of the drilling or during the development, if clear water cannot be obtained, the work will not be delivered. In case of a development by an independent unit, the

return of the drilling workshop for partial or total recovery of the work will remain at Contractor's expenses, as well as the operations of recovery.

- The minimum yield during the development should be 0.2 L/s.
- One generator and submersible pump must be available for the pump test.

6. Apron construction

The apron must be constructed according to MRRD regulations and design:



7. Hand pump installation

In order to install the hand pump, the contractor needs to get authorization from the IMC team. The installation of the hand pump and its pipes must be completed according to standard MRRD/SKAT regulations.

8. Site cleaning

After each completion of the work, the contractor must remove all remaining sand, gravels, and cuttings from the site. He must also remove all rubbish left over from the workers and remove the drilling machines.

WORK FOLLOW-UP

In order to allow an effective follow-up of work, the Contractor will hold a book of building site on which all information related to the work will be reported. This book will allow the IMC controller, as of his arrival on the building site, to know exactly the progress report of drilling work. The remarks and reserves of the Contractor and/or the person in charge for the programme will be notified in the book of building site. A copy of this field notebook will have to be given to IMC in the end of the project and might be use as intermediate or final report to the donor. On the book of building site, all information will be written down concerning:

- Name of the building site (number of the borehole with description of the location);
- Litho-logical description of the samples (cf. cuttings/m);
- For each drilling, date and hour of arrival, starting and finishing of the drill;
- Everyday Hour of installation and hour of beginning of drilling;
- Time of drilling measures per meter;
- Diameter and technique used meter per meter;
- Rate of advance of the tool for drilling;
- Depth reached by each stem;
- Nature of the crossed grounds "cut sounder";
- A sketch with the composition of the equipment of drilling: length of full tubes, screened tubes, volume of gravel, height of cementing etc…;
- Duration, yield, the limpidity of water and various water levels at the time of the operations of development and flow;
- Generally, all technical details, incidental, clean breakdowns, difficulties with the course of work, with indication of the hours when they occurred.

Work plan

2 machines will be on site for the first 2 weeks and 4 additional machines will be added on site for the rest of the project for a total of 6 machines.
The work must be finished within 3.5 months after the beginning of the construction site.
At the end of the drilling operations, the contractor must remove the machines from the site.

Appendix:
BoQ of 20 Boreholes/water point in Barmal district of Paktika province

Nº	Description	Quantity for one water point	Unit	Unit cost	Total cost	Number of Boreholes/water point	Total cost
1	AFRDIF hand pumps kite	1	kit			20	
2	4” PVC pipe	10.5	Pcs			20	
3	4” filter	3	Pcs			20	
4	8mm rad with centralizer	17	Pcs			20	
5	Glue for sedimentation of PVC pipe	1	can			20	
6	63mm PVC pipe with centralizer	17	Pcs			20	
7	Cement	6	Bag			20	
8	Gravel Pack	4	M3			20	
9	Send gravel	2	M3			20	
10	8mm nylon rope	3	Kg			20	
11	Drilling	50	M			20	