



## agriculture & rural development

Department:  
agriculture  
& rural development  
**PROVINCE OF KWAZULU-NATAL**

### INVITATION OF QUOTATION ABOVE R30,000.00

THIS FORM SHOULD BE COMPLETED IN DETAIL AND SHOULD BE ACCOMPANIED BY A **VALID TAX COMPLIANCE STATUS PIN AND VALID BBBEE VERIFICATION CERTIFICATE/AFFIDAVIT**

QUOTATION NUMBER: <b>R/S/1920/1482</b>	VALIDITY PERIOD OF QUOTATION..... Days (To be completed by the Supplier)
CLOSING DATE: <b>05/12/2019</b>	CLOSING TIME: <b>11H00</b>
DESCRIPTION(SPECIFICATION/S) OF ITEMS/ SERVICE REQUIRED: <b>SUPPLY, DELIVER, DRILL, TEST AND EQUIP AT CHARLESTOWN BOREHOLE IN NEWCASTLE MUNICIPALITY – AMAJUBA DISTRICT.</b>	COMPANY NAME: _____ TEL NO: _____ FAX NO: _____ CONTACT PERSON: <b>CSD REG NUMBER</b> <b>MAAA.....</b>
DOES OFFER COMPLY WITH SPECIFICATION?	YES/NO (DELETE WHICH EVER IS NOT APPLICABLE)
DOES ARTICLE COMPLY WITH SABS SPECIFICATION? HAS IT BEEN INSPECTED BY SABS?	YES/NO YES/NO (DELETE WHICH EVER IS NOT APPLICABLE)
DELIVERY PERIOD AFTER INITIAL ORDER?	
IS THE PRICE FIRM	
WHERE ARE THE STOCK HELD? (PHYSICAL ADDRESS , PLEASE)	
QUOTATION PRICE INCLUDING VAT (VAT TO BE ADDED BY REGISTERED VAT VENDORS ONLY)	TOTAL: R .....
COMPANY OFFICIAL STAMP (COMPULSORY)	..... SIGNATURE OF BIDDER  ..... DATE
NUMBER OF PAGES FAXED BACK TO THE DEPARTMENT BY THE SUPPLIER	.....( Supplier to complete)

**NB: QUOTATION FOR THE ATTENTION OF: Ntuthuko Hlengwa@033 343 8367**

**NB:**

THE ATTACHED SBD4 & SBD9 FORMS MUST BE COMPLETED IN FULL.  
THIS REQUEST FOR QUOTATION (RFQ) MUST BE COMPLETED AND RETURNED WITH ALL YOUR QUOTATION DOCUMENTS.

**THE DEPARTMENT OF AGRICULTURE & RURAL DEVELOPMENT: No 4 PIN OAK AVENUE,  
HILTON QUARRY, HILTON.**

COMPANY NAME :  
 ADDRESS :  
 CONTACT PERSON :  
 CONTACT NUMBER :  
 FAX NUMBER :

LINE NO.	DESCRIPTION OR SPECIFICATION OF ITEM  (Please be very specific and clear)	REQUIRED QUANTITY	UNIT PRICE EXCL. VAT		TOTAL PRICE	
			R	C	R	C
	Supply, deliver, drill, test and equip Phemba broilers borehole in Newcastle Municipality:See specification attached	1				
* LABOUR (IF APPLICABLE)						
*DELIVERY (IF APPLICABLE)						
TOTAL						
*ONLY APPLICABLE TO VAT REGISTERED SUPPLIERS 15% VAT						
TOTAL PRICE						

\*VAT Registration No. (Supplier) -----

When Required (Requester): 15 November 2019

Where Required (Requester): Local Office- 38 York Street, Newcastle

Contact details of requester: KS Hlongwa

TEL : 076 947 1644

Mark one Box (X)

**(COMPULSORY)**  
 COMPANY STAMP

PRICES ARE VALID FOR

30

60

90

DAYS

SIGNATURE .....

DATE .....



agriculture  
& rural development

Department:  
agriculture  
& rural development  
PROVINCE OF KWAZULU-NATAL

# SITING, DRILLING, TESTING, EQUIPPING OF BOREHOLES – GENERATOR POWERED

27 August 2019

**DISTRICT**

Amajuba District Municipality

**NAME OF BOREHOLE**

Charlestown borehole

**CO - ORDINATES**

S: 27°23,889

E: 029° 54,532

*This document contains:*

No.	Section	Pages
1	A - Project Particulars	2
2	B – General Conditions of Contract	3-6
3	C - Project Technical Specifications	7-10
4	Bill of Quantities	11
5	ANNEXURE A: Work Phase Schedule	

6	<i>ANNEXURE B : Additional Information</i>	
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## A - PROJECT PARTICULARS

### 1) PROJECT DESCRIPTION / BACKGROUND

The project covers the siting, drilling and equipping of .....1..... Bore Hole

### 2) LOCATION

#	NAME OF PROJECT	DISTRICT	PROJECT DISTANCE (Km's) FROM NEAREST TOWN	NAME OF NEAREST TOWN	PROJECT CO_ORDINATES (if available)
1	Mooi-plaas farm	Amajuba	36km from Newcastle	Newcastle	S: 28° 09,455' E: 029° 53,032'

For exact location see attached map(s) or directions to be provided at site briefing.

### 3) GENERAL SCOPE OF WORKS

The contract covers the supply of all professional services, drilling, testing and equipping of borehole(s). The following scope of works for the drilling and equipping of *boreholes* is applicable with the expected deliverables and must be in accordance with "MINIMUM STANDARDS AND GUIDELINES FOR GROUNDWATER RESOURCE DEVELOPMENT FOR THE COMMUNITY WATER SUPPLY AND SANITATION PROGRAMME, DWAF, 1997": Details of these works are specified in *Section C: Project Technical Specifications*.

- **Desktop Assessment:** The co-ordinates of the boreholes must be plotted on GIS map coverage and assessed for the probability of ground water. Geology, hydrogeology and existing borehole information needs to be presented.
- **Geophysical Assessment:** The physical site must be surveyed with a Magnetometer and other survey equipment to determine the apparent conductivity of the subsurface. The geophysical data must provide a clear indication of groundwater potential. For production borehole siting, an alternate target must be provided.
- **Drilling:** The appropriate drilling must be done according to the ground conditions and to the appropriate depth based on the geophysical method employed and the geology intercepted during the drilling. The Drilling method must be suited to the geological environment i.e. Air Percussion, Mud Rotary Percussion, Symetrix, Odex
- **Yield Testing and Determination of Sustainable Yield:** Boreholes yielding > 0.3 L/s must be subjected to a SDT (4 steps of 1 hr duration and maximum of 4 hours recovery or 95%

recovered) and a CDT (24 hr constant test and maximum of 24 hr recovery or 95% recovered). The determination of the sustainable yield must be calculated with scientific methods that are proven in industry.

- **Sampling and water quality analysis:** It will be acceptable to collect a water sample during the CDT discharge test when the borehole is adequately purged, with sample bottles supplied by an accredited laboratory. The water sample will be analysed for SANS 241 (2015) Drinking Water Standards (Abbreviated Analysis), which includes bacteriological analysis. This means that water samples will need to be received by the laboratory within 24 hrs of collection.
- **Equipping** - The borehole is to be equipped with a quality SABS approved pump carrying a minimum of a 12 month quality guarantee. The pump specifications will be guided by the sustainable yield, hydraulic head conditions and the water requirements at the site.
- **Reporting** - All technical information and results obtained and derived during the course of the investigation needs to be compiled into a comprehensive scientific report.
- **Strength of concrete** - 20MPa for the tank stand footings, concrete bases.
- **Tank Stand** - Galvanised 3m tank stand to carry a 5000L JoJo Water Tank.
- **Water troughs** - 2 X 500L Jojo Drinking troughs (Secured with galvanised frame)
- **Water supply** - Tap stand with stand encased in concrete and pvc piping, secured to concrete block 1.2m X 1m X 200mm with adequate gradient to allow for runoff away from the water collection point.

## B - GENERAL CONDITIONS OF CONTRACT

### 1) COMPETENCY

Geohydrological services are to conform to the standards detailed in the “Minimum Standards and Guidelines for Groundwater Resource Development for the Community Water Supply and Sanitation Programme” by the Department of Water Affairs and Forestry, 1997. The consultant / organization must be registered and recognized for their proficiency in hydro-geological services. The following must be submitted with the tender submission:

- *Valid proof of registration with the South African Council for Natural Scientific Professions (SACNASP) must be attached*
- *Registered and paid up members of the Ground-water Association of Kwa-Zulu Natal must supply a copy of their membership details*

The bidders' competence and reliability will be evaluated according to the proof of previous works indicated in Annexure B.

### COMPETENCY OF THE CONTRACTOR

#### 2) CONTRACTOR TO PROVIDE EVERYTHING NECESSARY

The Contractor shall provide everything necessary for the proper execution of the Works according to the true intent and meaning of the Drawings and Specification taken together. The Contractor shall provide without extra charge all assistance and everything reasonably necessary for proving the quality of work done as may be required by the Engineer.

#### 3) SUB-CONTRACTED WORK

The Appointed Contractor shall not **sub-contract the whole** of the contract. In case the Contractor decides to subcontract part of the work he shall obtain written consent of the Engineer. Any such consent shall not relieve the Contractor from any liability or obligation under the contract and he shall be fully liable for the acts, defaults and neglects of any sub-contractor, his agent or employees. The Contractor remains fully responsible and accountable for all aspects of the work (quality, timelines and budget).

#### 4) VARIATIONS / 'AS BUILT' DETAILS

No variations or alterations may be made without the prior approval of the Regional Engineer. As the work progresses, the Contractor shall keep full records of all amendments to and deviations from the specifications as issued to the Contractor at the start of the contract. These details will, where appropriate, be noted on the supplied drawing. All alterations will be deemed to have a zero additional cost implication. If any additional works are required that have an additional cost implication then these must first be authorized in writing by the Regional Engineer. Refer to Clause 41: Ancillary Materials, Services And Equipment.

#### 5) VERIFICATION OF EXPERIENCE

The Bidder will be required to produce adequate and sufficient references to enable the Department to inspect previously completed projects and assess the capacity of the Bidder. The Bidder shall provide such information in **Annexure B - Additional Information**.

## **PRICING AND PAYMENT STRUCTURES**

### **6) FIXED RATE CONTRACT**

The contract shall not be subject to contract rate (unit price) adjustment. Bidders must therefore allow for increased cost for the contract duration, including possible delays in awarding the Bid in accordance with the validity period. The tendered rates will be applied for calculating the payment value by using the actual quantities as measured and certified by the engineer at completion of the work.

### **7) PRICING**

The Bidders will be required to Bid for all services, products and commissioning as specified in this document and associated plans. Partial bids will not be accepted. **If a Bidder does not Bid on all items, his/her Bid may be rejected.**

All prices tendered are to be in South African currency. All prices must exclude Vat. Vat of 15% must be added in the pricing summary.

- All items as described in the project specification are to be priced in full.
- Prices to exclude VAT.
- ***The costs for travel, accommodation, all associated disbursements and labour must be included in the rates/amounts tendered for the all the works required.***
- Transport/Delivery costs must be included in the pricing. It must not be a separate item.
- VAT must be filled in as the sub total followed by the complete price for the entire project.
- ***The tendered price must have your company stamp, date and be signed by an authorised person.***

### **8) QUANTITIES OF WORK**

The Contractor shall receive payment only for the works actually executed and approved by the Engineer. No claim for an extra or for any addition, or for any variation shall be entertained unless such extra, addition or variation was ordered in writing by the Head of Department.

### **9) PROGRESS PAYMENTS**

- .1 The contractor may submit claims for progress payments only on completion of the hereunder listed levels. Payment shall only be paid for claims, which are commensurate with the works actually executed and complete. NOTE: Payment will only be made against the construction progress as pertaining to built items. Movable items and materials on site are excluded from progress payments until they have been fully installed, fitted or built up.



- .2 If any item or part of an item in an invoice is disputed by the Engineer, the Engineer shall give notice of such with reasons.
- .3 The contractor shall be paid in monthly instalments up to a maximum of five (5) or one (1) per borehole if more than 5 boreholes are awarded through a single order. Refer to **ANNEXURE B: Work Phase Schedule for Drilling and Equipping of a Borehole** for the values of each phase. Please note these values are primarily estimates of what part the work phase constitutes of the entire project, and do NOT reflect the exact amounts paid per payment. Usually payment certificates reflect work done in several work phases, which have not necessarily all been completed. Verification of the % complete will be at the sole discretion of the Engineer.
- .4 ANNEXURE F presents a **pro forma payment certificate**. This will be used in conjunction with ANNEXURE B (Work phase schedule). The latter provides an approximate maximum to prevent over-payment of items that have been clearly over-priced.
- .5 Part payments will be made after the Department has approved the completion of each construction phase.

#### 10) DEFECT LIABILITY PERIOD

The contractor shall unconditionally guarantee all materials, workmanship related to the works for a minimum period of twelve (12) months. The guarantee shall cover any defects due to inferior materials and/or workmanship of the Contractor, or any of his sub-contractors, fair wear and tear excepted. The Contractor shall repair, remedy or replace any such defects, part or complete works without delay and at his own cost.

If any defects are not remedied within the period specified by the Head of Department, then the Head of Department shall have such defect repaired, at the risk and cost to the appointed Contractor, by another Contractor whom the Head of Department deems to be proficient in the work without prejudice to any rights the Head of Department has against the defaulting contractor. The Head of Department will give written notice to the Contractor of such instances where he appoints another Contractor to remedy defects in the works.

#### 11) SERVICE LEVEL AGREEMENT

The successful Bidder and the Department will sign a Service Level Agreement prior to commencement of works. A proposed schedule of work must be provided by the contractor for the approval of the Engineer within 2 (two) weeks of receiving notification of a successful bid.

#### 12) COMMENCEMENT OF THE WORKS

The Department will organize a site hand-over to the consultant who will then be introduced to the project stakeholders and participants. The site shall only be accessible to consultant, contractor staff and Departmental representatives while work is in progress. If this contract entails the siting, drilling, testing and equipping of more than one borehole, work on more than one site should commence simultaneously. The site(s) will be handed back after practical completion. Site establishment must start **within one week**, and the actual works **within one week** after hand-over of the site, provided that an official order has been issued and that no exceptional circumstances such as inclement weather or other outside the control of either party to the contract prevail. In the case the work has not commenced within three weeks of the hand-over and no extenuating circumstances for the delay can be provided, the Department reserves itself the right to cancel the contract and appoint one of the other contractors that have works.

#### 13) COMPLETION OF THE WORKS

The project is to be completed within 3 months of award of Bid, provided that the order was received within two weeks after award of the Bid. In case of the drilling and equipping of more than one borehole, an extended period should be agreed upon, which will be part of the Implementation plan/Work schedule as drawn up by the contractor before commencement of the works and included in the Service Level Agreements.

#### 14) RATE OF PROGRESS

The Works shall be completed within the time period indicated on the official order form. If the Works are delayed by cessation of work by any workmen, inclement weather, or by any omissions, additions, substitutions or variations of the Works, or of any items of work, labour or material, or other causes beyond the Contractor's control then the Contractor shall have the right within twenty-one days of any such cause of delay arising, to apply in writing to the Department to extend the date of completion, stating the cause of delay and period of extension applied for. The Department upon receipt of such written application may by order in writing extend such date of completion by a period to be determined, or may refuse to extend such date of completion, or may postpone giving a decision upon such application until completion of the Contract period set out in sub-clause (a) of this clause. The date of completion will be extended only to the extent approved by the Department. Should the Contractor fail to apply in writing for an extension within the time set out above, or should the Department refuse to grant any extension in writing, then the Contract period provided by sub-clause (a) of this clause shall not be exceeded. When the Works are completed the Department will give a completion certificate and the date of such certificate shall be the date of commencement of the guarantee period.

#### 15) TIME TO BE OF THE ESSENCE

Time shall be considered as the essence of the Contract. If, therefore, the Contractor fails to commence work or the Works or to proceed with and complete the Works in compliance with the projected timeframes, then the Head of Department shall have the right in his/her absolute discretion to adopt and exercise all or any of the following courses wholly or partly, viz: -

- To direct the Contractor, in writing, on any day named therein to suspend and discontinue the execution of the Works, and to withdraw himself and his workmen from the said Site or Sites, and thereupon: -
- To make any Contract or Contracts by calling for Bids or otherwise with any other Contractor or Contractors for the completion of the Works, or any part thereof, at such times and upon such terms as to the Department shall deem best.
- To provide such number of men, or purchase such materials, or both provide the men and purchase the materials as to him shall seem fit and proceed with and complete the said Works.

In relation to the foregoing provisions the Department shall charge any sums of money which may be paid by the Department for completing the said Contract against the Contractor and if such amount shall exceed this Contract, then the Department shall have the right to recover such excess or any balance thereof from the Contractor by legal proceedings.

#### 16) WORK SCHEDULE & PROGRESS PAYMENTS

The contractor is to supply a Gantt chart with the proposed times of completion of each phase. The progress payments suggested in **ANNEXURE B** serve as a guideline for part payments. However, the contractor, in consultation with the Engineer, may deviate from this as long as the claim does not exceed the actual progress made.

## C) PROJECT TECHNICAL SPECIFICATIONS

### 1) SPECIFIC SCOPE OF WORKS

To Facilitate the Siting, Drilling, Testing and Equipping of boreholes as indicated in Section A: Project Particulars, clause 1.

- a. Geohydrological Desktop study, Geophysical survey (instruments) and selection of drilling target.
  - Geohydrological services are to conform to the standards detailed in the “Minimum Standards and Guidelines for Groundwater Resource Development for the Community Water Supply and Sanitation Programme” by the Department of Water Affairs and Forestry 1997. The consultant /

organization must be recognized for their proficiency in hydro-geological services.

- Study and interpretation of published geological and hydro-geological maps,
- aerial photography and ortho photos (if available)
- Interrogation of available existing databases - National Groundwater Archive (NGA) and the Groundwater Resource Information Project (GRIP) and WARMS
- The siting of a potential groundwater borehole position must be preceded by the pre-feasibility desktop study to maximise the success rate within the most cost effective and productive manner. Drilling targets need to be identified based on scientific methods and offering the greatest potential success in terms of yield and access.
- Geophysical borehole siting is to be conducted utilizing a minimum of two methods by an experienced hydro-geological consultant / team Geophysical techniques include but are not limited to:
  - Magnetic surveys
  - Frequency domain electromagnetic surveys
  - Gravimetric surveys
  - Electrical resistivity surveys
  - Seismic refraction surveys
- More than one potential position is required per project, based on whether or not the geophysical results show good potential for ground-water. The minimum requirements are as follows:
  - Production application: a minimum of two (2) potential positions (pegs) required per project.

Geophysical techniques include but are not limited to:

b. Drilling of boreholes.

- The drilling contractor will function under the direct and full-time on-site supervision of the hydro-geological consultant (unless otherwise specified). The hydro-geological consultant will be responsible for guiding the borehole construction for all aspects of that construction, inclusive of technical and management aspects. The hydro-geological consultant will be required to verify and document the construction parameters of the borehole as well as to log the geological formation encountered in that borehole.

<b>Drilling method</b>	<b>Geological formation for drilling method used</b>
Rotary air percussion	All consolidated rock formations (with limited overburden)
ODEX / Symetrix	In all formation
Rotary mud flush	In extensive unconsolidated soil formation

c. Pump Test, Water Sampling and laboratory water analysis.

- The test pumping contractor will function under the direct supervision of the hydro-geological consultant (unless otherwise specified). The hydro-geological consultant will be responsible for the required instruction and on site supervision of the testing of the borehole and for all aspects of the testing of that borehole, inclusive of technical and management aspects. The hydro-geological consultant will be required to verify, document and interpret test results and make borehole utilisation and pumping recommendations. Payment shall be made according to the type of test performed and per borehole tested. Test pumping will typically be as follows:
  - Step test ( 4 x 1 hr duration and 4 hrs maximum recovery or 95% recovered, 24 hour constant discharge test (CDT) and associated recovery (of maximum 24 hrs of 95% recovered)
- Groundwater sampling during the CDT with laboratory supplied containers and submission within 24 hrs for a SANS 241: 2015 Drinking Water Standards Abbreviated Analysis.

d. Equipping of boreholes.

- The hydro-geological consultant will be required to verify, document and interpret test results and make pump and pumping recommendations. The pump specifications will be guided by the sustainable yield, hydraulic head conditions and the water requirements at the site.
- The borehole will be equipped with the recommended submersible pump powered by the recommended power supply i.e. Generator
- Proposed SVM Franklin Pump, Motor 1.1Kw and Control Box 1.1Kw (or equivalent to be discussed with Engineer before installation), supplied by 4mm X 4 core electric cable and secured with heavy duty nylon ski-rope.
- Generator - 6.5 Kva with combination battery powered and pull start

- 3m Galvanised Tank Stand secured with 20MPa concrete footings (500 mm X 500 mm X 500 mm).
- 5000L Jojo tank braced with 4mm wire ties to tank stand
- 2 X 500L Jojo drinking troughs secured to the ground with 50mm X 50mm X 2mm galvanised frame. Frame to be secured in the ground with concrete footings.
- Tap and tap stand secured in concrete and pvc piping 800mm above the concrete slab.
- Concrete slab is to be 15Mpa (1.2m X 1m X 200mm). The slab is to be recessed 50mm below natural ground level and runoff must drain away from the water collection point.
- Supply (rising main) and delivery lines is to be 32mm HDPE class 10 (SABS approved), 100 m supply from borehole and a maximum of 200 m delivery to water points.
- Trenching for piped water supply to be 600mm deep by 300 mm wide
- Fittings - control valves must be visited on both independent supply lines from the Jojo tank to the drinking troughs and the tap. The drinking troughs are to be further fitted with control valves before the float valve.
- The borehole pump will be secured in a concrete ring. Galvanised lockable lid to be used to secure control box and pump (Alternative to be discussed with Engineer prior to any installations). The ring or lid to be fitted with ease of use lockable box which houses plug lead to prevent the continuous opening and closing of the lid.
- All operation and service manuals to be supplied on commissioning.

e. Testing and commissioning of boreholes.

- A complete operational test will be performed of the borehole pump and all associated pipes and fittings. The Geohydrologist will be required to be present on site to verify proper functioning of the borehole and to commission each project.

f. Technical Report.

- The PSP will compile a comprehensive technical report based on the findings and results of the investigation. This would include the outcomes of the desktop review, geophysical investigation, drilling and testing data, analysis and interpretation, equipping and reticulation design.

## 2) MATERIALS AND CONSTRUCTION

All materials must conform to SABS specifications for the products. This includes all items such as piping, HDPE fittings, tank stands, reservoir tank, all other fittings, borehole pump and control box, etc.

All construction works must conform to the applicable standard specifications and installation requirements as per NBR requirements and manufacturers recommendations. All concrete works to conform to Cement & Concrete Institute standards and recommendations.

**STANDARD CONCRETE MIXES: (Class B concrete Slabs and footings)**

Mixing, pouring and curing of concrete: SABS 1200 GA (5.4)

Materials: SABS 1200 AA (3); SABS 1200 GA (3)

Cement: Common cement 32,5N or R to SANS 50197-1

Testing: SABS 1200 AA (7); SABS 1200 GA (7)

Quality control through the slump test SABS 1200 GA (5.4.1.2) SABS method 862. The contractor is to supply the slump testing equipment.

Tolerances to SABS 1200 GA (6.4)

Formwork: Refer to SABS 1200 GA (4.4; 5.2)

Reinforcing: SABS 1200 GA (5.1)

Refer to standard concrete mixes specification.

- The borehole will be equipped with the recommended submersible pump powered by the recommended power supply i.e. Generator
- Proposed SVM Franklin Pump, Motor 1.1Kw and Control Box 1.1Kw (or equivalent to be discussed with Engineer before installation), supplied by 4mm X 4 core electric cable and secured with heavy duty nylon ski-rope.
- Generator - 6.5 Kva with combination battery powered and pull start
- 3m Galvanised Tank Stand secured with 20MPa concrete footings (500 mm X 500 mm X 500 mm).
- 5000L Jojo tank braced with 4mm wire ties to tank stand
- 2 X 500L Jojo drinking troughs secured to the ground with 50mm X 50mm X 2mm galvanised frame. Frame to be secured in the ground with concrete footings.
- Tap and tap stand secured in concrete and pvc piping 800mm above the concrete slab.
- Concrete slab is to be 15Mpa (1.2m X 1m X 200mm). The slab is to be recessed 50mm below natural ground level and runoff must drain away from the water collection point.
- Supply (rising main) and delivery lines is to be 32mm HDPE class 10 (SABS approved), 100 m supply from borehole and a maximum of 200 m delivery to water points.
- Trenching for piped water supply to be 600mm deep by 300 mm wide
- Fittings - control valves must be visited on both independent supply lines from the Jojo tank to the drinking troughs and the tap. The drinking troughs are to be further fitted with control valves before the float valve.
- The borehole pump will be secured in a concrete ring. Galvanised lockable lid to be used to secure control box and pump (Alternative to be discussed with Engineer prior to any installations). The ring or lid to be fitted with ease of use lockable box which houses plug lead to prevent the continuous opening and closing of the lid.
- All operation and service manuals to be supplied on commissioning.

e. Testing and commissioning of boreholes.

- A complete operational test will be performed of the borehole pump and all associated pipes and fittings. The Geohydrologist will be required to be present on site to verify proper functioning of the borehole and to commission each project.

f. Technical Report.

- The PSP will compile a comprehensive technical report based on the findings and results of the investigation. This would include the outcomes of the desktop review, geophysical investigation, drilling and testing data, analysis and interpretation, equipping and reticulation design.

## 2) MATERIALS AND CONSTRUCTION

All materials must conform to SABS specifications for the products. This includes all items such as piping, HDPE fittings, tank stands, reservoir tank, all other fittings, borehole pump and control box, etc.



All construction works must conform to the applicable standard specifications and installation requirements as per NBR requirements and manufacturers recommendations. All concrete works to conform to Cement & Concrete Institute standards and recommendations.

**STANDARD CONCRETE MIXES: (Class B concrete Slabs and footings)**

Mixing, pouring and curing of concrete: SABS 1200 GA (5.4)

Materials: SABS 1200 AA (3); SABS 1200 GA (3)

Cement: Common cement 32,5N or R to SANS 50197-1

Testing: SABS 1200 AA (7); SABS 1200 GA (7)

Quality control through the slump test SABS 1200 GA (5.4.1.2) SABS method 862. The contractor is to supply the slump testing equipment.

Tolerances to SABS 1200 GA (6.4)

Formwork: Refer to SABS 1200 GA (4.4; 5.2)

Reinforcing: SABS 1200 GA (5.1)

Refer to standard concrete mixes specification.

**STANDARD CONCRETE MIXES:**

Concrete for non-structural purposes shall be "Prescribed mix concrete" produced in accordance with the requirements indicated in table 5.1, and the Contractor is also referred to the foregoing preambles insofar as they apply: -

Class of Concrete	Estimated Minimum Compressive Strength in MPA at 28 Days	Maximum Nominal Size of Coarse Aggregate in mm	Proportion of Constituents		
			Cement (Parts)	Fine Aggregate (Parts)	Coarse Aggregate (Parts)
A	10	37,5	1 (=2 bags)	4	5
B	15	19,0	1 (=2 bags)	3	4
C	20	19,0	1 (=2 bags)	2½	3½
D	25	19,0	1 (=2 bags)	2	3
E	30	19,0	1 (=2 bags)	2	2½

Cement and aggregates shall be mixed by volume and the contents of a 50kg sack of cement shall be taken to be 0,033m<sup>3</sup>. Water addition should be kept to a minimum. Only sufficient water should be used to produce a workable mix of 60-100mm slump. A recommended maximum water: cement ratio is 1 for a 10Mpa; 0.8 for a 15Mpa; 0.65 for a 20Mpa; 0.59 for a 25Mpa; 0.53 for a 30Mpa mix, however the lower the ratio the better the durability of the concrete. Approximately 210 litres per m<sup>3</sup> of concrete is required for an average quality sand and optimum quantity 19mm stone.

**BILL OF QUANTITIES  
GEOHYDROLOGICAL SERVICES**

Payment Reference	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
-------------------	-------------	------	-----	------	--------

1	<b>PRE-FEASIBILITY DESKTOP STUDY</b>	project	1		
2	<b>GEOPHYSICAL BOREHOLE SITING</b> To include travel, accommodation, travel time and all related disbursements.	project	1		
3	<b>DRILLING SUPERVISION</b> Full-time supervision for a field hydrogeologist. To include travel, accommodation, travel time and all related disbursements.	day	2		
4	<b>TESTING SUPERVISION</b> Full-time supervision for a field hydrogeologist. To include travel, accommodation, travel time and all related disbursements.	day	2		
5	<b>EQUIPPING</b> Site monitoring by hydrogeologist. To include travel, travel time and all related disbursements.	day	1		
6	<b>REPORTING</b> Inclusive of professional time and all associated disbursements. Technical report in a word format, to detail study approach, results, recommendation complete with all geophysical data, drill log, test data and applicable maps and photographs.	No.	1		
7	<b>COMMISSIONING</b> Commissioning of project with Departmental Engineer, Extension Departmental Officer and community participants. <i>To include travel, accommodation, travel time and all related disbursements.</i>	Project	1		
8	<b>PROJECT MANAGEMENT</b> To include professional fees for overall management of the project and disbursements for communications, printing etc.	Project	1		
9	<b>SUBMISSION OF INFORMATION TO EMPLOYER</b> All borehole data needs to be sent to DWS in a specified format	Project	1		
10	<b>Community Liaison</b> Deployment of a social scientist to facilitate discussions with Office of the Speaker, ward Cllrs and community leaders to ensure proper planning and implementation	Project	1		

<b>SUB TOTAL</b>	
<b>ADD: 15% VAT</b>	

<b>TOTAL CARRIED FORWARD</b>	
------------------------------	--

**BILL OF QUANTITIES  
DRILLING OF BOREHOLE**

ITEM NO	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
1	<b>ESTABLISH</b>				
1.1	Initial establishment to site for drilling	No.	1		
1.2	Set-up at site				
	a) Percussion	No.	1		
2	<b>DRILLING OF BOREHOLES</b>				
2.1	For internal borehole diameter of 165mm				
2.1.1	<b>Air Percussion Drilling</b>				
	a) Drilling Depth Range : 0 - 150m	m	150		
	216 mm drilling diameter	m	30		
	165 mm drilling diameter	m	120		
	b) Mild Steel 3- 4mm wall thickness	m	30		
	c) Development (Air Flush)	hr	1		
	d) Silica grit 3-5 mm	m	rate only		
	e) Sanitary Seal (3-5m)	project	1		
	f) Concrete Collar	project	1		
	g) Borehole protection (welding of casing)	project	1		
	h) Borehole marking (as per DWS specification)	project	1		
	<i>To include travel, accommodation, travel time and all related disbursements.</i>				

<b>SUB TOTAL</b>	
<b>ADD: 15% VAT</b>	
<b>TOTAL CARRIED FORWARD</b>	

**BILL OF QUANTITIES  
TEST PUMPING**

ITEM NO	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
1	<b>Establishment and Set-up Pump Testing</b>	No.	1		
2	<b>Pump Test</b>				
	To include stepped discharge test (4hr discharge), 24hr constant discharge, recovery monitoring (28hrs)	No.	1		
3	<b>Borehole Disinfection - Granular chlorine (HTH or equivalent)</b>	No.	1		
4	<b>Borehole capping (re-welding of casing)</b>	No.	1		
5	<b>Data Recording - (hard copy field sheet and digital excel spreadsheet including log graphs)</b>	No.	1		
6	<b>Water level monitoring at observation borehole</b>	No.	rate only		
7	<b>Collection of water sample (cold storage and delivery to the laboratory)</b>	No.	1		
8	<b>SANS 241 (2015) Abbrev. at accredited laboratory</b>	No.	Rate		
	<i>To include travel, accommodation, travel time and all related disbursements.</i>				
<b>SUB TOTAL</b>					
<b>ADD: 15% VAT</b>					
<b>TOTAL CARRIED FORWARD</b>					

**BILL OF QUANTITIES  
EQUIPPING TO ALLOW 6 HRS OF PUMPING TO FILL 2 X 5M3 STORAGE TANKS**

ITEM NO	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
1	Establishment, Set-up and Equipping(labour)	No.	1		
2	Disinfection of borehole (only if pathogens indicated by total coliforms and e-Coli, are present)	No.	1		
3	Trenching (600mm X 300mm)	m	230		
4	SVM 3019 Pump & 1.1kw Franklin Motor	No.	1		
5	Franklin Box Std 1.1kw	No.	1		
6	Piping 32mm Class 10 HDPE (SABS approved)	m	300		
7	Fittings (Termination kit, safety rope, compression fittings, external fittings, tank fittings, tap stand and tap)	No.	1		
8	Cable 4mm (4 core)	m	100		
9	Petrol Generator (6.5kVa) Mounted on Wheelbarrow frame	No.	1		
10	Galvanized tank Stand (3m High)	No.	2		
11	Jojo Tank 5000L	No.	2		
12	Protective Pump House (Concrete ring with lockable lid)	No.	1		
13	Tap stand with Concrete block (1.5m X 1m X 200mm (20 MPa)	No.	1		
14	Drinking trough (500L side by side) Secured to the ground with 50mm X 50mm X 2mm galvanised frame. Frame to be secured in the ground with concrete footings.	No.	2		
15	Commissioning of borehole On site for snags <i>To include travel, accommodation, travel time and all related disbursements.</i>	No.	1		
<b>SUB TOTAL</b>					
<b>ADD: 15% VAT</b>					
<b>TOTAL CARRIED FORWARD</b>					

**ANNEXURE A : Work Phases Schedule for Drilling and Equipping of a Single Borehole**

**Please note these values are primarily estimates of what part the work phase constitutes of the entire project, and do NOT reflect the exact amounts per part payment. Usually payment certificates reflect work done in several work phases, which do not necessarily mean that they have been completed.**

<b>Work phase No.</b>	<b>PHASE DESCRIPTION</b>	<b>App. % of work/ contract</b>
<b>1</b>	<b>Hydrogeological Services</b>	<b>20%</b>
<b>2</b>	<b>Drilling</b>	<b>20%</b>
<b>3</b>	<b>Pump Test and laboratory water sampling.</b>	<b>10%</b>
<b>4</b>	<b>Equipping of borehole</b>	<b>50%</b>
	<b>TOTAL</b>	<b>100%</b>

**KINDLY COMPLETE PLEASE!!!**

**SBD 4**

**DECLARATION OF INTEREST**

1. Any legal person, including persons employed by the state<sup>1</sup>, or persons having a kinship with persons employed by the state, including a blood relationship, may make an offer or offers in terms of this invitation to bid (includes a price quotation, advertised competitive bid, limited bid or proposal). In view of possible allegations of favouritism, should the resulting bid, or part thereof, be awarded to persons employed by the state, or to persons connected with or related to them, it is required that the bidder or his/her authorised representative declare his/her position in relation to the evaluating/adjudicating authority where-

- the bidder is employed by the state; and/or
- the legal person on whose behalf the bidding document is signed, has a relationship with persons/a person who are/is involved in the evaluation and or adjudication of the bid(s), or where it is known that such a relationship exists between the person or persons for or on whose behalf the declarant acts and persons who are involved with the evaluation and or adjudication of the bid.

2. In order to give effect to the above, the following questionnaire must be completed and submitted with the bid.

2.1 Full Name of bidder or his or her representative: .....

2.2 Identity Number: .....

2.3 Position occupied in the Company (director, trustee, shareholder<sup>2</sup>): .....

2.4 Company Registration Number: .....

2.5 Tax Reference Number: .....

2.6 VAT Registration Number: .....

2.6.1 The names of all directors / trustees / shareholders / members, their individual identity numbers, tax reference numbers and, if applicable, employee / persal numbers must be indicated in paragraph 3 below.

<sup>1</sup>"State" means -

- (a) any national or provincial department, national or provincial public entity or constitutional institution within the meaning of the Public Finance Management Act, 1999 (Act No. 1 of 1999);
- (b) any municipality or municipal entity;
- (c) provincial legislature;
- (d) national Assembly or the national Council of provinces; or
- (e) Parliament.

<sup>2</sup>"Shareholder" means a person who owns shares in the company and is actively involved in the management of the enterprise or business and exercises control over the enterprise.



**KINDLY COMPLETE PLEASE!!!**

2.7 Are you or any person connected with the bidder presently employed by the state? **YES / NO**

2.7.1 If so, furnish the following particulars:

Name of person / director / trustee / shareholder/ member: .....  
Name of state institution at which you or the person connected to the bidder is employed : .....  
Position occupied in the state institution: .....

Any other particulars:  
.....  
.....  
.....

2.7.2 If you are presently employed by the state, did you obtain the appropriate authority to undertake remunerative work outside employment in the public sector? **YES / NO**

2.7.2.1 If yes, did you attached proof of such authority to the bid document? **YES / NO**

(Note: Failure to submit proof of such authority, where applicable, may result in the disqualification of the bid.

2.7.2.2 If no, furnish reasons for non-submission of such proof:

.....  
.....  
.....

2.8 Did you or your spouse, or any of the company's directors / trustees / shareholders / members or their spouses conduct business with the state in the previous twelve months? **YES / NO**

2.8.1 If so, furnish particulars:

.....  
.....  
.....

2.9 Do you, or any person connected with the bidder, have any relationship (family, friend, other) with a person employed by the state and who may be involved with the evaluation and or adjudication of this bid? **YES / NO**



**KINDLY COMPLETE PLEASE!!!**

**4 DECLARATION**

I, THE UNDERSIGNED (NAME).....

CERTIFY THAT THE INFORMATION FURNISHED IN PARAGRAPHS 2 and 3 ABOVE IS CORRECT.  
I ACCEPT THAT THE STATE MAY REJECT THE BID OR ACT AGAINST ME IN TERMS OF  
PARAGRAPH 23 OF THE GENERAL CONDITIONS OF CONTRACT SHOULD THIS DECLARATION  
PROVE TO BE FALSE.

.....  
Signature

.....  
Date

.....  
Position

.....  
Name of bidder

May 2011

**CERTIFICATE OF INDEPENDENT BID DETERMINATION**

- 1 This Standard Bidding Document (SBD) must form part of all bids<sup>1</sup> Invited.
- 2 Section 4 (1) (b) (iii) of the Competition Act No. 89 of 1998, as amended, prohibits an agreement between, or concerted practice by, firms, or a decision by an association of firms, if it is between parties in a horizontal relationship and if it involves collusive bidding (or bid rigging).<sup>2</sup> Collusive bidding is a *pe se* prohibition meaning that it cannot be justified under any grounds.
- 3 Treasury Regulation 16A9 prescribes that accounting officers and accounting authorities must take all reasonable steps to prevent abuse of the supply chain management system and authorizes accounting officers and accounting authorities to:
  - a. disregard the bid of any bidder if that bidder, or any of its directors have abused the institution's supply chain management system and or committed fraud or any other improper conduct in relation to such system.
  - b. cancel a contract awarded to a supplier of goods and services if the supplier committed any corrupt or fraudulent act during the bidding process or the execution of that contract.
- 4 This SBD serves as a certificate of declaration that would be used by institutions to ensure that, when bids are considered, reasonable steps are taken to prevent any form of bid-rigging.
- 5 In order to give effect to the above, the attached Certificate of Bid Determination (SBD 9) must be completed and submitted with the bid:

<sup>1</sup> Includes price quotations, advertised competitive bids, limited bids and proposals.

<sup>2</sup> Bid rigging (or collusive bidding) occurs when businesses, that would otherwise be expected to compete, secretly conspire to raise prices or lower the quality of goods and / or services for purchasers who wish to acquire goods and / or services through a bidding process. Bid rigging is, therefore, an agreement between competitors not to compete.

**CERTIFICATE OF INDEPENDENT BID DETERMINATION**

I, the undersigned, in submitting the accompanying bid:

\_\_\_\_\_  
(Bid Number and Description)

in response to the invitation for the bid made by:

\_\_\_\_\_  
(Name of Institution)

do hereby make the following statements that I certify to be true and complete in every respect:

I certify, on behalf of: \_\_\_\_\_ that:  
(Name of Bidder)

1. I have read and I understand the contents of this Certificate;
2. I understand that the accompanying bid will be disqualified if this Certificate is found not to be true and complete in every respect;
3. I am authorized by the bidder to sign this Certificate, and to submit the accompanying bid, on behalf of the bidder;
4. Each person whose signature appears on the accompanying bid has been authorized by the bidder to determine the terms of, and to sign the bid, on behalf of the bidder;
5. For the purposes of this Certificate and the accompanying bid, I understand that the word "competitor" shall include any individual or organization, other than the bidder, whether or not affiliated with the bidder, who:
  - (a) has been requested to submit a bid in response to this bid invitation;
  - (b) could potentially submit a bid in response to this bid invitation, based on their qualifications, abilities or experience; and
  - (c) provides the same goods and services as the bidder and/or is in the same line of business as the bidder

6. The bidder has arrived at the accompanying bid independently from, and without consultation, communication, agreement or arrangement with any competitor. However communication between partners in a joint venture or consortium<sup>3</sup> will not be construed as collusive bidding.
7. In particular, without limiting the generality of paragraphs 6 above, there has been no consultation, communication, agreement or arrangement with any competitor regarding:
  - (a) prices;
  - (b) geographical area where product or service will be rendered (market allocation)
  - (c) methods, factors or formulas used to calculate prices;
  - (d) the intention or decision to submit or not to submit, a bid;
  - (e) the submission of a bid which does not meet the specifications and conditions of the bid; or
  - (f) bidding with the intention not to win the bid.
8. In addition, there have been no consultations, communications, agreements or arrangements with any competitor regarding the quality, quantity, specifications and conditions or delivery particulars of the products or services to which this bid invitation relates.
9. The terms of the accompanying bid have not been, and will not be, disclosed by the bidder, directly or indirectly, to any competitor, prior to the date and time of the official bid opening or of the awarding of the contract.

<sup>3</sup> Joint venture or Consortium means an association of persons for the purpose of combining their expertise, property, capital, efforts, skill and knowledge in an activity for the execution of a contract.

**SBD 9**

10. I am aware that, in addition and without prejudice to any other remedy provided to combat any restrictive practices related to bids and contracts, bids that are suspicious will be reported to the Competition Commission for investigation and possible imposition of administrative penalties in terms of section 59 of the Competition Act No 89 of 1998 and or may be reported to the National Prosecuting Authority (NPA) for criminal investigation and or may be restricted from conducting business with the public sector for a period not exceeding ten (10) years in terms of the Prevention and Combating of Corrupt Activities Act No 12 of 2004 or any other applicable legislation.

.....  
Signature

.....  
Date

.....  
Position

.....  
Name of Bidder

Js914w 2