



**Instituto do Petróleo e Geologia – Instituto Público
(IPG)**

REQUEST FOR PROPOSAL

Request for Water Drilling in Suco Lisadila Posto Maubara, Liquça

Public procurement procedure under Decree Law No.10/2005, of November 21, on the Provisioning Judicial Regime (PJR), as amended, and Decree-Law no. 12/2005, on the Legal Regime of Public Contracts, of 21 November, for the **Water Drilling 1 Borehole in Suco Lisadila Posto Maubara, Liquça** for the Institute of Petroleum and Geology, IP of the Democratic Republic of Timor-Leste for the period of 1 April – 31 December 2022.

Please provide your proposal for water drilling in Suco Lisadila Posto Maubara - Liquça be submitted to the Instituto do Petróleo e Geologia – Instituto Público (IPG), Rua Aimutin, Dili, Timor-Leste **17:00 OTL, 03rd August 2022**

RFP NAME		Request for Water Drilling 1 Borehole in Suco Lisadila Posto Maubara, Liquça	RFP: 026/IPG/2022	
No	Description	Quantity (Unit)	Unit Price	Total Price
1	Request for Water Drilling 1 Borehole in Lisadila Posto Maubara, Liquça			
			TOTAL	
Delivery period <i>(to be completed by suppliers)</i>				
Final Delivery destination		Suco Lisadila, Posto Maubara, Liquça		
Warranty Period <i>(To be completed by suppliers)</i>				
Quotation validity period		30 days		
Manufacturers Authorization		Not Required		
Performance Security		5%		
We certify that we comply with eligibility requirements of instructions to vendors clauses 2 ^a to 2d. (Overleaf). If our offer is accepted, we undertake (a) to deliver goods & services in accordance with our offer above (b) to abide by this quotation for the Validity Period stated above.				
Gabriel G. A. de Oliveira President of IPG 22 July 2022			(sign & stamp) Vendor' s Authorized Officer Date:	

The Evaluation Criteria for the Quotation will be as follows:

A. Administration Requirements

- Valid and Legalized Certificate of Debt / Certidão Dívidas Validu no Legalizado.
- Valid and Legalized Certificate of Commerce / Certidão de Negócio Validu no Legalizado.
- Legalized To Whom It May Concern / Para Quem é Interessado Legalizado.
- TIN;
- Bank Statement / Balance Sheet / Extratu da Conta Bankaria;
- Electoral ID from the company owner / Cartão Eleitoral husi na' in ba Companhia;

B. Analyze and Price Comparison

- Price Comparison will be based to LEAST COST SELECTION (LCS)

Please attached the factory brochure and the specification sheet.

Instruction to Vendors

1. Scope

- a. The purchaser is the Instituto do Petróleo e Geologia – Instituto Público (IPG), Rua Aimutin, Comoro, Dili, Timor-Leste.
- b. This request for proposal applies to the purchase of water drilling and related services.

2. Vendor Eligibility – The vendor's firm must

Be a bonafide business unit known by the Purchaser to be suitably qualified, experienced and financial resourced:

- a. Profile Company include Valid Business Registration, Valid Certificate of Debt / Dívidas, TIN, Bank Statement and copy of contract for similar work with government and agencies client).
- b. Must be registered as Vendor in Timor-Leste Ministry of Finance free balance System.

3. Responding to the Request for Quotation / Proposal

- a. The Vendor shall verify the description and specification of all items.
- b. The vendor shall enter unit prices, extended prices and total price on the Request for Quotation / Proposal form.
- c. The Vendor shall verify its agreement with stated provisions for proposal validity, delivery period, warranty period, manufacturer's authorization and performance security. All variations from stated conditions shall be explained in a covering letter.
- d. Bidders are requested to complete Bill of Quantity (BOQ) form in Annex 3 of this RFQ.

4. Quotation / Proposal Price

- a. All prices should be quoted in US Dollars.
- b. Prices shall be fixed for the duration of the specified period for delivery.
- c. Unless otherwise stated, the proposal shall be for the fully quantity stated on the Request for Proposal.

5. Proposal Submission

- a. Suppliers may submit more than one proposal, provided these are for substantively different goods/services meeting the same description or specification.
- b. Proposal should be in sealed envelope that submitted to the **Instituto do Petróleo e Geologia – Instituto Público (IPG), Procurement Unit, Rua Aimutin Comoro, Dili**, no later than the specified time and date.
- c.
- d. The procurement service reserve the right to retain and open late proposal if the number of proposal received is less than three.
- e. The language shall be: **English or Tetum.**

- f. The result of the proposal evaluation shall be advised, denoting the successful vendor and unsuccessful vendors.

6. Proposal Evaluation and Contract Award

- a. Proposal shall be evaluated to establish substantial responsiveness to eligibility requirements, technical description/specification, quantity and commercial conditions.
- b. Upon performing verification and arithmetic correction, quotations which identified as responsive substantially will be re-evaluated to choose the lowest price, which will be the basis for awarding the contract.
- c. Award notification shall be effected through the issuance of a Purchase Order by the Purchaser.
- d. The vendor shall confirm acceptance of the Purchase Order by email or by taking the Order in Original.
- e. Notwithstanding the above, the Purchaser reserves the right to accept or reject any proposal, or to cancel the proposal process at any time prior to awards.

7. Performance Security

- a. If a Performance Security is required, the Purchaser shall issue a Letter of Acceptance which shall serve as notification of award.
- b. The vendor shall provide a Performance Security within seven days, in the amount specified in the Request for Quotation / Proposal.

For notices the Purchaser's address shall be:

Instituto do Petróleo e Geologia – Instituto Público (IPG)

Rua. Delta 1, Aimutin, Comoro, Dili, Timor-Leste

City / Country: Dili, Timor-Leste

Electronic mail address: jsoares@ipg.tl or hfreitas@ipg.tl

8. Payment

Payment shall be made in following manner:

- a. Payments shall be executed only if the selected supplier has fulfilled all its contractual obligations by the date on which the invoice is submitted.
- b. Payment will be made within 30 days after the completion of the service and received the invoice.
- c. The currency for payment shall be: **US Dollars only.**

9. Corrupt & Fraudulent Practices

The purchaser requires that Vendors observe the highest standards of ethics during the procurement and execution of RDTL government contracts, to the extent that corrupt, fraudulent, collusive and coercive practices and conflict of interest occurring in proposal, delivery and completion processes may result in disqualification, termination of purchase order and penal sanctions

Annex I - Specification / Terms of Reference (TOR)

TERMS OF REFERENCE

"CONTRACTOR TO DRILL 1 BOREHOLE IN LISADILA VILLAGE, MAUBARA ADMINISTRATIVE POST, LIQUISA MUNICIPALITY"

1. Background

Instituto do Petróleo e Geologia-Instituto Público (IPG) is conducting Hydrostratigraphic study with an objective to simplify the architecture of the different geological units in the subsurface which can be used as fundamental information when dealing with groundwater exploration.

Due to the lack of subsurface data to link the existing boreholes entire the Lisadila Village, IPG is implementing one drill point in Lisadila Village with an objective to correlate and interpret aquifer distribution within the area.

IPG-IP is seeking for a Contractor to carry out the works of mobilizing machinery, drilling borehole and provide all the required tools, equipment, materials and labour for construction of the borehole, its development, pump testing, hand pump installations, and ensure that all the necessary requirements of borehole development and testing are up to the required standards as clearly specified on the technical specifications in the Bill of Quantity attached therein.

2. Scope of Work

IPG will provide location map indicating the drilling site, include report of geophysical study at the drilling site to the selected Contractor.

Borehole drilling and construction will be supervised by the IPG team, the selected Contractor must perform in a satisfactory manner, the drilling of one (1) borehole to be installed with pump at location determined in Lisadila Village by IPG. The Contractor is to ensure that borehole log is collected properly at 1 m intervals.

3. Drilling Stipulations

3.1 Information concerning the borehole construction

- a. The Contractor shall ensure that the drilling rig to be used must have the capability of drilling beyond the anticipated depth by 30%.
- b. The borehole should be drilled at a diameter of **203.2 mm (8")** from 0m to a maximum depth of 100 m and then reaming the borehole with a drill bit diameter 10 inches from 0 m to 100m before casings installation. The casings to be used are of **152.4 mm (6")** in diameter with minimum 7 mm of thickness.
- c. Construction of the borehole will be undertaken in accordance with accepted practices and will be supervised by the IPG team. It is the duty of the Contractor to inform the IPG in time as to when the commencement of the drilling will be, for IPG to organize for supervision. IPG will have the final authority in making technical decisions to the Contractor.
- d. Fluid additives of bentonitic type will not be accepted for use in this works: instead either cellulose based reconstitution powder, or liquid polymeric additives will be required for viscosity enhancement. The Contractor will be required to state the type of polymer to be used, and describe the means by which the selected fluid additive will be mixed.
- e. Cuttings (min. 500 grams) of the strata penetrated shall be collected on site at every 1- meter interval; whichever gives the smallest interval and when required by IPG supervisor, by whatever method is standard for the drilling technique in use and approved by the Supervisor. The Contractor shall take every possible precaution to guard against cutting contamination. Representative lithological samples shall be packed in sealed containers and with clear marked labels covering the borehole location, number and depth interval. The samples shall be stored in a location where they will not be

contaminated by site conditions or drilling operations. Furthermore, all the relevant information and drilling velocity, well casing and other well construction operations will be recorded.

- f. For each rock sample that has not been taken the Contractor will be fined a penalty amounting to 1 per cent of the total value of the well and this will be deducted from the final payment. If the total amount of samples not taken is more than 15% of the specified number, the well should be started again and IPG will not make any payments for this additional work.
- g. The Contractor will be required to complete the **log forms** for the borehole.
- h. The Contractor shall ensure that the materials supplied are of good quality, adhering to the specifications provided in this ToRs and in the BoQ. IPG will not authorize the installation or utilization of any material that is not in line with the requirements established in the ToR and BoQ.
- i. The selected Contractor will supply and install PVC AW (Maspion), drinking water standards, non-toxic plain casings with a 152.4 mm (6") internal diameter and 7 mm thickness for total depth of well except where screen casings are installed. The Contractor should ensure verticality of the casing installed. The quantity/length of screen casings to be installed in the borehole will vary respectively to the aquifer formations.
- j. The Contractor will supply and install filter gravel pack which is clean, uniform and of approved quality collected from river beds consisting of particles with a diameter of 1- 5mm. The volume of the filter pack required must be calculated taking into account the length of the screened area and an additional 50% to allow for settlement above screen casings, and the annular space between the borehole and the external diameter of the casing.
- k. The Contractor will collect 2 liters sample in a clean plastic bottle from the borehole for reference to a competent Water Testing Authority or recognized Water Testing Laboratory for full physical, chemical and bacteriological analysis of the water to ascertain its suitability for human consumption.
- l. After drilling, Contractor will conduct well logging from top to bottom and will compare to the cutting samples. If the result indicate groundwater position, IPG will purpose to Contractor for reaming then Both Parties will discuss screen position in this stage.
- m. The Contractor will provide the Borehole Completion report immediately upon completion of the drilling work. The Borehole Completion Record will also be accompanied by Water quality certificates capturing bacteriological, chemical and physical water qualities.

3.2. Casings and diameters

- The drilling of the borehole will be carried out according to the characteristics specified in this ToR and appendix of the specifications (BoQ), using the proper drilling tools, drive pipes, casing pipes with centralizers to ensure that the casing string is central within the hole, gravel packs and sanitary protection (seals) should isolate the aquifers from other formations, which are considered improper for the exploitation of wholesome water.
- The Contractor will supply all casings and screens of 152.4 mm (6") diameter including plain casing and screens.

4. Developments and Test Pumping

4.1 Development

In addition to the cleaning and development of the well before casing installation, the well will be developed continually during filter gravel packing. Washed and well-rounded river gravel, of diameter range 2-4 mm will be packed between the annular space of the casing and the well from the bottom until 6m below the ground surface. The gravel shall be inserted into the borehole by hand using a shovel in order to protect the borehole wall from damage.

After packing is complete, the well will be developed by air-lifting, alternating continuous and surging. During well development, the position of the air outlet (bottom of the drill pipe if drilling apparatus is used for air-lifting) shall be in the blind casing below the lowest screen casing and the Contractor shall ensure that the casing string is adequately supported at the top if necessary and is not damaged. Any casing and/or screen

damage during installation and well development shall be the responsibility of the Contractor, who shall make the necessary corrections/repairs without additional cost to the IPG. When well development is completed, the gravel packing will be topped up if it is found settling below the required depth.

Development will be considered complete only when less than 5 Nephelometric Turbidity Unit (NTU) of suspended solids remains in the water. It is recommended that flushing be done for a minimum of 10 hours.

4.2. Test Pumping

- a. The Contractor shall supply and install GRUNDFOS pumps for lifting water beyond 45 m with all the components including GI rising pipe, the handle assembly, the pedestal, the pump head assembly, connecting rods and rising mains, pump cylinder. The maximum expected yield is 10 L/sec.
- b. Step draw down pumping test should be conducted by the Contractor for a minimum of 8 hours considering 4 step with different yield ($Q_{mx}/2$, $Q_{mx}/3$, and $Q_{mx}/5$) and a recovery step. Each test should last a minimum of 1.5hr. In addition, 72 hours constant pump test should be conducted by the Contractor using the optimal yield identified during the step draw down test. Recovery test will be for one hour or such time when there is at least recovery of 80% of the static water level noted at the start of the pump test. Step draw down, constant pump test and recovery data should be reported on the logarithmic time-scale and should contain at least: Date of Test (Day, Month, Year); Depth of BH at time of test (m); Static Water Level (SWL) before test (m); Type of Pump used; Depth of Pump Intake (m); Discharge (Ltrs/Minute); Dynamic/Pumping water level (m). IPG's supervisory staff should be informed, in writing (email), at least 24hr before the scheduled time for carrying out of the pumping test. The procedure should be discussed and agreed by both parties (IPG and Contractor) before the Contractor could initiate the pumping test.
- c. The Contractor will provide all necessary elements for this purpose which include provision of all necessary implements and pumping equipment i.e. weirs, pipes, gauges etc for the proper measurement of discharge rates and water levels and disposal of extracts.

4.3. Well plumpness and alignment

4.3.1. Tests.

The borehole should be tested for plumpness and alignment by means of minimum a 4 meter long, and perfectly straight, PVC-AW (Maspion) pipe with 7 mm of thickness that should be introduced along the whole borehole.

4.3.2. Minimum Requirements

Such a test pipe, as described above should easily move through the whole borehole. The loss of plumpness of the well's axis should never be more than 2/3 of the smaller inside diameter of the casing. If these minimum requirements are not met by the well, the Contractor will be required to correct the defects, otherwise IPG will reject the borehole and no payments will be made for its drilling and completion. This test should normally be done before pump testing the well in the presence of the IPG team.

4.4. Protection of water quality, dis-infections and sampling

4.4.1. Borehole Protection

The Contractor will take maximum care to avoid the physical, chemical or bacteriological contamination of the borehole water, during the construction and after construction operations. In any case, where water is polluted due to the Contractor's neglect, he will be obliged to carry out all the necessary operations, at his own cost, in order to rectify such pollution of the borehole.

4.4.2. Well sterilization.

Once the well has been completed and tested, the Contractor will sterilize the well with a chlorine solution yielding at least 50 mg/litre of active chlorine in the borehole. The chlorine solution may be prepared for this purpose, by dissolving Calcium Hypo-chlorite, sodium Hypochlorite or gaseous Chlorine in water. The chlorine solution should stay in the well for at least four hours, at the specified concentration.

4.4.3. Water samples

The Contractor will take two (2) litter samples for laboratory analysis, after completion of test pumping. One sample will be used for each of these tests; bacteriological, physical and chemical analysis, which should be collected in clean, sterilized properly sealed and protected plastic containers. The samples so collected should reach the authorized DNGRA Water Testing Laboratories, within 2 hours from the time of collection from the borehole.

4.4.4. Particle Content in Pumped Water

The water drawn out of the well will be acceptable if it has a sand particle content of less than 5 milligrams per cubic metre. In case this allowed maximum limit is not met, the Contractor will make all necessary adjustments to the well structure, at his own expense, in order to meet these specifications.

4.5. Finishing Works

4.5.1 Temporary Lid

The Contractor will pay close attention to the due protection of the mouth of the borehole against the entrance of water or any other pollutants while drilling or after the completion of the borehole. For this purpose, the Contractor will provide a lid to be placed on the mouth of the well at any time the drilling rig is not in operation. This lid will be welded into place after the drilling has been completed.

4.5.2. Gravel Packs

A well-graded pack will be placed in the annular space between the borehole wall and the outer surface of the casing. Proper techniques should be used for the accurate placing of this pack to ensure its even placement. The gravel to be used should be clean, well rounded and the grains should be hard, of alluvial origin, and a size between 2mm and 4mm diameter.

4.5.3. Sanitary Protection Seal and Well Head Construction

- A. After completion of the pumping test, removal of the test pumping unit and after the last water level recovery observations have been made, the level of the gravel pack will again be checked to see if there is any settlement below the required depth. If it is found below the required depth, it will be topped up to the appropriate level. This means the Contractor should ensure the installation of sanitary seal in the annular space between the screen casing and the borehole above the filter gravel pack to reach a minimum height of 3 meters. The sanitary seal shall consist of bentonite pellets of size between ¼" and ½". The bentonite pellets shall be installed in the annular space from the filter pack using tremmie pipe system. Above the sanitary seal, the annular space shall be backfilled with cuttings extracted through drilling up to 3 meters deep below the ground level. The sanitary top seal in cement grout, corresponds to the first 3 meters below the surface. Including 2m of bentonite pellets and 1m of grout at the surface. If the Contractor cannot supply the bentonite pellets, a written request should be sent to IPG providing the justification and the specifications of an alternative sealing and plugging material in order for IPG to approve its installation.

- B. Specifications related with wellhead construction, installation of pumps have been indicated in the Specifications and Bill of Quantities Part.

5. Role of the Contractor

- a. The Contractor shall carry out the works in accordance with the Bills of Quantities provided, tendered and accepted, a copy of which is attached.
- b. The Contractor will have to provide for the construction and completion in every detail of the work described in the contract and contractual documents such as ToRs and annexes. All labours, materials, tools, equipment, transportation, food and supplies required to complete the work in accordance with the specifications and terms of the contract should have to be well furnished. The Contractor cannot deviate from the construction designs or specifications without seeking for permission and approval from IPG.
- c. If the Contractor is not able to finish the drilling or has to abandon the borehole due to loss of tools, accidents or any unforeseeable circumstances, the Contractor should remove the casings or drive pipes already in the hole and refill it with clay or concrete. All materials extracted from the hole, after refilling it will be the property of the Contractor. IPG will not pay for any of the work carried out, and will authorize in advance the drilling of a new hole, at a site near the abandoned one if need be, at the Contractor's expenses.
- d. The Contractor will make all the necessary arrangements for accommodation and food for the drilling team. Foodstuffs and other consumables (Fuels and Lubricants) will have to be transported to site at the Contractor's own expense. Potable and make up water is available within the drilling site. The transport of the water to the drilling site will be the responsibility of the Contractor.
- e. For the field expenses, IPG will not be held responsible for any expenses incurred by the Contractor or its agents during the executions of this ToR.

6. Health and Safety

The Contractor's team leader shall take all reasonable precautions to prevent any death or injury to persons during said undertaken activities. These precautions shall include but not be limited to providing his crew with safety helmets, hard-toed boots (safety boots) or gumboots, heavy duty gloves, protective glasses and ensuring that all tools and equipment are in a safe condition and ensuring that his employees adopt safe working methods. The drilling crew will wear a uniform provided by IPG at the site. No military-looking clothing will be accepted at any time.

Under this contract, the Contractor's team leader has the obligation and responsibility to safeguard the safety and security of its Personnel, the drilling crew's equipment and other property. Furthermore, the Contractor's team leader shall develop a security plan in consultation with IPG, including detailed procedures to cover evacuation, personnel, equipment and unlawful interference.

7. Requirements of the Contractor for the tender

a. Experience:

For a Contractor to be accepted to participate in the tender process, must provide evidence (satisfactory report completion) of at least 6 boreholes drilled in Timor-Leste with other NGOs or government amounting to a total value of 100,000 USD during the last 6 years. At least 3 contract contracts should be for an amount of 15,000 USD. The scope in the report should clearly mention drilling and are not valid for this purpose auger manual drilling.

b. Equipment and work force:

The Contractor should present a list of the drilling equipment that is going to execute for the contract, specifying the following: Name; Model; Quantity; Year of manufacturing. All equipment listed should be in perfect operational conditions and if changes are required during the execution of the contract, an equipment of similar characteristics needs to be put in place and IPG has to be informed in written. The Contractor must provide a list of the workforce that it intends to use for execution of the project.

c. Time for completion.

The Contractor should perform the activity in a maximum period of 60 days after the signature of the contract. For the tender process, the Contractor should submit a work schedule (project Gantt chart) aligning activities to match the completion period. Any bid which schedule goes beyond the project estimated completion period of 60 days will not be accepted in the tender process. In the case of delays in the implementation process of the project, penalties will follow with immediate effect and the penalty criteria will be stipulated on the contract document. The works are therefore expected to be completed within a period of 60 days to enable the Contractor hand over the project to the IPG.

d. Legal documents from the government of Timor-Leste

The Contractor must present a copy of the valid drilling certificate; a copy of the company's registry in the Timor-Leste's Ministry of Legal Affairs and a copy of the trading license.

e. Bidding amount.

The companies participating in this tender should present the BoQ in Annex 3 fully completed with the unit prices for each activity. The full amount quoted should cover all expenses for the completion of the activities under the contract, as well any indirect cost and/or administrative costs that the Contractor must incur.

8. Defect liability period

The borehole will be guaranteed for a period of 6 months after completion. In an event that there are defects found on the borehole within the 6 months' period, the Contractor will be notified and authorized to correct all the said defects before the Contractor is paid the retention amount.

Annex 2. Documents checklist

ID	List of Document to provide	Submitted	Remarks
1	BoQ template dully filled and with no arithmetical errors.		
2	3 satisfactory contract completion certificates in Timor-Leste during the last 6 years (15,000-100,000 USD)		
3	Detailed list of the drilling equipment (Name; Model; Quantity; Year of manufacturing) List of work forces		
4	Work schedule (maximum of 60 days work in total)		

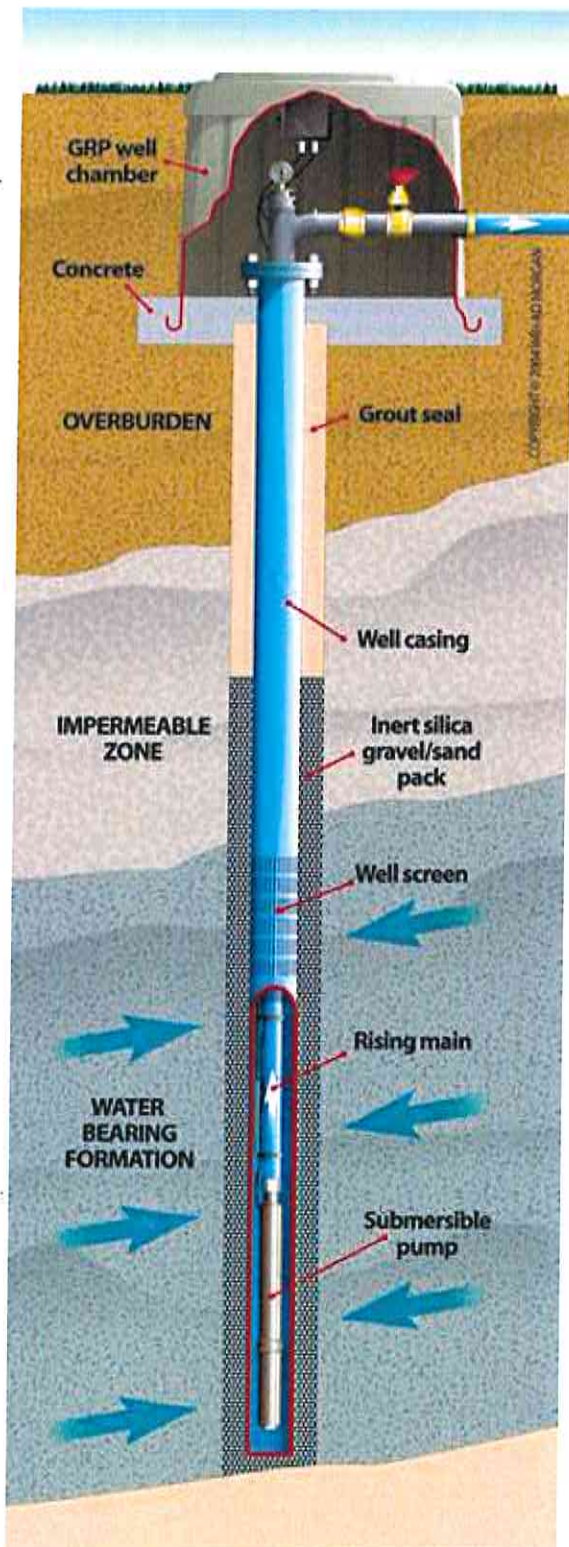
Annex 3. Technical Specifications

Bill of Quantity for Drilling of one Borehole in Lisadila Village

Item No	Item Description	Unit	Quantity	Unit Price	Amount (US\$)
1.	Mobilization and transportation of all Drilling units from drilling company Office to Lisadila site (Rotary drill) and demobilization of the drilling unit back to drilling company Office.	L/S			
2.	Erecting and dismantling of the drilling rig unit at the site.	L/S	1		
3.	Standard pilot drilling hole by using 6-inch diameter from 0 meter to 100 meters depth, include fluid/mud (bentonite, additive polimer, klorin, grouting etc.)	M			
4.	Supply 152.4 mm diameter (6") standard plain PVC AW (Maspion) for permanent casing internal.	M			
5.	Supply and install screen 6-inch machine Slotted 1.5 mm PVC AW (Maspion), 20-50 m long	M			
6.	Supply and install GS DN1 ^{1/4} - inch pipe for piezometer), with CAP BSP on top. Sounding pipe connect to casing, 40 cm from Top of Flange (TOF)				
7.	Cuttings (min. 500 grams) of the strata penetrated shall be collected on site at every 1-meter interval	Notes			
8.	Setup, calibrate and conduct down-hole logger to obtain self-potential SP from bottom to top.	M			
9.	In this stage, the selected contractor should reported SP logging result to IPG before conduct further activity.				
10.	Supply and insert filter gravel packing 2mm to 4mm size.	Ton			
11.	Borehole development work by air jetting.	Hrs	1		

12.	Bore completion, well head installation with GS DN200-5mm of thick 1M+Top of flange 6-inch, capping flange DN 4-inch, manifold, flow meter check valve and gate vale.				
13.	Step-draw down test (step test plus recovery) takes one hour for each step	Hrs			
14.	Test pumping constant discharge including installation and removal of test pumping equipment (draw down and recovery measurement)	Hrs	72		
15.	Recovery test for one borehole	Hrs	4		
16.	Supply and install gravel pack for 11 m long pipe casing, including sanitary seal cement grout	Ton			
17.	Slab K225 around casing with dimension 80cm x 80cm x 30cm thick				
18.	Development will be considered complete only when less than 5 Nephelometric Turbidity Unit (NTU) of suspended solids remains in the water; It is recommended that flushing be done for a minimum of 10hours.	Hrs			
19.	Carry out physical, chemical and bacteriological analysis of the borehole water.	L/S			
20.	Borehole disinfection with 50mg/lit HTH Chlorine solution	L/S			
21.	Data analysis, drilling and pump test report compilation in three hard copies and 1 electronic copy for each well.	L/S			

22.	Supervision of borehole drilling and completion	L/S			
23.	Grundfos submersible pump Capacity 7 to 9 L/S Including pole pipe, steel cable, Electrical Cable and panel Box	L/S			
24.	Flexible discharge pipe DN50 Assembly 50 M, include inlet, outlet adaptor, clips, reducer to pump and to well head	Set complete			
25.	Water pump panel warranty one year from manufacture.				
26.	Pump type and settings will decide based on the result of pumping test. Means the Contractor will purchase pump after reported to IPG and get recommendation from IPG team.				
27.	Control panel CUE type: Manual on/off auto switch. Voltmeter, Current no selector, Lamp indicators for RST. Dry 2running protector no fault lamp indicator. Diagram connect to panel.				
28.	Pump motor cable to Control Panel should connect to "all whether proof" junction box near wellhead.				
29.	Water pipe installation (pipelines) from well site to intake tank 400 m PVC pipe 76.2 mm (3"). Poli-pipe.	M			
30.	Construct a panel house with size 2.20 x 2.50 m.				
Total cost for drilling					



An example of expected result for Porlaman Drilling

<http://www.groundwateruk.org/downloads/UK%20Groundwater%20Forum%20Presentation%202014.pdf>



Instituto do Petróleo e Geologia – Instituto Público (IPG)

Performance Security

[The bank, as requested by the successful Bidder, shall fill in this form in accordance with the instructions indicated]

[Guarantor letterhead or SWIFT identifier code]

Beneficiary: *[insert name and Address of Purchaser]*

Date: *_ [Insert date of issue]*

PERFORMANCE GUARANTEE No.: *[Insert guarantee reference number]*

Guarantor: *[Insert name and address of place of issue, unless indicated in the letterhead]*

We have been informed that *_ [insert name of Supplier, which in the case of a joint venture shall be the name of the joint venture]* (hereinafter called "the Applicant") has entered into Contract No. *[Insert reference number of the contract]* dated *[insert date]* with the Beneficiary, for the supply of *_ [insert name of contract and brief description of Goods and related Services]* (hereinafter called "the Contract").

Furthermore, we understand that, according to the conditions of the Contract, a performance guarantee is required.

At the request of the Applicant, we as Guarantor, hereby irrevocably undertake to pay the Beneficiary any sum or sums not exceeding in total an amount of *[insert amount in figures]* (*)[insert amount in words]*,¹ such sum being payable in the types and proportions of currencies in which the Contract Price is payable, upon receipt by us of the Beneficiary's complying demand supported by the Beneficiary's statement, whether in the demand itself or in a separate signed document accompanying or identifying the demand, stating that the Applicant is in breach of its obligation(s) under the Contract, without the Beneficiary needing to prove or to show grounds for your demand or the sum specified therein.

This guarantee shall expire, no later than the Day of, 2...², and any demand for payment under it must be received by us at this office indicated above on or before that date.

This guarantee is subject to the Uniform Rules for Demand Guarantees (URDG) 2010 Revision, ICC Publication No. 758, except that the supporting statement under Article 15(a) is hereby excluded

[signature(s)]

¹ *The Guarantor shall insert an amount representing the percentage of the Accepted Contract Amount specified in the Letter of Acceptance, and denominated either in the currency (ies) of the Contract or a freely convertible currency acceptable to the Beneficiary.*

² *Insert the date twenty-eight days after the expected completion date as described in GC Clause 18.4. The Purchaser should note that in the event of an extension of this date for completion of the Contract, the Purchaser would need to request an extension of this guarantee from the Guarantor. Such request must be in writing and must be made prior to the expiration date established in the guarantee. In preparing this guarantee, the Purchaser might consider adding the following text to the form, at the end of the penultimate paragraph: "The Guarantor agrees to a one-time extension of this guarantee for a period not to exceed [six months] [one year], in response to the Beneficiary's written request for such extension, such request to be presented to the Guarantor before the expiry of the guarantee."*



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Note: All italicized text (including footnotes) is for use in preparing this form and shall be deleted from the final product.