

**TOLULOPE TOLUSE EMMANUEL.A**

**15/ENG07/044**

**SUBMITTED TO THE**

**CIVIL ENGINEERING PROGRAMME**

**DEPAERTMENT OF CIVIL ENGINEERING**

**COLLEGE OF ENGINEERING**

**AFE BABALOLA UNIVERSITY, ADO-EKITI, NIGERIA**

**IN PARTIAL FULFILMENT OF THE REQUIRMENT FOR THE**

**AWARD OF THE BACHELOR OF ENGINEERING [B.ENG]**

**DEGREE IN PETROLEUM ENGINEERING**

QUESTION 1

Prepare Bill of Engineering Measurement and Evaluation (BEME) FOR A TYPICAL Engineering Contract in your area of speciality.

solution

A contract for a borehole drilling.

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **BILL OF QUANTITIES FOR BOREHOLE DRILLING** | | | | | | | | | | | |
| ***Client Name:*** | | | Mr. Eric Otieno | | | ***Date:*** | | | 1st September 2015 | | |
| ***B/Hole Contract:*** | | | Obambo - Kisumu | | | ***File Ref:*** | | | SPR 4756/15 | | |
| **Item** | **Description** | | | **Qty** | | **Unit** | | **Rate K.Shs.** | | | **Total K.Shs.** |
| 1 | | | | | | Allow for the cost of transporting all equipment, and | | | | | |
| personnel to site and demobilisation at completion of | | | | | | | | | | | |
| contract | | - | | | Sum | | 80,000.00 | | | 80,000.00 | |
| 2 | Setting up and dismantling of the rig at the drilling site. | | | - | | Sum | | 30,000.00 | | | 30,000.00 |
| 3 | Drilling 8" diameter borehole from 0-100m depth | | | 100 | | m | | 2,400.00 | | | 240,000.00 |
| 3.1 | Drilling 8" diameter borehole from 100-110m depth | | | 10 | | m | | 2,500.00 | | | 25,000.00 |
| 3.2 | | | | | | Drilling 8" diameter borehole above 110m depth | | | | | |
| if necessary. | | | m | | | 3,000.00 | | | Rate Only | | |
| 4 | | | | | | Water for drilling and camp use, maintenance of storage | | | | | |
| tanks, water injection systems and useage of | | | | | | | | | | | |
| drilling foam | | - | | | Sum | | 30,000.00 | | | 30,000.00 | |
| 5 | Supply and Install 152mm dia plain steel casings | | | 74 | | m | | 2,700.00 | | | 199,800.00 |
| 6 | Supply and Install 152mm dia plasma cut steel casings | | | 36 | | m | | 2,800.00 | | | 100,800.00 |
| 7 | Supply and Install gravel pack in the borehole | | | 2 | | Ton | | 10,000.00 | | | 20,000.00 |
| 8 | | | | | | Allow for borehole development work (surging by air | | | | | |
| of completed well until the water is clean (Approx. 2 hrs) | | 2 | | | Hr | | 10,000.00 | | | 20,000.00 | |
| 9 | | | | | | Allow to the cost of:- | | | | | |
| (a) Reaming and boring. | | - | | | M | | 3,000.00 | | | Rate Only | |
| (b) Insert, remove temporary casing etc. | | - | | | Hr | | 3,200.00 | | | Rate Only | |
| (c) Insert 9" of temporary casing permanently. | | - | | | M | | 4,500.00 | | | Rate Only | |
| (d) Setting time. | | - | | | Ls | | 10,000.00 | | | Rate Only | |
| (e) Bentonite seal. | | - | | | Ls | | 8,000.00 | | | Rate Only | |
| 10 | | | | | | Pump testing completed well. Time taken to install | | | | | |
| and remove pump, will be charged at same hourly rate | | 24 | | | Hr | | 2,500.00 | | | 60,000.00 | |
| 11 | | | | | | Provide all materials and construct concrete | | | | | |
| top slab with well cap | | - | | | Sum | | 10,000.00 | | | 10,000.00 | |
| 12 | | | | | | Standby charges for reasons beyond the Contractor's | | | | | |
| control excluding force majeure conditions | | - | | | Hr | | 5,000.00 | | | Rate Only | |
| 13 | | | | | | Borehole Completion Data and Water Chemical | | | | | |
| Analysis Report | | - | | | Sum | | 10,000.00 | | | 10,000.00 | |
| 14 | | | | | | Supply and installation of one submersible pump capable | | | | | |
| of pumping 3m3/hr at a head of 90m including control | | | | | | | | | | | |
| panel, electrodes, electrode cable, underground cables | | | | | | | | | | | |
| float switch and various installation accessories | | - | | | Sum | | 600,000.00 | | | Rate Only | |
| **Sub Total** | | | | | | **825,600.00** | | | | | |
| **Less Special Discount as the rig is in the area** | | | | | | **30,000.00** | | | | | |
| **795,600.00** | | | | | | | | | | | |
| **Add 16% VAT** | | | | | | **127,296.00** | | | | | |
| **Estimated Total Contract Sum** | | | | | | **922,896.00** | | | | | |

|  |
| --- |
| TERMS AND CONDITIONS OF CONTRACT |
| Drilling permit to be obtained by yourselves from Water Resources Management Authority before commencement |
| of any drilling works. |
| You will ensure that the actual borehole site is accessible by our Rig and support truck before moblisation. |
| We do not warrant or guarantee in anyway the quantity, quality, or kind of water, which may be |
| encountered on completion of the drilling works. |
| PAYMENT TERMS |
| 60% - Payable before mobilisation to site |
| 20% - Payable upon completion of drilling works |
| 10% - Payable upon completion of casings and gravel packing |
| Balance payable on the completion of the borehole after calculation of actual measured works. |
| This quotation is binding for 30 DAYS. |
| The Law of Contract Act as administered in the Law of Kenya Act shall be applicable, upon signing of Contract |
| Agreement which is intended to create legally binding obligations between the Contractor and the Client. |